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The World Bank

Report No: ICR3175

IMPLEMENTATION COMPLETION AND RESULTS REPORT  
(IDA-40430, IDA-H7960, TF-12592)

ON A

CREDIT IN THE AMOUNT OF SDR25.7 MILLION  
(US\$ 39.0 MILLION EQUIVALENT)

AND GRANTS IN THE AMOUNTS OF

SDR3.4 MILLION (US\$ 5.0 MILLION EQUIVALENT) FROM THE  
INTERNATIONAL DEVELOPMENT ASSOCIATION (IDA)

AND US\$5 MILLION FROM THE GLOBAL FOOD PRICE CRISIS RESPONSE  
PROGRAM (GFPCR)

TO THE

GOVERNMENT OF THE ISLAMIC REPUBLIC OF MAURITANIA

FOR A

SECOND PHASE OF THE INTEGRATED DEVELOPMENT PROGRAM FOR  
IRRIGATED AGRICULTURE IN MAURITANIA

November 26, 2014

Agriculture Global Practice (GAGDR)  
AFCF1  
Africa Region

## CURRENCY EQUIVALENTS

(Exchange Rate Effective 05/30/14)

Currency Unit = MRO  
1.00 MRO = US\$0.00339  
US\$ 1.00 = 287 MRO

FISCAL YEAR  
January 1 – December 31

## ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
AFD	<i>Agence Française de Développement</i> (French Agency for Development)
APL	Adaptable Program Loan
BAF	<i>Bureau des Affaires Foncières</i> (Bureau of Land Affairs)
BCM	<i>Banque Centrale de Mauritanie</i> (Central Bank of Mauritania)
BP	Bank Policy
CAADP	The Comprehensive Africa Agriculture Development Program
CAS	Country Assistance Strategy
CBA	Cost Benefit Analysis
CBRD	Community-based Rural Development Project
CDD	<i>Caisse de Dépôt et de Développement</i> (Savings and Development Bank)
CNRADA	<i>Centre National de Recherche Agronomique et de Développement Agricole</i> (National Agricultural Research and Development Center)
CSA	<i>Commissariat à la Sécurité Alimentaire</i> (Commissariat for Food Security)
DPCSE	<i>Direction des Politiques, de la Coopération et du Suivi-Evaluation</i> (Department of Policies, Cooperation and Monitoring and Evaluation,)
DRM	Disaster Risk Management
EMEA	<i>Enquête ménage et exploitation agricole</i> (Household and farm survey)
ERR	Economic Rate of Return
ESMP	Environmental and Social Management Plan
EU	European Union
FM	Financial Management
FY	Fiscal Year
GFCRP	Global Food Crisis Response Program
GIS	Geographic Information System
ha	Hectare
ICR	Implementation Completion and Results Report
IDA	International Development Association
ISR	Implementation Status and Results Report
KPI	Key Performance Indicators
LPDAI	<i>Lettre de Politique de Développements de l'Agriculture Irriguée</i> (Letter of Development Policy for Irrigated Agriculture)

M&E	Monitoring and Evaluation
MDR	<i>Ministère de Développement Rural</i> (Ministry of Rural Development)
MDR-DA	<i>Direction de l'Agriculture</i> (Department of Agriculture)
MDR-DE	<i>Direction de l'Élevage</i> (Department of Livestock)
MDRE	<i>Ministère du Développement Rural et de l'Environnement</i> (Ministry of Rural Development and Environment)
MR	Mauritania
MS	Moderately Satisfactory
MT	Metric ton
MTR	Mid-Term Review
MU	Moderately Unsatisfactory
O&M	Operation and Maintenance
OMVS	<i>Organisation Pour la Mise en Valeur du Fleuve Sénégal</i> (Organization for the Development of the Senegal River)
OP	Operations Policy
ORAF	Operational Risk Assessment Framework
PAD	Project Appraisal Document
PA-PDRI	<i>Programme de Développement Rural Intégré</i> (Integrated Rural Development Program)
PCU	Project Coordinating Unit
PDIAIM	<i>Programme de Développements Intégré de l'Agriculture Irriguée en Mauritanie</i> (Integrated Development Program for Irrigated Agriculture in Mauritania)
PDO	Project Development Objective
PER	Public Expenditure Review
PGIRE	<i>Projet de Gestion Intégrée des Ressources en Eau et de Développement des usages à buts multiples</i> (Integrated Water Resources Management Project)
PIU	Project Implementation Unit
PMP	Pest Management Plan
PNIA/SA	<i>Programme National d'Investissement Agricole/ Sécurité Alimentaire</i> (National Agriculture and Food Security Investment Program)
PO	Producers' organization
PRBP	<i>Projet de Réhabilitation des Barrages et Pistes</i> (Rehabilitation of Dams and Access Roads Project)
PRSP	Poverty Reduction Strategy Paper
QAG	Quality Assurance Group
QEA	Quality at entry
QSA	Quality of supervision
SAFC	<i>Service des Affaires Foncières et de la Cartographie</i> (Office of Land Affairs and Cartography)
SAVS	<i>Stock Alimentaire Villageoise de Sécurité</i> (Village Food Security Stock)
SNSA	<i>Stratégie Nationale de Sécurité Alimentaire</i> (National Strategy for Food Security)
SOMELEC	<i>Société Mauritanienne d'Electricité</i> (Mauritanian Electricity Company)
SONADER	<i>Société Nationale de Développements Rural</i> (National Rural

	Development Corporation)
SONIMEX	<i>Société Nationale d'Importation et d'Exportation</i> (National Import and Export Corporation))
TF	Trust Fund
TTL	Task Team Leader
UM	Mauritania Ouguiya
UNCACEM	<i>Union Nationale des Coopératives Agricoles de Crédit et d'Epargne de Mauritanie</i> (National Union of Agricultural Cooperatives for Savings and Credit)
USD	United States dollars
WFP	World Food Program

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**MAURITANIA**  
**INTEGRATED DEVELOPMENT PROGRAM FOR IRRIGATED AGRICULTURE—**  
**APL # 2 (PDIAIM II)**  
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<b>A. Basic Information</b>			
Country:	Mauritania	Project Name:	MR: Integrated Development Program for Irrigated Agriculture (APL # 2)
Project ID:	P088828	L/C/TF Number(s):	IDA-40430,IDA-H7960,TF-12592
ICR Date:	11/25/2014	ICR Type:	Core ICR
Lending Instrument:	APL	Borrower:	GOVERNMENT OF MAURITANIA
Original Total Commitment (IDA):	USD 39.00M	Disbursed Amount (IDA):	USD 46.29M
Revised Amount (IDA):	USD 45.8M (includes the US\$5 million from GFCRP Trust Fund )		
<b>Environmental Category: A</b>			
<b>Implementing Agencies:</b> Ministry of Rural Development			
<b>Cofinanciers and Other External Partners: N/A</b>			

<b>B. Key Dates</b>				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	07/29/2004	Effectiveness:	07/13/2005	07/13/2005
Appraisal:	11/29/2004	Restructuring(s):		11/11/2010 12/22/2011 06/12/2012 07/06/2012 08/12/2013 02/07/2014
Approval:	03/17/2005	Mid-term Review:	04/30/2008	04/30/2008
		Closing:	12/31/2010	05/31/2014

<b>C. Ratings Summary</b>	
<b>C.1 Performance Rating by ICR</b>	
Outcomes:	Unsatisfactory
Risk to Development Outcome:	High
Bank Performance:	Unsatisfactory
Borrower Performance:	Unsatisfactory

<b>C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)</b>			
<b>Bank</b>	<b>Ratings</b>	<b>Borrower</b>	<b>Ratings</b>
Quality at Entry:	Moderately Satisfactory	Government:	Unsatisfactory
Quality of Supervision:	Unsatisfactory	Implementing Agency/Agencies:	Unsatisfactory
<b>Overall Bank Performance:</b>	Unsatisfactory	<b>Overall Borrower Performance:</b>	Unsatisfactory

<b>C.3 Quality at Entry and Implementation Performance Indicators</b>			
<b>Implementation Performance</b>	<b>Indicators</b>	<b>QAG Assessments (if any)</b>	<b>Rating</b>
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA):	Satisfactory
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Moderately Unsatisfactory		

<b>D. Sector and Theme Codes</b>		
	<b>Original</b>	<b>Actual</b>
<b>Sector Code (as % of total Bank financing)</b>		
Agricultural extension and research	20	20
Agro-industry, marketing, and trade	20	20
Crops	20	20
General public administration sector	15	15
Irrigation and drainage	25	25
<b>Theme Code (as % of total Bank financing)</b>		
Export development and competitiveness	23	23
Infrastructure services for private sector development	22	22
Land administration and management	11	11
Rural markets	22	22
Water resource management	22	22

<b>E. Bank Staff</b>		
<b>Positions</b>	<b>At ICR</b>	<b>At Approval</b>
Vice President:	Makhtar Diop	Gobind T. Nankani
Country Director:	Vera Songwe	A. David Craig
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Project Team Leaders:	Amadou Oumar Ba Christian Berger (for AF)	Ismael S. Ouedraogo
ICR Team Leader:	Sossena Tassew	
ICR Primary Author:	Franz M. Schorosch	

## F. Results Framework Analysis

### Project Development Objectives (from Project Appraisal Document)

The development objectives of the project are to: (i) consolidate key incentive measures, (ii) increase sustainable irrigation schemes, and (iii) intensify agricultural diversification for targeted actors engaged in irrigated agriculture.

### Revised Project Development Objectives (as approved by original approving authority)

The original PDO was not revised. However, the Emergency Project Paper indicated a new PDO for the AF operation without revising the original PDO: “The objective of the project is to improve availability of critical agricultural inputs and food staples for targeted beneficiaries”.

#### (a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
<b>Indicator 1 :</b>	Regional land registries allow verification of land awards on request			
Value quantitative or Qualitative)	NO (Restricted to land owners)	YES	-	NO
Date achieved	02/18/2005	09/30/2012	-	06/30/2012
Comments (incl. % achievement)	<b>Target not achieved (0%).</b> During initial years (2006 – 2011), regional land registries were operational. However, during 2012 the land registration process was suspended by the government and by the end of PDIAIM II, only one (the regional land registry in <i>Rosso</i> in the <i>Trarza</i> Region) was functioning.			
<b>Indicator 2 :</b>	UNCACEM maintains a financial self-sufficiency			
Value quantitative or Qualitative)	>100%	>100%		0%
Date achieved	02/18/2005	09/30/2012		03/13/2013
Comments (incl. % achievement)	<b>Target not achieved (0%).</b> Financial performance of UNCACEM deteriorated after 2007. During 2009, UNCACEM did not provide any credit for lack of liquidity. At Project closing UNCACEM was no longer operational and in 2013, the Government decided to replace it with a new public institution lending for agriculture: <i>Caisse de Dépôt et de Développement</i> (CDD).			
<b>Indicator 3 :</b>	Sustainable irrigation schemes are increased by 5,000 ha by the end of Phase II			

Value quantitative or Qualitative)	1,000 ha	6,000 ha		2,700
Date achieved	02/18/2005	09/30/2012		06/30/2012
Comments (incl. % achievement)	<b>Target partially achieved (34%).</b> The plan for phase 2 was to rehabilitate 5,000ha (4,500ha rehabilitation/extension and 500ha for diversification). It was furthermore assumed, that of the 5,000ha, 1,500ha would be rehabilitated by individual private irrigations farmers (with less than 40ha). At the end of PDIAIM II, only 1,700ha were rehabilitated (covering 21 perimeters) and individual private irrigation farmers did not rehabilitate any irrigation areas with support from the project.			
<b>Indicator 4 :</b>	Crop diversification under irrigation has doubled by the end of Phase II			
Value quantitative or Qualitative)	500 ha	1,000 ha		500ha
Date achieved	02/18/2005	09/30/2012		06/30/2012
Comments (incl. % achievement)	<b>Target not achieved (0%).</b> At the time of appraisal, it was estimated that other than rice, diversified crops covered 500 ha and the objective was to double this area by creating an additional 500ha of new perimeters dedicated to diversification. However, as reported by the independent evaluation team (Independent Evaluation Report, page 26) no new area/perimeters dedicated to diversification have been created. Instead the Project focused on POs already engaged in diversification activities.			
<b>Indicator 5 :</b>	ADDITIONAL FINANCING: Direct Project beneficiaries (number), of which female (percentage)			
Value quantitative or Qualitative)	0	279,000 (of which 40% women)	379,000	393,899 (of which 38.84% women)
Date achieved	07/06/2012	05/31/2014	08/13/2013	04/08/2014
Comments (incl. % achievement)	<b>Target overachieved (103%).</b> Overachievement due to decision by the Government to change the food distribution system (decrease the average amount of cereals per SAVS) and to increase the number of SAVS in order to maximize the number of beneficiaries (see indicator 8 below).			
<b>Indicator 6 :</b>	ADDITIONAL FINANCING: Direct Project beneficiaries disaggregated by type of benefit and by gender: fertilizer (Urea)			
Value quantitative or Qualitative)	0	29,000 (of which 5,800 women)		10,084 (of which 2,795 women)
Date achieved	07/06/2012	05/31/2014		04/08/2014
Comments (incl. % achievement)	<b>Target partially achieved (34%).</b> This was one of the activities that had been self-financed/implemented by the Government. The final data was taken from the clients' official M&E document.			
<b>Indicator 7 :</b>	ADDITIONAL FINANCING: Direct Project beneficiaries disaggregated by type of benefit and by gender: Livestock treatment			
Value quantitative or Qualitative)	0	100,000 (of which 30,000 women)		78,315 (of which 28,000 women)
Date achieved	07/06/2012	05/31/2014		04/08/2014

Comments (incl. % achievement)	<b>Target partially achieved (78%).</b> This was one of the activities that had been self-financed/implemented by the Government. The final data was taken from the clients' official M&E document.			
<b>Indicator 8 :</b>	ADDITIONAL FINANCING: Direct Project beneficiaries disaggregated by type of benefit and by gender: Cereals			
Value quantitative or Qualitative)	0	150,000 (of which 75,000 women)	250,000	305,500 (of which 122,200 women)
Date achieved	07/06/2012	05/31/2014	08/13/2013	04/08/2014
Comments (incl. % achievement)	<b>Target overachieved (122%).</b> The final data was taken from the clients' official M&E document. Overachievement is due to decision by the Government to change the food distribution system (decrease the average amount of cereals per SAVS from 12 tons to 7 tons) to reach an increased number of SAVS (thus maximize the number of beneficiaries). It should be noted here that despite an increased number of beneficiaries, this is at a significantly smaller quantum of cereals per SAVS (at about 65% of the original expected 12 tons).			

**(b) Intermediate Outcome Indicator(s)**

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
<b>Indicator 1 :</b>	SAFC/BAF process at least 75% of land registration requests within one (1) month			
Value (quantitative or Qualitative)	55%	75%		0%
Date achieved	02/18/2005	09/30/2012		03/13/2013
Comments (incl. % achievement)	<b>Target not achieved (0%).</b> As reported in the ISR no. 15, all land registration activities had been suspended by the Government in February 2011, and this was still the case by the end of the Project. In addition by the end of the project only one land registry office ( <i>Rosso</i> ) was still operational.			
<b>Indicator 2 :</b>	Strategy for rural finance expansion carried out			
Value (quantitative or Qualitative)	Not applicable	Carried out in year 2		Yes
Date achieved	02/18/2005	09/30/2012		06/30/2012
Comments (incl. % achievement)	<b>Target achieved (100%).</b> The study had been carried out.			
<b>Indicator 3 :</b>	Annual agricultural statistics are produced on time			
Value (quantitative or Qualitative)	On time	On time		Yes (results available)
Date achieved	02/18/2005	09/30/2012		06/30/2012
Comments (incl. % achievement)	<b>Target achieved (100%).</b> The statistics are produced on time and the results are available.			

achievement)			
<b>Indicator 4 :</b>	Producer Organizations (PO) of large-scale public irrigation schemes collect adequate water and O&M charges		
Value (quantitative or Qualitative)	0%	75%	54%
Date achieved	02/18/2005	09/30/2012	06/30/2012
Comments (incl. % achievement)	<b>Target partially achieved (72%).</b> According to the assessment done for 2011, it was reported that 54% of the POs collected the charges.		
<b>Indicator 5 :</b>	No rehabilitation/creation work straddles the rainy season		
Value (quantitative or Qualitative)	2	0	1
Date achieved	02/18/2005	09/30/2012	06/30/2012
Comments (incl. % achievement)	<b>Target partially achieved (50%).</b> About half of the perimeters to be rehabilitated suffered from construction delays.		
<b>Indicator 6 :</b>	Planned priority feasibility studies for Phase III are completed		
Value (quantitative or Qualitative)	Not applicable	Two (2) studies in year 3; Two (2) studies in year 4; and one (1) study in year 5	0
Date achieved	02/18/2005	09/30/2012	03/13/2013
Comments (incl. % achievement)	<b>Target not achieved (0%).</b> Since there was no Phase III, no feasibility studies for a follow up operation were carried out. Nevertheless, PDIAIM II financed a series of policy studies to assist the Government in defining its agricultural development strategy (the only study reported in the ISR number 15, was one of such studies).		
<b>Indicator 7 :</b>	All rice rehabilitated areas are sown with improved seed		
Value (quantitative or Qualitative)	100%	100%	90% (data from project)
Date achieved	02/18/2005	09/30/2012	03/13/2013
Comments (incl. % achievement)	<b>Target largely achieved (90%).</b> Based on data provided by the project's M&E system, during 2011, 90% of the rehabilitated area was sown with improved rice seed.		
<b>Indicator 8 :</b>	UNCACEM's loan reimbursement rate reaches at least 95% by the end of Phase II		
Value (quantitative or Qualitative)	90%	95%	0%
Date achieved	02/18/2005	09/30/2012	05/04/2013
Comments (incl. % achievement)	<b>Target not achieved (0%).</b> During 2010/2011, UNCACEM made no loans for agriculture because it was insolvent . Instead, it ceased to be an independent financial institution and became a fund receiving money from the Government which it distributed to farmers according to instructions it received. Eventually,		

	in 2013, the Government decided to replace UNCACEM, with a new public institution lending for agriculture: <i>Caisse de Dépôt et de Développements</i> .		
<b>Indicator 9 :</b>	Project-built storage and packaging centers are functional		
Value (quantitative or Qualitative)	0	3	0
Date achieved	02/18/2005	09/30/2012	06/30/2012
Comments (incl. % achievement)	<b>Target not achieved (0%).</b> The cold storage and packing infrastructure for <i>Rosso</i> was built during phase 2, but is not functional for lack of interest by private entrepreneurs to engage in the export of horticultural products. In addition the facility built, during phase 1, at the Nouakchott airport is used for other purpose (storage of fish).		
<b>Indicator 10 :</b>	Number of fruit and vegetable producers linked to export markets has doubled by the end of Phase II		
Value (quantitative or Qualitative)	8	16	0
Date achieved	02/18/2005	09/30/2012	06/30/2012
Comments (incl. % achievement)	<b>Target not achieved (0%).</b> As of December 2011, the Project changed focus to local market (ref. ISR no.13).		
<b>Indicator 11 :</b>	Audits are produced on time and without major reserves		
Value (quantitative or Qualitative)	100%	100%	100%
Date achieved	02/18/2005	09/30/2012	11/14/2013
Comments (incl. % achievement)	<b>Target achieved (100%).</b> Audit reports were produced on time and were unqualified.		
<b>Indicator 12 :</b>	M&E periodic reports are produced on schedule		
Value (quantitative or Qualitative)	Not applicable	All	All
Date achieved	02/18/2005	09/30/2012	03/13/2013
Comments (incl. % achievement)	<b>Target achieved (100%).</b> M&E reports were regularly produced and on schedule.		
<b>Indicator 13 :</b>	Impact studies are carried out (implementation of land tenure, social assessment, rural public expenditures)		
Value (quantitative or Qualitative)	0	3	2
Date achieved	02/18/2005	09/30/2012	05/14/2013
Comments (incl. % achievement)	<b>Target partially achieved (67%).</b> According to Project documents two (PER and Rural Strategy) out of the three studies were completed as of June 2012.		
<b>Indicator 14 :</b>	ADDITIONAL FINANCING: Additional fertilizer distributed to farmers		
Value	0 MT	4,400 MT	1,616 MT

(quantitative or Qualitative)				
Date achieved	07/06/2012	05/31/2014		04/08/2014
Comments (incl. % achievement)	<b>Target partially achieved (37%).</b> This was one of the activities that had been self-financed/implemented by the Government. The final data was taken from the clients' official M&E document. And according to the PIU, the 1.6 MT was the quantity of fertilizer distributed during 2011/12 and 2012/2013 to 10,000 farmers.			
<b>Indicator 15 :</b>	ADDITIONAL FINANCING: Percentage of additional fertilizer distributed on time for the cropping season (delay of less than 10 days compared to plan)			
Value (quantitative or Qualitative)	0% (MT)	80%		90%
Date achieved	07/06/2012	05/31/2014		04/08/2014
Comments (incl. % achievement)	<b>Target overachieved (112%).</b> This was one of the activities that had been self-financed/implemented by the Government. According to the data provided by the PIU, during 2013, 90% of fertilizer was distributed in time for the cropping season, compared to an objective of 80%.			
<b>Indicator 16 :</b>	ADDITIONAL FINANCING: Additional number of livestock vaccinated (disaggregated by type of livestock/vaccines): Large ruminants (camel and cattle) and donkeys			
Value (quantitative or Qualitative)	0	680,000		577,050
Date achieved	07/06/2012	05/31/2014		04/08/2014
Comments (incl. % achievement)	<b>Target partially achieved (85%).</b> This was one of the activities that had been self-financed/implemented by the Government. The final data was taken from the clients' official M&E document.			
<b>Indicator 17 :</b>	ADDITIONAL FINANCING: Additional number of livestock vaccinated (disaggregated by type of livestock/vaccines): Small ruminants (sheep and goats)			
Value (quantitative or Qualitative)	0	1,450,000		1,816,834
Date achieved	07/06/2012	05/31/2014		04/08/2014
Comments (incl. % achievement)	<b>Target overachieved (125%).</b> This was one of the activities that had been self-financed/implemented by the Government. The final data was taken from the clients' official M&E document.			
<b>Indicator 18 :</b>	ADDITIONAL FINANCING: Additional number of livestock benefitting for treatment with veterinary products			
Value (quantitative or Qualitative)	0	800,000		664,544
Date achieved	07/06/2012	05/31/2014		04/08/2014
Comments (incl. % achievement)	<b>Target partially achieved (83%).</b> This was one of the activities that had been self-financed/implemented by the Government. The final data was taken from the clients' official M&E document.			
<b>Indicator 19 :</b>	ADDITIONAL FINANCING: Additional number of SAVS stocked up to meet the food demand of beneficiaries during the period of food shortage			

Value (quantitative or Qualitative)	0	600	1,520	1,520
Date achieved	07/06/2012	07/06/2012	8/13/2013	05/20/2014
Comments (incl. % achievement)	<b>Target overachieved (100%).</b> The original objective of the AF was to distribute 7,200 tons of wheat to 600 SAVS but the latter was increased to 1,070 SAVS resulting from change of the food distribution system by the Government (see PDO indicator 6). With project's restructuring of August 2013, 4,500 tons of wheat was added to be distributed to an additional 450 SAVS.			

### G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	05/07/2005	Satisfactory	Satisfactory	0.00
2	11/22/2005	Satisfactory	Satisfactory	2.45
3	06/29/2006	Moderately Satisfactory	Moderately Satisfactory	5.72
4	01/30/2007	Moderately Satisfactory	Moderately Satisfactory	10.97
5	07/31/2007	Moderately Satisfactory	Moderately Satisfactory	15.02
6	03/07/2008	Moderately Satisfactory	Moderately Satisfactory	20.70
7	05/28/2008	Moderately Satisfactory	Moderately Satisfactory	22.37
8	12/12/2008	Moderately Satisfactory	Moderately Satisfactory	25.83
9	05/31/2009	Moderately Satisfactory	Moderately Satisfactory	25.83
10	12/28/2009	Moderately Satisfactory	Moderately Satisfactory	29.34
11	06/25/2010	Moderately Satisfactory	Moderately Satisfactory	31.27
12	05/18/2011	Moderately Satisfactory	Moderately Satisfactory	35.81
13	01/29/2012	Moderately Satisfactory	Moderately Satisfactory	38.51
14	08/22/2012	Moderately Satisfactory	Moderately Satisfactory	39.00
15	05/31/2013	Moderately Satisfactory	Moderately Satisfactory	39.81
16	12/15/2013	Moderately Satisfactory	Moderately Satisfactory	41.31
17	06/02/2014	Moderately Unsatisfactory	Moderately Unsatisfactory	41.40

### H. Restructuring

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
11/11/2010	N	MS	MS	33.97	To make up for the 16-months suspension period following the political turmoil due to the August 2008 military coup Level 2 restructuring—12-

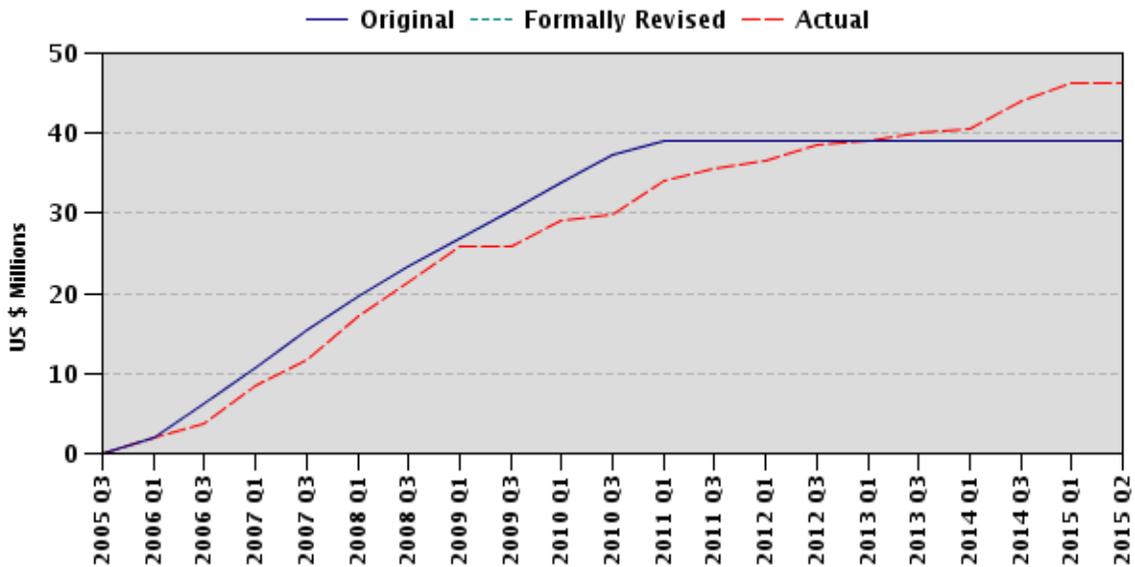
Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
					month closing date extension with reallocations of the credits proceeds New closing date of Dec 31, 2011
12/22/2011	N	MS	MS	37.22	To enable the completion of the remaining project activities. Level 2 restructuring—6-months closing date extension with reallocations of the credits proceeds New closing date of June 30, 2012
06/12/2012	N	MS	MS	38.85	To enable the Board approval of the AF in July 2012. Level 2 restructuring—3-months closing date extension New closing date of Sept 30, 2012
07/06/2012	Y	MS	MS	38.85	To finance the activities under the newly added Emergency and Food Price Response component. Additional financing of US\$10 million of which US\$ 9 million was allocated to the two new sub-components E1 and E2 and the remaining US\$1 million was allocated to component D (Project Administration). New closing date of Feb 28, 2014
08/13/2013	N	MS	MS	39.77	To allocate the expected undisbursed balance of the IDA Credit of US\$2.5 million equivalent to the new MR PA-PDRI Project under preparation then Level 2 restructuring—partial cancellation (IDA of US\$2.5 million equivalent) and reallocation of grants proceeds.
02/07/2014	N	MS	MS	41.29	To allow the Project complete the main activity (purchase of

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
					4,500 tons of wheat). Level 2 restructuring—3-months closing date extension with reallocation. New closing date of May 31, 2014

If PDO and/or Key Outcome Targets were formally revised (approved by the original approving body) enter ratings below:

	Outcome Ratings
Against Original PDO/Targets	Unsatisfactory
Against Formally Revised PDO/Targets	Unsatisfactory
Overall (weighted) rating	Unsatisfactory

### I. Disbursement Profile (IDA only)



## **1. Project Context, Development Objectives and Design**

1. PDIAIM II activities were mainly focused on the irrigation sector. On the other hand all activities of the Additional Financing were focused on the emergency drought response except for some studies destined for the medium term support to the agriculture sector project planned then. When the AF was approved most of the activities of PDIAIM II were already completed (activities of the latter ended as of 30 September 2012). Therefore, even if technically they constitute one project, given the nature of their activities PDIAIM II and the AF are evaluated, in the ICR, as “two” distinct operations with the final ratings reflecting their respective size and duration.

### **1.1 Context at Appraisal**

2. At appraisal, Mauritania’s first priority with respect to irrigated agriculture was to promote the rehabilitation of degraded irrigation schemes still under production, together with the extension of collective schemes in which family plots were too small to adequately cover the family’s subsistence needs. Moreover, the policy instruments developed by the Government—Letter of Development Policy for Irrigated Agriculture (1999), Rural Development Strategy (2001), and Agro-Food Strategy (2001) also the cornerstone of the pillar 2 of the Poverty Reduction Strategy or PRSP’s – that constituted its long-term shared vision of turning the Senegal River Valley into one of the main sources of development and economic growth, were still valid. Both for the Government and the Bank, the Integrated Program for Irrigated Agriculture in Mauritania (PDIAIM)<sup>1</sup> was still considered as the most appropriate instrument to implement the Government’s long-term policy for irrigated agriculture and support to its rural development strategy and the Bank’s FY03-05 Country Assistance Strategy (CAS) for Mauritania. Phase 1 contributed to alleviating a number of the constraints identified at the initiation of the program, namely: correction of the domestic rice support policies, facilitating access to financing, support to land registrations, institutions of sound construction norms and standards for the rehabilitation of the irrigation schemes, and providing capacity building for the project implementing entities. Phase 2 was therefore meant to consolidate the progress achieved during phase 1 especially, as stated in the PAD, “to address those deep-rooted constraints of irrigated agriculture in Mauritania”.

3. The rationale for Bank support was that all triggers for moving from phase 1 to 2 were met. The project was fully aligned with the CAS and the strategy for poverty reduction (PRSP) for Mauritania and it was designed to complement other Bank-supported operations, namely: the FY04 Community-based Rural Development Project (CBRD, which targeted poor villages mainly located in the rainfed areas), the FY06 Capacity Building Project (which targeted the strengthening of management capacities, good governance and environmental management), and the planned FY07 Transport Sector Project, in the pipeline at the time.

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<sup>1</sup> At the inception of PDIAIM in the mid-1990s only 40,000 ha were developed in the 1970s and 1980s (primarily for rice production) out of the potential of 135,000 ha of irrigated land in the Valley. Therefore, apart from increasing the value-added of irrigated agriculture and related incomes and employment in the Senegal River Valley, the Program was expected to rehabilitate over 20,000 ha, including 13,000 ha with support from IDA.

## **Context at Appraisal – Additional Financing (AF)**

4. In 2011 the Sahel experienced a severe drought, with Mauritania being one of the countries that was hit badly. According to the World Food Program (WFP), about 25 percent of households (or about 700,000 people) in rural areas were food insecure<sup>2</sup> and the Eastern and Southern parts of the country were the mostly affected regions. Furthermore, the increase in commodity world prices, notably for wheat, maize, sugar and oils (wheat and rice being the most important commodities for the majority of Mauritians) was eroding consumers' purchasing power.

5. As a response to this crisis, the Government prepared an Emergency Plan estimated at about US\$157 million, to be implemented during 2012. This plan named EMEL (Hope in Arabic) included three main components: (i) preventing human food insecurity through free food distribution and access to subsidized food, (ii) providing health care for vulnerable groups and children, and (iii) preserving livestock through imported feed supply, animal health measures and access to water points. The Government expected to fund up to US\$83 million while it planned to raise US\$74 million from donors. It was within this context that it introduced to the Bank its request of January 16, 2012, by which it was seeking the Bank's support for a US\$10 million emergency support not only to contribute to the EMEL plan through rural food safety stocks and livestock health support, but also to provide fertilizer support for rice intensification. In addition, during the same period, the Government completed the Mauritania National Food Security (SNSA) and validated its National Agriculture and Food Security Investment Program (PNIA/SA) under CAADP; following this the Government submitted its second request of March 22, 2012, seeking the Bank's assistance for a longer term investments in the irrigation sector. It was in response to these requests, that the Bank processed the Additional Financing.

### **1.2 Original Project Development Objectives (PDO) and Key Indicators (*as approved*)**

6. The objectives of the project<sup>3</sup> were to: (i) consolidate key incentive measures for irrigated agriculture, (ii) increase sustainable irrigation schemes, and (iii) intensify agricultural diversification.

7. The key outcome indicators for Phase II were: (i) regional land registries allow verification of transparent irrigated land awards on request; (ii) the rural credit agency UNCACEM (National Union of Agricultural Cooperatives for Savings and Credit) maintains financial self-sufficiency; (iii) sustainable irrigation schemes are increased by 5,000ha by the end of Phase II; and (iv) irrigated area under diversified crops has doubled by the end of Phase II.

### **1.3 Revised PDO (as approved by original approving authority) and Key Indicators, and reasons/justification**

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<sup>2</sup> Sahel Crisis update no. 18 (WFP Regional Bureau for West Africa, May 11, 2012) and WFP/Mauritania EMOP report no. 1 (May 20, 2012)

<sup>3</sup>The **overall development objective of the Program** was to increase the value-added of irrigated agriculture and related incomes and employment in the Senegal River valley through the judicious use of the country's most precious natural assets: water and arable land.

8. The original PDO was not revised. Following the drought of 2011 and as a response to the Government's request, in July 2012, the Bank approved an additional financing of US\$10 million (US\$5 million equivalent IDA grant and US\$5 million from the Food Price Crisis Response Core Multi-donor Trust Fund, GFCRP). The Emergency Project Paper indicated a new PDO for the AF operation without revising the original PDO, namely, "The objective of the project is to improve availability of critical agricultural inputs and food staples for targeted beneficiaries". In addition the following two PDO-level indicators were established: (a) Direct Project beneficiaries (number), of which females (percentage); and (b) Direct Project beneficiaries disaggregated by type of benefit (fertilizer, livestock treatment, food staples) and by gender.

#### **1.4 Main Beneficiaries**

##### **Original Project**

9. The main beneficiaries<sup>4</sup> for PDIAIM II were some 20,000 small-scale growers of irrigated crops (rice and vegetables) organized in cooperatives along the Senegal River who benefitted from irrigation rehabilitation, agricultural extension advice, land titling activities, access to seasonal production credit and a better organized rice value chain. Some 1,000 of them were women farmers mostly producing vegetable crops. The project also benefitted certain units of SONADER (National Rural Development Corporation) and supported research activities of CNRADA (National Agricultural Research and Development Center). UNCACEM received technical assistance and a line of credit. The Ministry of Rural Development and Environment (MDRE) received institutional support with special emphasis on its Department of Policies, Cooperation and Monitoring and Evaluation, and its *Bureau des Affaires Foncières* (BAF, responsible for land affairs). In the initial years, several exporters of agricultural products were also supported, but in 2011 the focus of the Project was changed to the local market and remained as such until the end of the project. And according to the Independent Evaluation Report, another important beneficiary category was the rural and urban population (all rice consumers) that benefitted from increased rice production and better quality of rice. In addition there were other indirect beneficiaries, including the rural and urban labor force (due to the increased job opportunities created by project related activities), private entrepreneurs (engaged in the supply of agricultural inputs, equipment rental, manufacture/repair of agricultural equipment), those involved in engineering and consulting, etc.

##### **Additional Financing**

10. With the additional financing PDIAIM II's intervention area was extended to an additional six (6) administrative regions<sup>5</sup> with targeted direct beneficiaries of 279,000 people (of which 40 percent female).

#### **1.5 Original Components**

11. The project consisted of four components, namely:

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<sup>4</sup> The intervention areas of PDIAIM II were in the administrative regions of *Trarza, Brakna, Gorgol, Guidimaka*.

<sup>5</sup> The Project intervened in the 10 administrative regions affected by the drought emergency situation, namely: *Trarza, Brakna, Gorgol, Guidimaka, Hodh Chargi, Hodh Gharbi, Assaba, Tagant, Adrar, Inchiri*.

12. **Component A: Rural Incentives and Capacity Building – (US\$3.5 million of which IDA: US\$ 2.76 million equivalent)** to consolidate the policy measures and incentives initiated during Phase I and improve the capacity of national and regional rural institutions to implement the Program. It focused primarily on: (i) support and capacity building activities to improve: (a) registration of land; (b) collection and analysis of annual agricultural statistics; (c) ability of public and private entities to deliver services to agricultural producers; and (d) UNCACEM's organizational and institutional capacities; and (ii) analytical work related to the development of a rural finance expansion strategy.

13. **Component B: Infrastructure for Irrigated Agriculture – (US\$24.88 million of which IDA: US\$21.11 million equivalent)**. This was the largest component with more than 50 percent allocation of the total project resources. It was primarily aimed at continuing support and technical assistance for the development of private and public irrigation schemes through: (i) the provision of grants and sub-loans to cooperatives and individuals involved in the production of rice and in agricultural diversification for the financing of their long-term investments for the rehabilitation, extension and creation of private irrigation schemes; (ii) the construction of priority public infrastructure identified during Phase I of the Program; and (iii) the carrying out of research and feasibility studies.

14. **Component C: Support to Agricultural Supply Chains – (US\$10.94 million of which IDA US\$9.15 million equivalent)**. This component was to provide the necessary assistance to the development of a competitive rice subsector and a diversified agricultural base, targeting rice and horticultural supply chain participants engaged in domestic and export markets. It included three sub-components: (i) C1: Support to Basic Farm Management; (ii) C2: Support to the Rice Subsector; and (iii) C3: Support to commercial farmers and entrepreneurs engaged in agricultural diversification.

15. **Component D: Project Administration – (US\$7.34 million of which IDA: US\$5.98 million equivalent)**. This component was to ensure coordination of project activities, the monitoring of activities and evaluation of impacts, and the implementation of the social and environmental safeguards. It included three sub-components: (i) D1: Project Management and Coordination; (ii) D2: Monitoring and Evaluation; and (iii) D3: Environmental and Social Safeguard Measures.

## **1.6 Revised Components**

16. With the approval of the US\$10 million Additional Financing in July 2012, a new component was added to the project, namely Component E: Emergency and Food Price Response. This component included two sub-components: (i) E1: Agricultural and Livestock Productivity Enhancement (IDA Grant of US\$2 million equivalent and US\$3 million of GFRP Grant), for the supply and distribution of subsidized urea for irrigated rice intensification, as well as the supply of veterinary products and the sanitary treatment of livestock, including vaccination; and (ii) E2: Support to Food Safety Net (IDA Grant of US\$2 million equivalent and US\$2 million of GFRP Grant), for the consolidation of the existing network of *Stocks Alimentaires Villageois de Sécurité* (SAVS), through the initial distribution or replenishment of cereal stocks for a selected number of SAVS serving vulnerable rural communities.

17. The remaining balance of the AF (US\$1 million) was added to Component D of PDIAIM II (project management) with a focus on the administration of new activities

under Component E, but funds were also made available to undertake studies aimed at assessing options to improve Mauritania's preparedness in dealing with food insecurity.

### 1.7 Other significant changes

18. The main changes introduced during the course of implementation of the project are summarized in the table below.

**Table 1: Main changes to the Project introduced during implementation**

	Type of change	Reason for the change	Approval date	Result/outcome
1	Level 2 restructuring—12-month closing date extension with reallocations of the credits proceeds	To make up for the 16-months suspension period following the political turmoil due to the August 2008 military coup	11 Nov. 2010	New closing date of Dec 31, 2011
2	Level 2 restructuring—6-months closing date extension with reallocations of the credits proceeds	To enable the completion of the remaining project activities.	22 Dec. 2011	New closing date of June 30, 2012
3	Level 2 restructuring—3-months closing date extension	To enable the Board approval of the AF operation in July 2012.	12 June 2012	New closing date of September 30, 2012
4	Additional Financing	To finance the activities under the newly added Emergency and Food Price Response component	6 July 2012	Additional financing of US\$10 million of which US\$9 million was allocated to the two new sub-components E1 and E2 and the remaining US\$1 million was allocated to component D (Project Administration). New closing date of Feb 28, 2014
5	Level 2 restructuring—partial cancellation and reallocation of grants proceeds	To allocated the expected undisbursed balance of the IDA Grant of US\$2.4 million equivalent to the new MR PA-PDRI Project under preparation then	13 Aug. 2013	IDA of US\$2.5 million equivalent cancelled
6	Level 2 restructuring—3-months closing	To allow the Project complete the main activity (purchase of 4,500 tons of	7 Feb. 2014	New closing date of May 31, 2014

date extension with reallocation	wheat).		
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## 2. Key Factors Affecting Implementation and Outcomes

### 2.1 Project Preparation, Design and Quality at Entry

#### Original Project

19. At the time of project preparation, the overall objective of the three-phase APL was still relevant, and like the first phase, the second phase was considered responsive to the Borrower's development priorities and the Bank's strategy for Mauritania. The Government still considered PDIAIM as the most appropriate instrument to implement its long-term policy for irrigated agriculture. All the triggers for moving from phase 1 to 2 were determined to have been achieved satisfactorily<sup>6</sup>.

20. All priority studies for preparing investments in phase 2 had been completed during phase 1<sup>7</sup> and additional measures to address implementation problems/issues identified during the implementation of phase 1 were taken. These included: bringing together engineering firms and contractors to determine better ways to complete irrigation infrastructures on time and at a reasonable cost, arrangements to ensure better accountability and coordination of core agencies involved in irrigation development, and administrative improvements for ensuring timely availability of investment matching grants and timely land registration for beneficiaries. Moreover, drawing on the lessons learned from the implementation of phase 1, some slight modifications were introduced in the design of the program. As a result, the duration of the Program was changed to a 3-phase 15-year program (from 11-year) with a targeted irrigation scheme development of 12,500 ha (from 13,000 ha) and the main components were consolidated reducing their number from seven to four. The preparation team also gave careful attention to the design of the credit component by having it reviewed by a Financial Sector Specialist and making all the necessary revisions.

21. The overall Program objective as well as the implementation arrangement remained the same.

22. PDIAIM's approach to comprehensively address all issues facing irrigation development was a bold undertaking. The Program attempted to solve a large and diverse set of problems in the irrigation subsector. Thus, just like phase 1, PDIAIM II's design

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<sup>6</sup> The triggers for moving from Phase I to Phase II had been defined as follows: (i) Liberalization measures for agricultural markets and transport services, as agreed upon between the Government and IDA in the 1999-2002 PFP, remain in place; (ii) UNCACEM has achieved operational and financial self-sufficiency by 2001; (iii) Credit and investment subsidies granted in accordance with procedures agreed upon with IDA; (iv) Awards of land use permits, temporary and permanent concessions are in conformity with land tenure regulations; (v) Establishment of transparent and accessible land registries allowing verification of permits and temporary or permanent concessions; (vi) Procedures are established for the collection of water fees and operation and management charges for public infrastructure works; (vii) Economic return on Government-supported irrigation infrastructure demonstrated satisfactorily; and (viii) Performance of SONADER judged satisfactory according to criteria set out in the performance contract.

<sup>7</sup> Implementation Completion Report of phase 1 of PDIAIM (report no. 34787)

focused on developing collective small to medium irrigation schemes (versus large-scale) but also rehabilitating the existing (but degraded) individual and village schemes; facilitating access to credit for maintenance, repairs, rehabilitation of the schemes (as the degradation of the latter were mainly due to lack of credit); formalizing producers organizations (poor farmers' organization or lack of recognition of such organization was another reason for degradation of the schemes); proving the profitability and competitive advantage of producing rice locally; sustainable operation and maintenance of collective infrastructure; and diversification.

23. Nevertheless, there were also some gaps that in retrospect should have received more attention during project preparation, including:

- (i) **Cost/benefit analysis:** an “illustrative” analysis was carried out. Since this was the second phase of the project, the preparation team should have analyzed the activities of phase 1 in *ex-post* fashion. The failure to do it eventually led to the wrong assumption that the economics were favorable and farmers would be able to repay the loans.
- (ii) **Re-examination of the Program's basic assumptions:** though efforts were made to address the issues identified during the implementation of phase 1, phase 2 preparation process did not use the opportunity to systematically attempt to reexamine and validate all aspects of the overall Program and its 1<sup>st</sup> phase, vis-à-vis the basic assumptions on which it was built. In this context, a number of critical questions were not sufficiently explored, namely: (a) why do selected perimeters need rehabilitation in the first place given that many of them had been abandoned and rehabilitated before; would there be no alternative measures to increase yields and incomes that could be undertaken first?; (b) can an agricultural bank succeed in a high risk environment characterized by natural phenomena with droughts and flooding alternating and with clients that are close to the subsistence level and do not have a solid credit repayment culture? (though during phase 1 it assumed self-sufficiency, UNCACEM's viability was already tested once with the 1999 floods, that forced it to reschedule the debts over the next years); (c) does the irrigation agency have the necessary means in terms of staff, operational means and technical competence to ensure that irrigation rehabilitation is done according to acceptable standards (selection and technical design of these perimeters, selection of the right kind of pumping equipment, and assurance that the unit investment costs do not exceed certain thresholds)?; and (d) do farmers have the necessary technical and management capacity to play the role in the procurement process that was devolved to them?
- (iii) **Design.** Implementation difficulties and delays were already experienced during the implementation of phase 1. And although the project design for phase 2 was innovative, too little effort was paid to reduce the complexity of it, despite the fact that PDIAIM's complexity was already raised during Quality at Entry Assessment of phase 1 and at the ICR stage. Some efforts were made to introduce some changes but these were minor with only marginal impact on the complexity of the program.

24. The PAD identified two types of risks, including: (i) risks to PDO<sup>8</sup>, and (ii) risks to component results<sup>9</sup>. With respect to the PDO, five risks were identified of which two risks (high road transport and sea freight costs) were rated as substantial and one (lack of enforcement of credit default regulations) as moderate. All risks identified as Risks to Components results were rated as Moderate, except for one (lack of information about PDIAIM) was rated as negligible. Political risk was not considered, though the country had already suffered political unrest in August 2005 (shortly after appraisal).

25. Some of the proposed risk mitigation measures (transport costs for road and sea freight) went beyond what could be influenced by the project. For others concerning SONADER and UNCACEM, the performance based contracts between these institutions and the PCU were supposed to provide early warning signals. However, the PCU did not have the necessary manpower and technical capacity to supervise and enforce these performance based contracts. With respect to the political risk, the entire phase 2 project implementation period (2005-2012) was characterized by frequent political instability which impacted negatively the course of the project implementation. During this time, the country experienced two military coups. At the onset of the coup of August 2005, there was a 19 months transition period with reduced project activities. Then the political unrest of 2008 not only resulted in suspension of project activities for more than a year, but also, with the arrival of a new Government there were changes in policy and priorities which negatively impacted some of the project's activities (especially those related to agricultural credit and rehabilitation of irrigation perimeters).

26. A Quality at Entry Assessment was done in September 2005<sup>10</sup>, which gave the project a Satisfactory rating.

### **Additional Financing**

27. The formulation of the AF was done on the basis of the drought recovery plan developed by DRM and the Government's EMEL Program (refer paragraph 6 and 7 above). The project (though in the last period of implementation with closing date of September 2012) was selected as the operation to channel the additional resources as it not only was already active in several regions of southern Mauritania but also it offered adequate institutional and fiduciary capacities and the most convenient opportunity to fast-track the Bank's emergency response in drought affected areas.

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<sup>8</sup> The risks to PDO considered were: (i) the incentive structure reverts back to favor rice at the expense of agricultural diversification; (ii) unabated, large-scale fraudulent rice imports destabilize the domestic rice sector; (iii) road transport costs remain high; (iv) sea freight costs remain high; and (v) inadequate enforcement of credit default regulations forces high cost upon UNCACEM.

<sup>9</sup> The risks to achieving component results were: (i) the pace of land registration is slow, resulting in delays in the credit approval process and implementation of rehabilitation; (ii) SONADER's technical oversight of rehabilitation is inadequate, leading to slow implementation of rehabilitation; (iii) the procedures for the collection of water and O&M charges are not implemented further degrading primary irrigation infrastructure; (iv) SONADER fails to deliver adequate agricultural services to smallholders; and (v) UNCACEM yields to outside interference, accepting bad loans and jeopardizing its financial self-sufficiency

<sup>10</sup> Mauritania: MR-Integrated Development Program for Irrigated Agriculture – APL2 (P088828): Final Quality at Entry Assessment (QEA7)

28. It should be noted here that preparation of the AF was cumbersome due to frequent shift of the Government's position. The Bank received two requests, the first one in October 2011 (including support for irrigation), which led to an initial preparation mission in November/December 2011 and the second reformulated/different request (without support for irrigation) in January 2012. This not only delayed timely project preparation and effectiveness, but also increased transaction costs of Bank engagement.

29. The main limitations of the AF were as follows: (i) the ambitious targets in terms of timing and quantitative targets. The increased volume of inputs (quantities of urea to be distributed and the number of animals to be vaccinated) planned to be distributed/used within two years were way above the absorption capacity of the intended project beneficiaries; (ii) the implementation mechanism, though existing and used in the past by the Mauritanian authorities, was not designed to handle such a large increase in volume of fertilizer to be distributed and number of animals to be vaccinated; and (iii) because of the start-up delays, the planned activities including the delivery of the inputs could not reach the beneficiaries on time: for example, cereal distribution did not start before July 2013, even though the actual critical situation for beneficiary population occurred during 2012 (see Annex 11 Independent Evaluation of the SAVS).

30. The Operational Risk Assessment Framework (ORAF) in the Emergency Project Paper listed a number of highly relevant risks along with the mitigation measures, and rated all the risks Low to Moderate. However the proposed mitigation measures for the poor contract management—the new procurement code adopted by the Government, which encourages hiring independent staff for procurement commissions at central level, the putting in place of a new Procurement Regulation Authority, and the Public Sector Capacity Building Project addressing the issues arising out of the CFAA action plan, — turned out to be insufficient; the new procurement code did not operate as smoothly as anticipated by the Public Sector Capacity Building Project. As a result the Government ended up self-financing/implementing the activities related to the distribution of the agriculture inputs, and vaccines and veterinary products.

## 2.2 Implementation

The Project implementation and outcomes were impacted by the following key factors:

- (i) **Slow project start-up:** Despite being the 2nd phase of an APL, the project started out slowly, first due to the above mentioned political instability right at the beginning of phase 2 but also due to failure by the Government to approve the land rights (concessions) on time and provide the necessary support to the bureau of land affairs.
- (ii) **Non-compliance with the Irrigation Policy Letter (*Lettre de Politique de Développements de l'Agriculture Irriguée- LPDAI*).** Contrary to the requirement of the irrigation policy, some irrigation development projects (PRBP, PGIRE, national program, and projects financed by other donors) financed 100 percent of the costs of irrigation rehabilitation/expansion without any contribution by the beneficiaries. The situation was further complicated as some of the targeted farmers were beneficiaries of both PDIAIM and one of these other projects.

- (iii) **Natural disasters.** The implementation of the project was impacted by a series of floods. For instance the August 2008 flooding not only affected the physical irrigation structures but also resulted in loss of crops. As a result there was a need to distribute the necessary agricultural inputs to the affected population. The other natural incident was bird attacks that resulted in not only substantial decrease in yield but also had impact on the agricultural product quality making them unfit for consumption or trade.
- (iv) **The Global Food Price Crisis.** Apart from the flooding, Mauritania was hit hard by the 2008 Global Food Price Crisis; it was especially severe for its rice sector. Thus as an attempt to stimulate agricultural production, the Government declared 2008 as the “Year of Agriculture”. And as a matter of government policy, it instructed the National Union of Agricultural and Savings and Credit Cooperatives (UNCACEM) to more than double its lending volume for irrigated agriculture and to increase the amount of seasonal loans that farmers could obtain per hectare from UM60,000 to 150,000. To do this, UNCACEM had to borrow money from the banking system at relatively high interest rates (12 percent) versus the IDA line of credit (4.5%). This decision affected UNCACEM’s financial viability as its loan portfolio deteriorated rapidly and the amounts of unpaid loans reached 60 percent. UNCACEM in fact never recovered from this intervention by the Government. During 2010/2011, UNCACEM did not lend at all and eventually by 2012/2013 it went bankrupt.
- (v) **Increase in the rehabilitation costs:** During phase 1, the average rehabilitation costs were 608,000 UM/ha. However, during the second phase, these unit costs for various reasons increased significantly and reached 2 million UM/ha, i.e. three times the amount of phase 1 (see details in Annex 3). These cost increases meant that the amounts allocated by the project for rehabilitation were fully used up even though less than 40 percent of the original physical objective was achieved.
- (vi) **Mid-term Review.** The MTR carried out from April 14 to 24, 2008 determined that the PDO still remained highly relevant, in light of the food price crises facing Mauritania (especially impacting the rice sector), but also positive results of the beneficiaries satisfaction analysis and a total disbursement rate of about 60 percent. At the same time the support mission also noted major challenges for the project including: (i) non-compliance with the irrigation policy letter; (ii) slow progress with regard to land tenure regularization; (iii) unwillingness of private owners with irrigated areas of less than 40 ha to participate in the project; (iv) delays with regard to the diversification component; and (v) too little attention being paid to environmental safeguard aspects. The MTR mission also observed that the two key project implementing institutions, namely UNCACEM and SONADER, showed signs of important weaknesses.

Nevertheless, although the MTR made a number of very pertinent and crucial recommendations (strict application of the irrigation policy letter; analysis of why private irrigation farmers with less than 40ha did not participate; restart of diversification activities with emphasis on the local market; need for greater attention to environmental safeguard issues; acceleration of land titling; and full recuperation of operation and maintenance expenditures to ensure sustainability

of perimeters that were rehabilitated), they were not acted upon neither by the PCU nor followed up by subsequent supervision missions. This could partly be attributed to the political unrest that started soon after the MTR, and during which all project activities were suspended.

- (vii) **Political unrests.** The implementation period of PDIAIM II was also marked by especially difficult political circumstances that negatively affected project execution and Bank supervision. As stated earlier there were two military coups: on August 3, 2005 shortly after appraisal and on August 6, 2008, immediately following the MTR. The latter resulted in a political unrest and upheaval for more than a year. The project was in limbo and little progress was achieved following the Bank's suspension of disbursements to Mauritania under OP/BP 7.30<sup>11</sup> (from August 2008 to November 2009, or about 15 months). Only after a new Government was elected in July 2009 did political stability return and consequently the Bank also resumed its operation.

Following the election of July 2009, a reengagement mission was carried out by the Bank (from December 13 to 30, 2009). The main results of this mission were again a good analysis of all the existing problems (counterpart funding, UNCACEM's financial difficulty, the delays in land titling, and weak capacities of the implementing institutions) and a series of pertinent recommendations. However, since the Government was new no immediate action could be undertaken. In addition, at the time of the mission the project was at a disbursement level of 75 percent leaving little room for major restructuring of the project.

- (viii) **Change in Policy and Commitment.** With the arrival of the new Government in 2009, the commitment to the Project that existed earlier disappeared. Instead, the new Government took many measures that negatively impacted implementation of the project. These included the repetitive interventions in the operations of UNCACEM, the suspension of the land titling activities, the non-respect of the LPDAI, among other things.
- (ix) **The Additional Financing.** The implementation of the AF experienced delays not only during preparation (see paragraph 28) but also during implementation due to non-performance by selected contractor and procedural complaints related to the purchase of fertilizers and veterinary products. Given the urgency of the matter, the Government decided to use its own fertilizer stock and undertook vaccination activities with its own funds. Thus the planned project activities for fertilizer distribution and livestock vaccination were no-longer to be financed by IDA and GFRP funds. In view of this, the Government requested the Bank (in its letter of May 9, 2013) to partially cancel and re-direct the un-used IDA resources for a future agricultural operation.
- (x) **Independent Review of PDIAIM.** Towards the end of the closing date of the AF, an independent review of the food security aspects of the AF was carried out from

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<sup>11</sup> OP /BP 7.30 - Dealings with De Facto Governments

September 20 – October 10, 2013<sup>12</sup>. Around the same period, the Government requested an independent review of the whole PDIAIM experience, covering Phase I and II from 1999 until 2012, in order to prepare for the ICR and to draw important lessons for future operations in the Sahel. This review took place from January 18-February 6, 2014 and was conducted by a 5-member team of international and national consultants<sup>13</sup>.

## 2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

### Original Project

31. **Design of the M&E system.** According to the PAD, the M&E network comprised a main M&E system housed in the project unit, sharing and communicating—through common platforms (Access, GIS, other files)—information with key implementing agencies and partners. However, given the low capacity on the ground the design of the system was relatively difficult to implement. When evaluating the indicators used for phase 2's results framework, the formulation of some of the outcome and results indicators was too broad in that they could not easily be measured and verified (for example some indicators included “Yes” or “No” as measurable targets). Also the lack of results indicators is particularly noticeable concerning: (i) the unit costs of rehabilitation (a critical figure that impacts capacity of borrowers to repay their short- and long-term loans); (ii) the quality and performance of perimeters once rehabilitated (this can vary considerably); (iii) the number of private farmers engaging in rehabilitation and area rehabilitated since they were supposed to rehabilitate some 1,000 ha; (iv) the volume and value of fruits and vegetables produced for the local and export market (not just number of fruits and vegetable producers); and (v) the performances of UNCACEM that would enable to assess its financial soundness (this was also recommended by the panel of the Quality at Entry Assessment) and SONADER (especially indicators that would enable to assess the performance contract between SONADER and the PCU).

32. **Utilization of the M&E system.** The consecutive implementation support missions did not conduct a specific evaluation of the M&E system. The MTR mission noted that the M&E system produced important project related information. Support missions among other pointed out the insufficient knowledge by the Project staff of the M&E system and the GIS and the lack of motivation of SONADER's M&E staff as limitations for the full utilization of the system. Following the MTR, the mission proposed revisions to the results framework by adding indicators on percentage of operation and maintenance recovery in the big irrigation perimeters, yield increases and cropping intensity, quantities processed and percentage of utilization of infrastructure

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<sup>12</sup> « Note d'Evaluation des Filets de Sécurité Alimentaire du Programme Emel (Boutiques Emel et Stocks Alimentaires Villageois de Sécurité (SAVS) ». This evaluation was carried out between September 26 and October 10, 2013 by two consultants: Messrs. Joel Hourticq and Limam Abdawa.

<sup>13</sup> « République Islamique de Mauritanie, Evaluation Indépendante des Activités Irrigation et Diversification du Programme de Développement Intégré de l'Agriculture Irrigée en Mauritanie (PDIAIM), Rapport Provisoire », Mars 2014. The evaluation was carried out by Messrs. Joel Hourticq (agricultural economist and mission leader), Abdoulaye Dicko (international consultant in irrigation/civil engineering), Mohameden Baba (national consultant in irrigation/civil engineering), Mohamed Didi (national agricultural credit specialist), and Isakha Diagana (national specialist in land tenure questions).

(cold storage). Though these indicators were very pertinent they were not included in any of the restructurings and thus were never formally reported on.

33. Another critical limitation of the system was the fact that the hard copies of project records were not kept systematically and with the departure of the M&E specialist in 2013, the electronic records disappeared revealing the fact how much the operation of the M&E system depended on a single individual.

### **Additional Financing**

34. **Design of the M&E system.** The design of the monitoring system and choice of monitoring indicators was straightforward and followed directly from the PDO of the AF. The monitoring system did not emphasize impact evaluation, as this was an emergency operation that did not aim at establishing sustainable outcomes over the medium- and long-term. One important limitation was the fact that not enough attention was given to carefully analyze to what extent the existing monitoring setup would be able to collect these data from the project regions. This would have been especially important, since the AF covered 10 administrative Regions of the country whereas PDIAIM II intervened in only four of them. Also, the target values established by the Government for the different project sub-components were not critically examined to see to what extent they were realistic. Lastly, the activities of the AF being related to an emergency operation, no baseline study was undertaken because of time constraint and all indicators were therefore referring to “additional support...”. However, this concept of “additionality” was not clearly understood by the Government; it had trouble differentiating between the various sources of funding for the same activity (this was also reported in the ISRs).

35. **Utilization of the M&E system.** The AF was also affected by the departure of the M&E Specialist. Though he was replaced by a new specialist in August 2013, the problem could only be partially alleviated as the new M&E Specialist was among others not familiar with Bank M&E requirements, especially concerning gender aspects. The implementation support mission of January/February 2014 noted that: (i) data storage and management was deficient; (ii) too little attention had been given to establishing baseline and target data; and (iii) the Livestock Department had difficulties in providing data on the number of beneficiaries, especially disaggregated by gender.

### **2.4 Safeguard and Fiduciary Compliance**

36. **Safeguards.** Just like phase 1, phase 2 was a Category A project, and triggered the same seven safeguard policies, namely: a) environmental assessment, b) natural habitats, c) pest management, d) cultural property, e) involuntary resettlement, f) safety of dams, and g) projects on international waterways. To comply with these policies, a number of documents were prepared and diffused such as the environmental and social action plan, a resettlement plan, a plan for the safety of the *Foum Gleita Dam*<sup>14</sup>, a pest management plan, and the OMVS was notified concerning the project. Also, certain actions were taken, including: a) a study concerning the management of the lake *Gouere*, b) the strengthening of mechanical bird control measures instead of chemical ones, c) the

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<sup>14</sup> The Government has requested the new National Sugar Company to fund and implement the study done for the *Foum Gleita Dam*.

improvement of the sanitary conditions for the population along the river by digging of wells for potable water, and d) inclusion of environmental and social aspects in the feasibility studies for rehabilitation of irrigation perimeters. No resettlement took place.

37. However, several implementation support missions noted that safeguard measures did not receive the attention they deserved; SONADER did not have the institutional capacity to systematically deal with these issues and the Ministry of the Environment was not sufficiently involved. The Bank's safeguard mission of November 2011 reported that not only the safeguard specialist at the PCU was assigned to other non-safeguard related duties, but also no supervision with respect to safeguard conformity of the civil works was undertaken<sup>15</sup> on a regular basis.

38. When the AF operation became effective, all activities of the original project were completed. And given the type of activities under the AF, the latter was classified as a Category B (partial assessment) project and the only safeguard policies triggered were Environmental Assessment (OP/BP 4.01) and Pest Management (OP 4.09). A new Safeguard Specialist for the PIU was hired as a condition of Project effectiveness. The ESMP and PMP were updated to cover the environmental (inappropriate use and handling of fertilizers and pesticides) and social impacts that could result from the implementation of the new component. These documents were published and adherence to the safeguard policies was followed up by the Safeguard Specialist. The implementation support missions did not report any problems.

39. **Financial Management and Audit.** PDIAIM II as well as the AF were implemented by entities already established and used under PDIAIM I, i.e. SONADER, UNCACEM and a Project Coordination Unit (PCU). SONADER and UNCACEM were in charge of all aspects of financial management of the project with additional consolidating responsibility played by the PCU. Thus, PDIAIM II and the AF benefitted from the previous financial management (FM) capabilities in terms of managing IDA funds. Project accounts were regularly kept and withdrawal applications were prepared directly from the project's accounting software. Specialists, who participated in the implementation support missions, rated the internal financial control mechanisms as moderately satisfactory throughout project implementation.

40. Financial statements for the PDIAIM II as well as the AF were audited and certified without qualifications, albeit sometimes with delays in the case of PDIAIM II. Until early 2008, financial management was rated as Satisfactory. It then became Moderately Satisfactory (MS) and stayed at MS until the end of the AF. The reasons for this rating downgrade were mainly weaknesses in budget control and unauthorized rent payments for project offices.

41. There was also an INT investigation in October 2012. This was based on the allegations of fraud by various project officials during the implementation of six IDA-financed projects in Mauritania, including the PDIAIM. Specifically for PDIAIM, the allegation was for overpayment of per diems and mishandling of management trainings.

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<sup>15</sup> BTOR by Maman-Sani ISSA, Sr. Env. Specialist, World Bank : "Mauritania: Combined implementation support mission of PDIAIM II with identification/preparation mission of the additional financing to PDIAIM II and preparation support mission on the Port of Nouakchott Devt Project, Nov 12-28, 2011"

The outcome of the INT investigation was that since national laws may have been violated it referred the investigative findings to the Government so that it could conduct its own independent investigations to determine if any of its domestic laws were violated and take necessary measures accordingly.

42. **Procurement.** Both under PDIAIM II and the AF, most procurement was carried out by the PCU based on procurement plans that were updated in a timely manner. Procurement under PDIAIM II and the AF was judged as satisfactory from project start until July 20, 2012. Then the rating changed to moderately satisfactory (due to the delays) and was upgraded back to satisfactory during the last support mission of the AF in February 2014.

43. For PDIAIM II the execution of contracts for the rehabilitation of several irrigation perimeters posed problems as there were disagreements between the beneficiaries and construction companies over the quality of the works; whether the latter should be accepted as satisfactory and the final payment should be made.

44. Under the AF, procurement problems arose as it became apparent that procedures for the procurement of food and fertilizers/vaccines in an emergency situation were not compatible with IDA procurement rules and regulations. A deficient fertilizer supplier was selected and his contract had to be canceled. Also, procurement of veterinary products took so long that it had to be dropped and self-financed by the Government.

## **2.5 Post-completion Operation/Next Phase**

45. Until the very end of PDIAIM II, the task team operated under the assumption that in line with the long-term focus of the agreed APL financing instrument for the program there would be either PDIAIM III or a different follow-up irrigation project. Various supervision missions reminded the Government of the necessity to update the Irrigation Policy Letter that expired at the end of 2011 and to prepare a review of the triggers established for passing to a third phase. However, it appeared later on that the Government had no interest in the continuation of PDIAIM. The Minister of Rural Development signaled repeatedly that his department wanted to rethink its approach to irrigation development and rehabilitation and the future of agricultural credit and of UNCACEM. He indicated that the focus should not be on rehabilitating existing perimeters but to develop new large public irrigation perimeters to be used for the resettlement of the *Diplômés Chômeurs* (unemployed university graduates) and those herders from the North that had lost their livelihood due to drought. When preparation of the AF started, the original intention of the Government was to include a sub-component on irrigation that would have enabled completing PDIAIM's irrigation rehabilitation activities. However, this sub-component was removed following a reversal by the Government of its position on rehabilitation works. Subsequently, it was decided that irrigation development along the Senegal River Valley should be pursued through the second phase of the Integrated Water Resource Management in the Senegal River Valley Project (a regional project with OMVS).

46. The AF operation did not aim at establishing any sustainable medium- to long-term outcomes and there is no follow-up operation planned related to the emergency activities. However, there were provisions in the budget of the AF to finance studies for the preparation of future agricultural investments with a view to continue developing the

long-term agricultural supply side response to the recurring food shortages in Mauritania. These studies are available and notably contributed to the preparation of the OMVS water development project referred above.

### **3. Assessment of Outcomes**

#### **3.1 Relevance of Objectives, Design and Implementation**

##### **Original Project**

###### ***Rating: Modest***

47. The long-term development objective of the PDIAIM APL was to increase the value-added of irrigated agriculture and related incomes and employment in the Senegal River Valley through the judicious use of the country's most precious natural asset: water and arable land. It reflected both the Government's priority for the irrigation subsector and Bank's priority for the Agricultural Sector of Mauritania. The Government designed a Rural Development Strategy (2001), prepared and shared Letter of Development Policy for Irrigated Agriculture (1999), and developed its Agro-Food Strategy (2001). These documents were characterized as the cornerstones of the PRSP's second pillar-- to reflect a long-term shared vision of turning the Senegal River Valley into one of the main sources of development and economic growth. For the Bank, it was a continuation of the first phase of the APL and showed the "Bank's willingness to support the country's long-term commitment to fight poverty, predicated, among others, on the efficient and sustainable use of the country's most valuable renewable natural resource: irrigated land." And even today the objective remains highly relevant, especially in view of the likely effects of climate change and the need to improve the resilience of agriculture production systems in which irrigation undoubtedly has a large role to play.

48. With regards to the project design, it showed a number of positive elements: (i) it reflected lessons learned from Phase I and made a number of adjustments; (ii) it identified the importance of cost-sharing by beneficiaries, which is a best practice across World Bank and other donor projects in the irrigation sector; (iii) it identified the right safeguards policies and prepared the necessary mitigation measures; (iv) it included M&E as a sub-component; and (v) it combined investment in irrigation infrastructure with capacity improvement and incentive mechanism. In addition, the components of the project were very well aligned with the PDO.

49. However, the design also demonstrated a number of limitations. As stated earlier, PDIAIM's attempted to address a large and diverse set of issues related to the irrigation sector. Thus the design and the implementation modalities, a reflection of this holistic approach, were complex. This, however, did not match the reality on the ground: the project was demanding to implement because of the complexity of the integrated approach (which required skillful collaboration, coordination across multiple agencies, monitoring, etc.), the scope of activities, the geographical area covered, and all these with limited capacity of the implementation institutions (PCU, UNCACEM, SONADER, etc.).

50. Where the project really failed was in project implementation. It is true that the project had some achievements; it contributed to the improvement of the local rice production (which has become competitive both in price and quality compared to imported rice); it also helped in the establishment of producers' organizations with legal

recognition; through its capacity building activities it benefitted POs (including women farmers), employees of the implementation entities, and other entities involved in project implementation. Despite these the project was also unsuccessful in many aspects: the set targets for rehabilitation was only achieved by 34 percent, the quality of the rehabilitation were low, UNCACEM was in financial difficulty, and the project was never able to attract the small private irrigation farmers (less than 40ha).

51. Several attempts were made to improve project performance including continuous dialog with counterpart and modification to the approaches (for example review of the level of rehabilitation by including the financing of tertiary irrigation channels and land leveling, not in the initial plan). At the same time the implementation of phase 2 was marked by difficult circumstances (political and natural) that negatively affected project execution. However, the project's complex design and ambitious targets were never revised despite the difficulties faced and the unlikeliness of achieving agreed targets.

52. Therefore, on the basis of rating the relevance of the PDO as high, the relevance of the design as modest, and that of implementation as negligible, the **overall relevance for the original project is rated as Modest.**

### **Additional Financing**

#### ***Rating: Substantial***

53. The relevance of the AF objective is high, as the AF sought to address a specific emergency (response to the Global Food Price Crisis that also hit Mauritania) and as such were highly relevant. The PDO was to improve availability of critical agricultural input and food staples for targeted beneficiaries which corresponded to the needs and challenges at hand. And clearly the PDO continues to remain relevant in similar emergency situations.

54. The design was very simple that focused on providing food distribution and agricultural inputs to reduce the impact of the flood and food price crisis. The fact of using PDIAIM II as the vehicle for implementation of the AF because it has established the necessary administrative and fiduciary capacity in the form of the PCU of PDIAIM was clearly advantageous. However, the targets were too ambitious in relation to the absorption capacity of the beneficiaries as well as the limited capacity of the implementation institutions.

55. During implementation, there were procurement issues that delayed project activities, and thus the Government had to eventually resort to self-financing of the distribution of the agriculture inputs and livestock vaccination. Finally because of the startup delays, the delivery of the inputs could only be done one year later, thus way after the actual critical situation of the emergency.

56. Therefore, given the relevance for the PDIAIM II is rated as Modest and the AF as Substantial, the **overall relevance of the project is rated as Modest.**

### **3.2 Achievement of Project Development Objectives**

(Ref. Annex 2 for outputs by component)

#### **Original Project**

#### ***Rating: Negligible***

57. **PDO.** The PDO of PDIAIM II was three-fold: (i) consolidate key incentive measures (land tenure and rural credit), (ii) increase sustainable irrigation schemes, and (iii) intensify agricultural diversification for targeted actors engaged in irrigated agriculture. To measure the PDO outcome, the PAD identified four key outcome indicators. The indicators, targets and actual status are summarized in table 2 below:

**Table 2: Degree of target achievement for the core indicators**

No. of Beneficiaries	End Target	Actual	Remark
Regional land registries allow verifications of land awards request	YES	NO	Only 1 land registry operational
UNCACEM maintains financial self-sufficiency	>100%	0%	UNCACEM is no longer functional
Sustainable irrigation schemes are increased by 5,000ha by the end of phase 2	6,000ha	2,700ha	Only rehabilitated additional 1,700ha
Crop diversification under irrigation has doubled by the end of phase 2	1,000ha	0ha	No new perimeters dedicated to diversification have been created

58. Based on the assessments of the above targets the project achievement of the PDOs is rated as Negligible and details are given below.

59. **Land tenure.** The Project fell short of achieving its target. Delays in land titling had already started to be seen in phase 1, but things got worse during phase 2. The first reason was the lack of the institutional capacity of the implementing institution. The institution responsible for this activity, *Service des Affaires Foncières et de la Cartographie* (SAFC), no longer had the adequate means. SAFC did receive PDIAIM financing but it was not enough. SAFC did not have the adequate staffing, could no longer organize support missions as well as manage its day to day operations. The second reason for the delay was caused by the delays in the signatures of the decrees both at the level of the Ministry of Finance and Council of Ministers. Thus during phase 2, only about 200 additional titles could be regularized bringing the total number to about 1,000. And out of the three targeted regions, this was mainly done in the *Trarza* region, where the *Schema de Structure* existed already. For the other three, only the perimeters of the POs' could be regularized (thus individual farmers did not benefit). In many cases there were also ambiguities between final concessions and property titles. This was the case particularly for women, for which the concession titles were merely used to benefit from the project rather than as proof of land ownership. A third reason was the dual management of land tenure issues between the Ministry of Interior and the Ministry of Rural Development (hosting the SAFC), and the inability of the project to conduct the required *Schema de structure* for the upper Valley which was needed to regularize land titles in this part of the Valley. Finally, only one land registration office was functional at the end of the Project.

60. **Rural credit.** The Project's objective with respect to rural credit was not achieved due to financial difficulties of UNCACEM and its inability to provide credits. This resulted mainly from the repetitive interventions in the institution's operations by the Government. UNCACEM was performing according to expectations and was self-sufficient until 2008 (the MTR reported that UNCACEM has reached a financial self-

sufficiency rate of 193 percent in 2007). This situation changed drastically with the 2008 flooding of the Senegal River Valley region, followed by the Global Food Price Crisis that badly hit Mauritania. At the time, the Government obliged the institution to drastically increase its lending volume (loans per hectare); UNCACEM could only meet this increased funding requirement by reverting to commercial banks that charged a very high interest rate. This combined with many producers defaulting in repayment of their loans, worsened the institutions financial viability. In December 2009, a decision by the Prime Minister to instruct UNCACEM to abandon all interest charges on its agricultural loans and forgive a large percentage of the principal outstanding impaired the quasi totality of UNCACEM's loan portfolio.

61. During 2010, UNCACEM made no loans for agriculture and in 2011 it was only able to lend to agriculture because it received the funds needed from the Government. UNCACEM ceased to be an independent financial institution; rather it became a fund receiving money from the Government which it distributed to farmers according to instructions it received. Since then UNCACEM never recovered from its financial difficulties, and was eventually replaced by the newly established Agricultural Credit institution, *Caisse de Dépôt et de Développement*.

62. **Rehabilitation of irrigation schemes.** The Project was only able to partially achieve this target. This could be attributed to natural disasters (mainly flooding), delay in land titling, very high rehabilitation costs (according to the PDIAIM's independent evaluation, the average unit cost was three times more than what was estimated initially) that resulted in rapid exhaustion of the resources planned for this activity, non-respect of the LPAD, unattractive financing and implementation mechanism for the private producers, and the complex project implementation arrangement and low capacity of the implementation institutions. The high rehabilitation cost resulted from: changes in the level of rehabilitation (originally, it was planned to finance the principal and secondary irrigation channels only but not the tertiary irrigation channels and land leveling. Later on, this was changed); inclusion of funding for protective dams; price inflation; geographic dispersion of rehabilitation sites; difficult physical access (no roads) to some rehabilitation sites; and difficult morphology of the sites in the *Haut-Fleuve*. As a consequence of all the above, only 34 percent of the targeted area could be rehabilitated under phase 2 and this was only the perimeters managed by POs (no individual farmer benefitted).

63. However, it should be noted here that all the planned studies were completed. The capacity building activities for the POs were carried through, though in depth assessment of their capacity to take over the management of the public infrastructure was not done.

64. **Diversification.** The project was able to demonstrate the potential of some agriculture practices or opportunities but it could not address the constraints related to sustainability. Consequently most of the important innovations introduced by the Project (e.g. drip irrigation) were abandoned at the end of the project mainly due to lack of capacity and lack of technical assistance, insufficient organization of the operators, (inability to use the cold-storage facilities), or unavailability of parts (for example for drip irrigation). Value chain studies (for example Onion) were carried out but there has been no follow up. No credit was made available for diversification. In terms of rehabilitation

the project focused mainly of the support to the producers already engaged in diversification activities.

65. **Triggers.** Of the five triggers for moving from PDIAIM Phase II to Phase III two were partially achieved namely: (i) the charter of procedures for water and O&M charges of public infrastructure is implemented by SONADER and producers' organizations – though the degree of adherence varies from perimeter to perimeter; and (ii) awards of irrigated land concessions are in accordance with land tenure legislation and the land use categories (*schemas de structure*) – though only the land registration bureau in Rosso functions and the land use planning for the upper Senegal River Valley was not carried out. The trigger “UNCACEM to reimburse the Government's line of credit” was not achieved, as UNCACEM went into financial difficulties, and the remaining two—rice import tariffs are maintained or reduced throughout Phase II and measures promoting competitive road transport services are fully implemented, as identified in the Bank-financed Road Transport Sector Project were not reported on.

66. It is on the basis of all the above that the **achievement of the PDO of PDIAIM II is rated as Negligible.**

#### **Additional Financing**

##### ***Rating: Substantial***

67. The PDO for the AF was to improve availability of critical agricultural inputs and food staples for targeted beneficiaries. Initially the project was to finance the acquisition of 7,200 tons of wheat and their distribution to about 600 SAVS (approximately 150,000 beneficiaries, 40 percent of which women). However, the administrative authorities decided to increase to 1,070 the number of SAVS in order to reach higher number of beneficiaries. Then following the formal restructuring of August 2013, the operation was to finance the purchase of additional 4,500 tons of cereals to be distributed to 450 SAVS.

68. According to the final results of the AF, the operation was able to distribute the anticipated 11,700 tons of wheat to the 1,520 SAVS as planned, and was able to reach more than 305,000 beneficiaries (as shown in table 3 below this is 122 percent of the initial target),

69. However, a closer look at these results reveals two major limitations. First the targeting of this operation was not fully respected; the decision of increasing the number of SAVS for the 7,200 tons, resulted in a decrease to the actual quantity of cereals per SAVS (from 12 tons/SAVS to about 7 tons/SAVS), creating a disconnect of the relative amount of wheat made relative to emergency Community needs. Thus, the vast majority of communities benefiting from the first 7,200 tons have seen this support as an emergency relief operation (to be renewed if necessary) and not as the implementation of a tool that can potentially lead to increase their resilience. Most of these SAVS have not developed replenishment strategy to the next harvest, or, in many cases, did not understand that the purpose of this instrument was the establishment of a village stock to cushion prices to the benefit of the most vulnerable. The second limitation was that due to some shortcomings (lengthy procedures for implementation) the 1st purchase of 7,200 tons did not begin distributions before July 2013, while it was in May-June-July-August 2012 that people were in the most critical situation.

70. Though the Government self-financed the distribution of agriculture inputs (fertilizer and vaccines) and livestock vaccination, the AF continued to monitor the results of these activities. A review of the results shows a 37 percent achievement for fertilizer and 78 percent achievement for livestock vaccination.

**Table 3: Number of targeted beneficiaries and achievement**

No. of Beneficiaries	No. End Target	No. Actual	% achieved
Cereals (total)	250,000	305,500	122%
Cereals (40% women)	100,000	122,200	122%

Source: From project M&E system

### **Overall achievement of the PDO**

**Rating: Modest**

71. With PDIAIM II's efficacy rating of Negligible and the AF rating of Substantial, **the overall rating for the achievement of the PDO is Modest.**

### **3.3 Efficiency**

#### **Original Project**

**Rating: Negligible**

72. As stated earlier the project resources were depleted quickly mainly by the very high rehabilitation cost. As a result the project could only achieve 34% of its target of irrigation rehabilitation. Unlike the conclusion of the illustrative Cost Benefit Analysis (CBA) for phase 2, which concluded that the ERR for the various investment models would vary from 14% (rice only) to 22 percent (rice + diversification) and 23-62 percent for diversification only, project execution developed very differently from what was expected. On the positive side, from the farmers' perspective, agricultural producers were receiving higher prices for their produce following the rise in food prices that started in 2008. Nevertheless, unit costs were two to three times higher than originally expected. It was believed that the higher cost would be offset by the higher prices farmers were receiving and improvements in productivity. However, yields were on average only 4 t/ha instead of 6 t/ha goal of the project, crop diversification was limited to very small areas and over 95 percent of the irrigation areas were dedicated as in the past to sole cropping of rice. Cropping intensity on perimeters rehabilitated under the project was 60 percent instead of 150 percent expected. In most cases the POs were in serious financial difficulties, unable to repay their debts. The Government decision to request UNCACEM forgive these debts (in turn putting the institution in financial difficulty) was partly a result of this situation.

73. Using the counterfactual analysis that the project has not delivered on expected results, taking into account that the economic justification (at least for rice) would have required a productivity of at least 6 ton/ha (which the project has not achieved) and again considering the poor achievement regarding crop intensification, it is clear that efficiency should be rated as negligible.

#### **Additional Financing**

**Rating: Modest**

74. In the Project Paper of the AF, no economic or financial analysis was carried out because of the emergency nature of activities. It was assumed that urea application on rice and maintaining the sanitary status of the national herd as they were faced with drought induced diseases would be a good investment. The independent ex-post analysis presented in Annex 11 shows that the operation, although delayed by one year, was efficiently carried out and that unit costs for food distribution and storage were reasonable. However, the same report also pointed out the one year delay in delivery of the cereals; thus not really responding to the needs during the critical period.

### **Efficiency overall rating**

75. Given that efficiency of PDIAIM II is rated as Negligible and that of the AF as Modest, the **overall efficiency of the project is rated as Negligible.**

### **3.4 Justification of Overall Outcome Rating**

#### ***Rating: Unsatisfactory***

76. On the basis of the above, with relevance rated as Modest, efficacy and efficiency as Negligible, the **overall outcome of the project is rated as Unsatisfactory.**

### **3.5 Overarching Themes, Other Outcomes and Impacts**

#### **(a) Poverty Impacts, Gender Aspects, and Social Development**

77. PDIAIM II had a positive impact on the economic situation of women in the rehabilitated irrigation perimeters. Extension agents of SONADER gave advice on vegetable growing and women farmers responded with great enthusiasm. It is with the contribution of the Project that vegetable growing by women has become much more professional. Also, the gender reporting required by the Bank forced executing agencies to start distinguishing in their reporting between female and male farmers. This is a distinction which is uncommon in Mauritania and without prodding by the project would not have happened. Over time, insistence on gender reporting by the Bank and other donors can be expected to lead to a better understanding of this issue and of more targeted interventions in favor of women farmers in the future.

#### **(b) Institutional Change/Strengthening**

78. The project had institutional strengthening as one of its objectives. Many institutions, targeted as essential for improving the performance of irrigation agriculture did benefit from PDIAIM's capacity building activities. These included: SONADER, for engineering advice and advice on agricultural production and the strengthening of cooperatives; UNCACEM, for credit; CNRADA, for agricultural research and development of new rice varieties and agronomic practices; CCQS (*Centre de Contrôle de Qualité des Semences*) for seed control and certification; DPCSE, for the production of reliable agricultural statistics; BAF/SAFC, for land registration and titling; and local engineering firms. The Producer's Organizations also were beneficiary.

79. Nevertheless, for the various reasons explained in this report, this could not be realized as expected or to the extent needed. Thus most of these institutions still are faced with capacity constraints. This fact has become more evident recently, as some members of the local donor community decided to finance an institutional review of the entire

Ministry of Agriculture with all its agencies as a precondition for any further support to the agricultural sector.

**(c) Other Unintended Outcomes and Impacts (positive or negative)**

N/A

**3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops**

80. No beneficiary surveys and/or stakeholder workshops were carried out for PDIAIM II and AF. However, comprehensive independent evaluations were carried out for PDIAIM as a whole (phase I and II) and for the AF (see Annex 10 and Annex 11 respectively for the Executive Summaries of the evaluations) which also included field visits. For instance for PDIAIM the consultants visited 22 out of the 33 project rehabilitated perimeters in the four regions, and had interactions with several resource persons including several representatives of the beneficiaries.

**4. Assessment of Risk to Development Outcome**

**Original Project**

***Rating: High***

81. Implementation of PDIAIM II was faced with too many challenges (ref earlier paragraphs) that it was not able to achieve its planned targets and even for those investments in rehabilitation of existing and development of new irrigation perimeter already done ended up being not economically profitable. Therefore, the risk is that many of the irrigation perimeters that were rehabilitated will deteriorate again and will need further rehabilitations in the future. The unit investment costs were too high, benefits too low and operation and maintenance expenditures (O&M) not adequately covered and collected. The principle that beneficiaries should pay part of the investment costs through long-term credit, although laudable, proved to be complicated as they were not respected by all projects operating in the area (some of the projects in the area financed at 100 percent thus at zero cost for the beneficiary). None of the long-term credits have been repaid aggravating UNCACEM's financial situation. The Government's decision on the final faith of UNCACEM was long overdue; eventually the Government decided to replace UNCACEM with a new credit institution. To reduce irrigation investment costs, it would have been necessary to develop new technical low-cost approaches and to adopt different construction norms. A more differentiated approach to small and large-scale perimeters, public and private, would have been necessary. At the same time, the project did not succeed to increase benefits per hectare to acceptable levels; paddy yields would have had to be much higher than they are at present, and much more double cropping and agricultural diversification would have had to take place to make the schemes sustainable. Again this did not happen due to the many reasons cited earlier (high rehabilitation costs, delay in land title regularization, low capacity of the implementation agencies, etc.).

**Additional Financing**

***Rating: Low***

82. The AF, being an emergency response to a specific crisis, did not seek to establish any sustainable outcome. Nevertheless, as a result of its execution, a number of important lessons concerning how to deal with food security issues became clearer to the

Government and the Bank that will allow improvement of policy formulation and interventions in this area.

## **5. Assessment of Bank and Borrower Performance**

### **5.1 Bank Performance**

#### **(a) Bank Performance in Ensuring Quality at Entry Original Project**

*Rating: Moderately satisfactory*

83. The Project preparation team has done its due diligence, as all studies required for phase 2 were already completed during phase 1, lessons from phase 1 were taken into account not only in the design, but also efforts were made to address issues that caused delays during the implementation of phase 1 (including bringing together engineering firms and contractors, arrangements for better coordination among core implementation agencies, etc.). Again drawing on the lessons from phase 1, the team also gave careful attention to the design of the credit component and closely worked with a financial sector specialist to introduce the necessary revisions.

84. However, there were also some limitations. The team did not analyze in sufficient depth the deep seated and persistent challenges facing irrigated agriculture in Mauritania. It considered that all the underlying assumptions that went into the formulation of the Policy Letter for Irrigated Agriculture in Mauritania and the PDIAIM APL were still valid and that Phase II would be a continuation of Phase I with little or no significant changes. Being part of a larger program financed through a three-phased APL, there was a notion that despite the ambitious targets and inherent complexities there was ample time to deal with and resolve these issues. The financial analysis of farm budgets that was used: a) to demonstrate the economic benefits of rehabilitation and b) to show that farmers should be able to repay not only their short-term agricultural loans but also the long-term investment loans was overoptimistic. It used yield figures and cropping intensities that could theoretically be achieved but only if all the many interdependent aspects of the project had been executed like a clock work. No meaningful sensitivity analysis for risks was carried out that would have shown how vulnerable and uncertain farmers' repayment capacity was. The institutional capacity limitations of the two key institutions: UNCACEM for credit and SONADER for advice on engineering as well as agricultural extension advice were identified, but again no revisions were made to the ambitious targets, that were less likely to be achieved given the level of performance of these institutions. As stated earlier a Quality at Entry Assessment was done in September 2005 which gave the project a satisfactory quality-at-entry rating.

#### **Additional Financing**

*Rating: Moderately satisfactory*

85. The AF, since it was the response to a food emergency, was supposed to be put in place in a very short time. It was developed based on the report by the Bank DRM team and the Government's EMEL plan. The design was simple and relevant to the then prevailing emergency situation. One limitation of the AF was the ambitious targets; that is some of the quantitative targets should have been examined in greater depth since they turned out to be unrealistic in light of capacity limitations of implementing agencies.

**(b) Quality of Supervision**  
**Original Project**

***Rating: Unsatisfactory***

86. As noted before, prior to the floods in 2008 the Bank was aware of delays in project implementation and downgraded both IP and DO. The supervision team focused on addressing the underlying factors for the delays and accelerating implementation, with some level of success<sup>16</sup>. But events took over the Bank's effort of making the project more functional. Following the floods in 2008 and the Global Food Price Crisis, the Government took a number of decisions, especially concerning UNCACEM, that planted the seeds for derailing the project. Given that soon thereafter disbursements were suspended under OP/BP 7.30 due to the political unrest, there was no on-going dialogue or engagement between the Bank and the Government on these issue and project implementation continued without restructuring.

87. Following the reengagement, and with the new Government in place, supervision efforts initially were focused to receive buy-in and ownership of the project by the new government and guiding the new government to take necessary actions as recommended in the aide-memoires. However, the Government did not come to a quick decision. Furthermore, the Ministry of Rural Development was split into two.

88. It is true that the occurrence of flood, food price crisis and the stalemate following the political crisis was not conducive to push for significant restructuring. In hindsight, however, the Bank team should have gone forward and start considering restructuring the project once delays were apparent in project implementation. The team was candid in its ratings of project progress initially but it did not show the same candor as project implementation was progressing without substantive results; the project was rated as MS in the ISR throughout its implementation period, except at the very end when it became clear that a third phase was not forthcoming. The MTR should have been more forceful and establish a clear timeline for the recommendations it made. To complicate matters, the country office-based TTL of the project moved from Nouakchott to Kinshasa (DRC) not long after the Bank's reengagement following the political crisis; in the process close follow up and consultation that would have been necessary for constructive engagement to translate recommendations into actions was compromised. Moreover, bringing the new Government on board took time and a good opportunity was missed waiting for the Government to make its decision on its choice of instruments in support of irrigation agriculture development. Finally, it should be noted that at the time of reengagement the project had disbursed 75 percent of the credit proceeds. It is understood that in view of this, the Bank might not have had a strong incentive to restructure the project as the scope for corrective measures was perceived as too limited to turn around the overall assessment of project performance.

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<sup>16</sup> At the time of MTR the Bank team noticed that the project's performance in delivering irrigation rehabilitation works had considerably increased, with an overall duration between scheme identification and completion of rehabilitation works reduced from 40 months at the beginning of Phase II to 20 months only at MTR. Also at MTR time UNCACEM had reached a financial self-sufficiency rate of 193%.

## **Additional Financing**

### ***Rating: Satisfactory***

89. Overall, the AF was well supervised and necessary course corrections were done expeditiously through restructuring. The fact that the AF was restructured several times within two years is proof that project supervision was highly proactive and that the Bank team did not hesitate to adjust project interventions and activities to evolving circumstances. The Bank team was proactive and instrumental in extending project closing date, identifying weakness and delivering training (e.g. in M&E), in dialoguing with the Government and providing the necessary studies requested by the Government, including independent evaluation of the project.

### **(c) Justification of Rating for Overall Bank Performance**

#### ***Rating: Unsatisfactory***

90. With respect to PDIAIM II, the Bank team has done its due diligence as most of the preparatory work was completed (including required studies and taking into account the lessons learned from phase 1). However, many shortcomings had been seen in the supervision of the Project, particularly after the MTR; including lack of follow up of the missions' recommendations, failing to propose a substantial restructuring, inability to take a stronger stance towards the inappropriate measures taken by the new Government that negatively impacted the Project implementation. The AF was a satisfactory undertaking that used existing infrastructure, selected areas where the Bank could make quick contribution and partnered with the Commissariat for Food Security (CSA) which in turn benefitted from WFP's experience and support in distribution of food. Supervision was timely carried and the necessary adjustments to the project were made quickly.

91. On balance, the **overall performance of the Bank is rated Unsatisfactory.**

## **5.2 Borrower Performance**

### **(a) Government Performance**

#### **Original Project**

##### ***Rating: Unsatisfactory***

92. The first Government was fully behind the project and fully committed to the required reforms in the sector, as expressed in the Policy Letter, though it failed to fully implement the LPDAI, as it allowed some donors to provide financing on terms and conditions that undermined the orientation of the project, especially the need for farmers to co-finance that would have helped in developing ownership of the irrigation works. In addition there had not been on-sight inspection of UNCACEM by the Central Bank (BCM) since 2007. This constituted a regulatory/supervisory failure for which the Government, the management of UNCACEM and the supervisory authority were responsible.

93. With the new Government taking office in 2009 the situation changed significantly. PDIAIM II was seen as a priority of the former government. Thus the new Government was not necessarily in full support of the project. Consequently,

commitments of the new Government, including its support to the Irrigation Policy Letter waned over time. Also, the Government became increasingly interventionist in the affairs of UNCACEM, did not stem the decline in SONADER's capacity, reduced its support for land titling, and started a policy of 100 percent subsidies. The government did not come up with clear proposals to move the envisaged reform process forward, but rather in response to problems on the ground appeared to be moving towards turning back the clock on them. This was not an appealing platform for engagement for the Bank and other donors, resulting in unilateral decisions by the Government. Lastly the Government never came forward with a request to the Bank for restructuring the Project that could have helped partially redress the situation.

### **Additional Financing**

#### ***Rating: Moderately Satisfactory***

94. The Government acted decisively once it became clear that Part E 1 of the project (fertilizer distribution and animal vaccine delivery) could not be implemented in time respecting World Bank procurement rules and regulations. However the Government's unilateral decision to increase the number of SAVS to 1,075 resulted in a reduction of the quantity of wheat made available from 12 tons/SAVS to 7 tons/SAVS.

#### **(b) Implementing Agency or Agencies Performance**

### **Original Project**

#### ***Rating: Unsatisfactory***

95. **PCU.** The PCU played its role of project administrator and coordinator, and fulfilled its fiduciary role concerning procurement and financial management reasonably well. However, despite having the mandate, it played a rather passive role vis-à-vis the project executing agencies (SONADER and UNCACEM) and did not have the technical capacity to monitor and, if necessary, control their performance.

96. **SONADER.** SONADER's operational and technical capacity decreased over time due to the departure of key staff and insufficient Government support. It did not satisfactorily fulfill the role that had been expected from it, namely to be the project's advisor and supervisor for irrigation rehabilitation and operation and maintenance (O&M) and to provide agricultural extension advice of the quantity and quality needed and expected.

97. **UNCACEM.** UNCACEM was not able or unwilling to diversify its credit risks through lending for activities other than agriculture and even for agricultural credit it was either unable or unwilling to provide a line of credit in support of double cropping and diversification activities promoted under the project. Ultimately, UNCACEM failed to prevent its loan portfolio from deteriorating to the point where it was basically insolvent. Following the floods and the food price crises in 2008, UNCACEM was not in a position to resist Government interference in its lending policies and ended up acting not as an independent bank but as a Government fund to distribute subsidized funds for rice growers.

### **Additional Financing**

#### ***Rating: Moderately satisfactory***

98. **CSA.** CSA performed its role according to expectations.

99. **Department of Agriculture.** The Department of Agriculture delivered fertilizer on time but to fewer cooperative rice farmers than had been expected and at a subsidy rate of 100 percent instead of 50 percent as was usually done before.

100. **Department of Livestock.** The Department of Livestock did not have the operational capacity to reach the agreed upon targets in terms of additional animals vaccinated each year, but it delivered a substantially increased vaccination program with project support.

101. **PIU.** The AF was simple indeed, but the PIU executed the project as planned and the available funds under the AF were fully disbursed.

### **(c) Justification of Rating for Overall Borrower Performance**

#### ***Rating: Unsatisfactory***

102. While the former Government initially supported the PDIAIM and its underlying policy letter, the support waned with the arrival of a new Government. The Minister of MDR expressed his initial skepticism and later doubts about the concept of PDIAIM but did not go as far as to ask IDA to reconsider its approach. A frank dialogue between the Government and the Bank during that time might have allowed for a fresh start. The executing agencies of PDIAIM II, especially SONADER and UNCACEM did not perform as expected. In the case of the latter, it was the Government's repetitive interventions in its day to day operation that aggravated its financial situation. SONADER never got the needed support from the Government (mainly in terms of staffing). SONADER today is not stronger than it was at project start and UNCACEM has been replaced by the CDD.

103. With respect to the AF, the Government fulfilled most of its obligations under the AF. Especially noteworthy is the fact that it was proactive and that it used its own funds to carry out part of project activities once it became clear that they could not be financed in time with IDA funds. The executing agencies, despite some shortcomings, equally performed their obligations in a satisfactory manner.

### **6. Lessons Learned**

- **A more participative and holistic approach.** It is mainly due to the top-down approach (overly interventionist, overly focused on rehabilitation, too focused on achieving immediate results) used by both LPDAI and initial PAD of the project that led to the unsuccessful results: there was insufficient dialogue and consultation with the beneficiaries with respect to the rehabilitation works (from studies, supervision of the works and final hand-over); rehabilitation of perimeters was not necessarily the top priority of the communities (as there are many other risks and constraints such as floods, crop pests, land-locked positioning, lack of quality seed, etc.); some communities had limited capacities in terms of leadership and organization and management; and the results obtained in terms of quality of the rehabilitation works, economic profitability of the beneficiaries and sustainability of the diversification activities were precarious (also one of the reasons for the lack of interest from the private producers). Thus a much more

participative and holistic approach that would take into account the targeted communities constraints should be used.

- **Agricultural credit versus grants.** For many producers, credit, especially long-term credit to finance part of irrigation rehabilitation, is not the appropriate instrument. As the first order of business, an irrigation project has to demonstrate to farmers that the volume and quality of their products (and thus income) will be enhanced through a given operation before farmers commit to the objective of the project. It is only after farmers bought into the idea and their activities started to generate sufficient cash revenue that credit, financing O&M and other services should be considered. In this case, a grant is a more appropriate instrument. If the objective is to make beneficiaries participate in the costs of rehabilitation, appropriate low-cost technical designs should be used and farmers should contribute with increased labor.
- **High costs investments on equipment and facilities** should only be undertaken once ownership, operations and management have been well settled. Otherwise there is the real possibility, as was the case under PDIAIM I and II, that the equipment and facilities will not be used (case of facility in *Rosso*) or for completely different purposes (case of Nouakchott where the project financed a cold storage facility that was intended for vegetables to be exported and is now being used to conserve fish).
- **Even within APL scenario, there is no substitute to a timely project restructuring.** Although the longer implementation period of an APL might suggest that there is ample time to resolve project design and implementation issues, teams should not shy away from project restructuring and should be encouraged by management to do so when needed.
- **Cost overruns can distort interpretation of disbursement figures.** Satisfactory disbursement figures can be misleading as they may hide significant cost overruns, as was the case for irrigation rehabilitation under this project. In addition, APLs, by their very nature, have disbursement categories that are broad and not easy to match disbursements with quantitative achievement of physical outputs.

## Annex 1. Project Costs and Financing

### A/ Original project

#### (a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual (USD millions)	Percentage of Appraisal
A. Rural Incentives and Capacity Building	3.14	3.78	120%
B. Infrastructure for Irrigated Agriculture	22.73	20.52	90%
C. Agricultural Supply Chains	9.92	9.85	99%
D. Project Administration and Safeguards	6.65	6.93	104%
<b>Total Baseline Cost</b>	<b>42.44</b>	<b>41.08</b>	97%
Physical Contingencies	0.78		
Price Contingencies	3.44		
<b>Total Project Costs</b>	<b>46.66</b>	<b>41.08</b>	
Interest during construction	0		
Front-end fee PPF	0		
<b>Total Financing Required</b>	<b>46.66</b>	<b>41.08*</b>	

\* An equivalent of US\$678,966.15 was cancelled from the original IDA allocation

#### (b) Financing

Source of Funds	Appraisal Estimate (USD millions)	Actual (USD millions)	Percentage of Appraisal
Borrower	4.8	2.6	55%
Local Communities	2.8	0.3	11%
International Development Association (IDA)	39.0	38.7	98%
<b>Total</b>	<b>46.6</b>	<b>41.91</b>	88%

\* An equivalent of US\$678,966.15 was cancelled from the original IDA allocation

### B/ Additional Financing

#### (a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
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D. Project Administration and Safeguards	1.25	1.14	91%
E. Emergency and Food Price Response	13.00	6.31	49%
<b>Total Baseline Cost</b>	<b>14.25</b>	<b>7.45</b>	52%
Physical Contingencies	0	0	
Price Contingencies	0.71	0	
<b>Total Project Costs</b>	<b>14.96</b>	<b>7.45</b>	50%
Interest during construction	0	0	
Front-end fee PPF	0	0	
<b>Total Financing Required</b>	<b>14.96</b>	<b>7.45*</b>	50%

\* An equivalent of US\$2,526,127.85 was cancelled from the IDA allocation

### (b) Financing

Source of Funds	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower	0.61	0	
Local Communities	4.36	0	
International Development Association (IDA)	5.00	2.54	51%
Global Food Price Crisis Response Program (GFCRP)	5.00	4.91	98%
<b>Total</b>	<b>14.97</b>	<b>7.45*</b>	50%

\* An equivalent of US\$2,526,127.85 was cancelled from the IDA allocation

## Annex 2. Outputs by Component

1. **Component A: Rural Incentives and Capacity Building – US\$3.5 million (IDA: US\$2.76 million).** The objective of this component was to consolidate the policy measures and incentives initiated under during Phase I, and improving the capacity of national and regional rural institutions to implement the Program. It focused primarily on: (i) collection and analysis of annual agricultural statistics; (ii) registration of land for candidates to irrigation development; (iii) capacity building activities; and (iv) analytical works related to a rural finance expansion strategy in the Senegal River Valley. Table 2.1 shows the degree of achievement of intermediate outcome indicators

**Table 2.1 Degree of achievement of intermediate outcome indicators for Component A**

No.	Indicator	Targets	Actual
1	SAFC/BAF process at least 75% of land registration requests within one (1) month	75%	0%
2	Strategy for rural finance expansion is carried out	On time	On time
3	Annual Ag. Statistics are produced on time	On time	On time
4	POs of large-scale irrigation schemes collect adequate water and O&M charges	75%	50%

2. **Intermediate Results Indicator 1: “SAFC/BAF process at least 75% of land registration requests within one month.” Target not achieved (0%).** SAFC had serious resources problems due to the sudden withdrawal of the supports by the AFD and EU. PDIAIM tried to take the relay under phase 2 but this was not sufficient, and thus the institution could not adequately carry through its tasks. The ISR number 14 reported that “regional land registries were introduced in all *Prefectures* and allow verification of land awards on request”. However, capacity building of staff at regional level was considered necessary to improve the registration process. Also, the elaboration of the land use plan (*schema de structure du foncier*) in the Upper Senegal River Valley would have increased the usefulness of this tool. Unfortunately, the land use plan for the Upper Valley was never carried out. At the time of this ICR, only the SAFC/BAF office in *Rosso* (*Trarza* Region) is still functioning and the Government has suspended the land registration process as of February 2011. Also, the government seems to have changed its approach to land titling. During the implementation of PDIAIM II, preliminary land titles were a requirement of UNCACEM to access credit under the project. With the demise of UNCACEM applicants will need full-fledged land titles in order to be able to access credit

3. **Intermediate Results Indicator 2: “Strategy for rural finance expansion is carried out.” Target achieved (100%).** During the Mid-term review and several implementation support missions, UNCACEM was asked to carry out a study to determine how it could lower its credit risks while at the same time expanding its credit products. The World Bank was particularly interested in seeing UNCACEM opening its credit offerings to cover the credit needs of farmers engaged in double cropping and in agricultural diversification activities. By December 2011, this study had been carried out by an international consulting firm. However, by that time, the financial situation of UNCACEM had deteriorated so much that the Government was no longer willing to use

it as its tool for providing agricultural credit. As stated in earlier paragraphs, it eventually replaced it by the CDD.

4. **Intermediate Results Indicator 3: “Annual agricultural statistics are produced on time.” Target achieved (100%).** For the whole period of PDIAIM II, the project supported the MDRE’s unit of policy analysis and monitoring (DPCSE). It financed the annual production of agricultural statistics, which were regularly produced. The only weakness was the fact that DPCSE was not able to produce reliable statistics concerning the volume of production of diversified crops.

5. **Intermediate Results Indicator 4: “75% of producer organizations (PO) of large-scale public irrigation schemes collect adequate water and O&M charges.” Target partially achieved (54%).** Based on the assessment done in 2001, 54% of the POs collected the charges. According to the Independent Evaluation, the results vary by region: POs effectively collected all the charges (usage fee and maintenance of common infrastructures) in the *Trarza*, while in the others (*Brakna, Gorgol and Guidimagha*) the POs collection was limited to operational costs (usage fee and salaries).

6. **Component B: Infrastructure for Irrigated Agriculture – US\$24.88 million (IDA: US\$21.11 million).** This component, which was the largest (53 percent) of Phase II aimed primarily at providing technical services and investment funds to land owners to expand irrigation schemes, along with secure land tenure and capacity building provided in other components. SONADER was to provide satisfactory supervision of irrigation development and Phase III’s investment in irrigated agriculture was to be adequately prepared. Table 2.2 shows the degree of achievement of the intermediate outcome indicators.

**Table 2.2 Degree of achievement of intermediate outcome indicators for Component B**

No.	Indicator	Targets	Actual
5	No rehabilitation/creation work straddles the rainy season	0	1
6	Planned priority feasibility studies for Phase III are completed	5 studies	0

7. **Intermediate Results Indicator 5: “No rehabilitation work straddles the rainy season.” Target partially achieved (50%).** This indicator was agreed in order to detect and avoid costly delays in civil works related to irrigation rehabilitation; unless these works are finished on time, a whole growing season is lost. However, this could not be achieved. The first reason was that bigger international construction firms had never been attracted to project implementation and thus only small local engineering firms (with limited technical and financial capacity) participated. Secondly, the implementation public institutions also suffered from this lack of capacity. An attempt was made, at appraisal, to address this issue by introducing performance based contract with SONADER to provide supervisory services. Moreover, several implementation support missions mentioned this limited capacity, and tried to encourage the participation of bigger construction firms from neighboring countries but in vain. In the end bigger foreign construction firms did not participate in the rehabilitation works and the performance contract between SONADER and the PCU was not adequately followed and enforced. As a result, the rehabilitation component was beset with problems of poor quality.

8. **Intermediate Results Indicator 6: “Planned priority feasibility studies for Phase III are completed.” Target not achieved (0%).** Since there was no Phase III, no feasibility studies for a follow up operation were carried out. Nevertheless, PDIAIM II financed a series of policy studies to assist the Government in defining its agricultural development strategy.

9. **Component C: Support to Agricultural Supply Chains – US\$10.94 million (IDA: US\$9.15 million).** The aim was to provide the necessary assistance to the development of a competitive rice subsector with improved quality of domestic rice, and a diversified agricultural base, targeting rice and horticultural supply chain participants engaged in domestic and export markets. It included three sub-components: C1: Support to Basic Farm Management; C2: Support to the Rice Subsector; and C3: Promotion of Agricultural Diversification. Table 2.3 shows the degree of achievement of the intermediate outcome indicators

**Table 2.3 Degree of achievement of intermediate outcome indicators for Component C**

No.	Indicator	Targets	Actual
7	All rice rehabilitated area is sown with improved seed	100%	90%
8	UNCACEM’s loan reimbursement rate reaches at least 95% by the end of Phase II	90%	0%
9	Project-built storage and packaging centers are functional.	3	1
10	Number of fruits and vegetable producers linked to export markets has doubled by the end of Phase II	16	0

10. **Intermediate Results Indicator 7: “All rice rehabilitated area is sown with improved seed.” Target largely achieved (90%).** Based on data provided by the project’s M&E system, during 2011, 90% of the rehabilitated area was sown with improved seed. However, according to the report of the Independent Evaluation, there are difficulties for farmers to obtain adequate amounts of credit on time. Also, the quality of seed produced by some of the seed producers is of doubtful quality, even while they are supposed to be controlled by the seed certification service of MDRE. According to field reports, farmers are obliged to obtain rice seed from across the border in Senegal.

11. **Intermediate Results Indicator 8: “UNCACEM’s loan reimbursement rate reaches at least 95% by the end of Phase II.” Target not achieved (0%).** During the initial years, implementation support missions reported that UNCACEM was performing according to expectations. The MTR of April 2008 still reported that UNCACEM had reached a financial self-sufficiency rate of 193% in 2007. However, starting in 2008, the financial situation worsened drastically. For that year, the Government obliged the institution to drastically increase its lending volume (loans per hectare) to encourage rice production, since there had been a natural disaster in the previous year. UNCACEM had to finance this lending through loans from a pool of commercial banks which carry a 100% Government guarantee. Most of the loans to producers were not repaid. The quasi totality of UNCACEM loan portfolio was impaired. In December 2009, a decision by the Prime Minister asked the Minister of Rural Development to instruct UNCACEM to abandon all interest charges on its agricultural loans and forgive a large percentage of the principal outstanding. During 2010, UNCACEM made no loans for agriculture and in

2011 it was only able to lend to agriculture because it received the funds needed from the Government. UNCACEM ceased to be a financial institution and became a fund receiving money from the Government which it distributed to farmers according to instructions it received. In 2013, the Government decided to replace UNCACEM with a new public institution lending for agriculture: *Caisse de Dépôt et de Développement*.

12. **Intermediate Results Indicator 9: “Project-built storage and packaging centers are functional.” Target not achieved (0%).** In order to enable agricultural diversification and especially the export of commercial horticultural products, under PDIAIM I a cold storage and packing infrastructure was built at the Nouakchott’s airport and in phase 2 the one *Rosso* was built. At that time, two producers/exporter GIEs were formed and considerable international specialized technical assistance was provided. Only at one time were products sent to the European market but could not be sold. This initiative did not succeed. Today, the cold storage at the Nouakchott airport is used for cold storage of fish and the cold storage and packing infrastructure in *Rosso* is empty and not being used for lack of a private or private entrepreneurs interested in engaging in the export of horticultural products.

13. **Intermediate Results Indicator 10: “Number of fruits and vegetable producers linked to export markets has doubled by the end of Phase II.” Target not achieved (0%).** Only once at the end of Phase I were agricultural products (melons) exported to Europe, and this with considerable support from a specialized international consulting firm. The experience was not successful and has been abandoned. Thus as of December 2011, it was reported that the Project changed focus to local market and consequently, at project closure, there were no exporters of fruits and vegetables linked to the project. The infrastructure built to facilitate agricultural exports is not being used (case of storage facility in *Rosso*) or used for other purposes (case of storage facility at the airport in Nouakchott which is used for cold storage of fish products).

14. **Component D: Project Administration – US\$7.34 million (IDA: US\$5.98 million).** It aimed at ensuring that the proper coordination of project activities, implementation of the social and environmental safeguards, and the monitoring of activities and evaluation of impacts. The component included three sub-components: D1: Project Management and Coordination; D2: Monitoring and Evaluation; and D3: Environmental and Social Safeguard Measures. Table 2.4 shows the degree of achievement of the intermediate outcome indicators.

**Table 2.4 Degree of achievement of intermediate outcome indicators for Component D**

No.	Indicator	Targets	Actual
11	Audits are produced on time and without major reserves	100%	100%
12	M&E’s periodic reports are produced on schedule	All	All
13	Impact analysis studies are carried out (implementation of land tenure, social assessment, rural public expenditures)	-	2

15. **Intermediate Results Indicator 11: “Audits are produced on time and without major reserves.” Target achieved (100%).** Audit reports were produced by June 30 of each year and were unqualified.

16. **Intermediate Results Indicator 12: “M&E’s periodic reports are produced on schedule.” Target achieved (100%).** M&E reports were regularly produced and on schedule.

17. **Intermediate Results Indicator 13: “Impact analysis studies are carried out (implementation of land tenure, social assessment, rural public expenditures). Target partially achieved (50%).** Public expenditure review and study on rural development strategy were carried out. However, the land tenure study was not carried out and the report on the social assessment is no longer available.

18. **Component E: Emergency and Food Price Response – US\$10.0 million (IDA: US\$5.0 million and FPCR-TF: US\$5.0 million).** This component was in response to the Government’s request for emergency support and its objective was to improve availability of critical agricultural inputs and food staples for targeted beneficiaries. It had two sub-components: E.1: Agricultural and Livestock Productivity Enhancement; and E.2: Support to Food Safety Net. After restructuring, the supply of critical agricultural inputs (fertilizers and veterinary products) was financed by and became the sole responsibility of the Government. Table 2.5 shows the degree of achievement of the intermediate outcome indicators.

**Table 2.5 Degree of achievement of intermediate outcome indicators for Component E**

No.	Indicator	Targets	Actual
14	Additional volume of fertilizers distributed to farmers	4,400MT	1,400MT
15	Percentage of additional fertilizer distributed in time for the cropping season (delay of less than 10 days compared to plan).	80%	90%
16	Additional number of livestock vaccinated (disaggregated by type of livestock/vaccines.”	-	
	Large ruminants	680,000	577,050
	Small ruminants	1,450,000	1,816,834
17	Additional number of livestock benefitting from treatment with veterinary products	800,000	664,544
17	Additional number of SAVS ( <i>Stock Alimentaires Villageois de Sécurité</i> ) stocked up to meet the food demand of beneficiaries during the period of food shortage	600	1,520

19. **Intermediate Results Indicator 14: “Additional volume of fertilizers distributed to farmers.” Indicator partially achieved (37%).** In the Results Framework of the AF it was envisaged to supply 29,000 farmers (0.5 ha of rice per farmer) with 4,400 tons of urea. In actual fact, about 1,600 tons were distributed during 2011/2012 and 2012/2013 to an additional 10,000 beneficiaries. The initial quantity of fertilizer to be distributed as well as the number of beneficiaries was overestimated and unrealistic from the beginning. Also, the Government decided to subsidize the fertilizer 100% and not 50% as had been done before. No reliable data are available on the percentage of women farmers that were provided with urea.

20. **Intermediate Results Indicator 15: “Percentage of additional fertilizer distributed in time for the cropping season (delay of less than 10 days compared to plan). Indicator achieved (100%).**90% of fertilizer was distributed on time for the cropping season, compared to an objective of 80%.

21. **Intermediate Results Indicator 16: “Additional number of livestock vaccinated (disaggregated by type of livestock/vaccines).”** While the target for large ruminants was partially achieved (84%) the target for small ruminants was overachieved (125%). The Government allocated substantial additional resources to livestock vaccination campaigns during 2011/2012 and 2012/2013. However, the objectives were overambitious and did not take into account the limited operational capacity of the Directorate of Livestock for such vaccination campaigns. Monitoring set-up was weak and did not allow the disaggregation of data by gender and category of herder.

22. **Intermediate Results Indicator 17: “Additional number of livestock benefitting from treatment with veterinary products.’** Indicator partially achieved (83%). Same comment as under Intermediate Results Indicator 16 above.

23. **Intermediate Results Indicator 18: “Additional number of SAVS (*Stock Alimentaires Villageois de Sécurité*) stocked up to meet the food demand of beneficiaries during the period of food shortage. Indicator fully achieved (over 100%).** The original objective of the AF was to distribute 7,200 tons of wheat to 600 SAVS but the government decided to distribute wheat to 1,070 SAVS. After restructuring, 4,500 tons of wheat were added to be distributed to an additional 450 SAVS. This objective was also met.

### Annex 3. Economic and Financial Analysis

1. As stated in the PAD of phase 2 no “Cost Benefit Analysis (CBA) was carried out for the whole project because benefits of capacity building activities defy quantification, and benefits from investments in safeguard measures cannot be easily quantified in monetary terms”. Consequently, only an illustrative CBA of irrigation development in rehabilitation, extension and new creation, undertaken by cooperatives and private individual producers. The analysis considered three illustrative investment models (rice sole cropping, rice and diversified crops, and diversification in vegetables, fruits and forage production) undertaken by cooperative and private individual farmers operating in the *Trarza* and *Haut-Fleuve*. The results were very positive and the ERR for the various investment models varied from 14% (rice only) to 22% (rice + diversification) and 23-62% for diversification only.

2. During the Mid-Term Review (MTR) of the project in April 2008, the ERR for three perimeters (*Casier Pilote de Boghe* – 790ha; *Périmètre Pilote du Gorgol 1* – 690ha; and *Périmètre Pilote du Gorgol 2* – 1188ha) was recalculated taking into account the increased rice price at the time (from 60 UM/kg to 115 UM/kg). According to the MTR Aide-Memoire, the ERR and Benefit/Cost Ratios were as follows:

- *Casier Pilote de Boghe* ERR: 28.3% RB/C : 2,64
- *Périmètre Pilote du Gorgol 1* ERR : 31.1% RB/C : 2.65
- *Périmètre Pilote du Gorgol 2* ERR : 44.7% RB/C : 3.62

3. The critical assumptions made at that time were: a) average yields in the absence of natural catastrophes: 4 t/ha before rehabilitation, 5 t/ha in year 1 and 6 t/ha the following years, and b) a rehabilitation cost per ha of 1.6 million UM (without pumps), and c) a price of paddy of estimated at 98 MU/kg.

4. This ICR did not undertake a CBA as it applies to the final project outcome, because of lack of data (see M&E section). Nevertheless, it reexamined the analysis done during MTR, to see its usefulness. The conclusion of this evaluation is that the assumptions made during the MTR did not hold. Given the final outcomes of the project, it would only make sense to evaluate the situation against the rice growing model, as this is the one practiced by the overwhelming majority of farmers in the rehabilitated perimeters.

5. During PDIAIM I, the average unit costs of rehabilitation was 525,000 UM/ha and the repayment corresponded at the time to an annual repayment equivalent to about 1 ton of paddy. Thus to finance this with short- and long-term loans given UNCACEM’s interest rates and repayment conditions, rice production was profitable provided yields were above 3t/ha and repayment of the debt over medium and long-term was possible with a yield slightly higher than 2.5 tons/ha.

6. During the second phase, the average unit costs of rehabilitation increased to over 1.4 million UM/ha (going as high as 2 million UM/ha for some of the regions) (see table 3.1 below). The main reasons for these cost increases were: (a) price inflation; (b) changes in the level of rehabilitation (originally, it was foreseen only to finance the principal and secondary irrigation channels but not tertiary irrigation channels land leveling. Later on, this was changed); (c) inclusion of funding for protective dams; (d)

great geographic dispersion of rehabilitation sites; (e) difficult physical access (no roads) to some rehabilitation sites; (f) difficult morphology of the sites in the *Haut-Fleuve*.

**Table 3.1 Costs of Rehabilitation of Irrigation Perimeters PDIAIM II**

Phase	Targets (ha)	Wilaya	Actual		Cost millions of UM, UM for average costs			
			Number of perimeters	Area (ha)	Studies	Supervisions	Works	Total
Phase 1	3,100	Trarza	9	563				
		Gorgol	3	195				
		<b>S/total Phase 1</b>	<b>12</b>	<b>758</b>	<b>24.6</b>	<b>38.8</b>	<b>397.8</b>	<b>461.2</b>
	<b>Average cost /ha Phase 1</b>				<b>32.397</b>	<b>51.146</b>	<b>524.842</b>	<b>608.386</b>
Phase 2	5,000	Trarza	3	446				
		Brakna	10	591				
		Gorgol	7	504				
		Guidimagha	1	160				
	<b>S/total Phase 2</b>	<b>21</b>	<b>1,701</b>	<b>55.1</b>	<b>224.5</b>	<b>3,049.6</b>	<b>3,329.1</b>	
<b>Average cost /ha Phase 2</b>				<b>32,369</b>	<b>131,991</b>	<b>1,793,152</b>	<b>1,957.512</b>	

Source: PDIAIM's Independent Evaluation Report

7. Thus with the increase in price, though the annual repayment remained at 1 ton of paddy, rice production was now profitable only with yields over 4t/ha, and just to repay the annual loan costs required yields equivalent to 3.5 tons/ha.

8. According to the independent evaluators, the yields in the rehabilitated perimeters are estimated at only 4t/ha. Thus in all the perimeters where the rehabilitation costs were above 1.4 million UM/ha, it was clear that cooperative farmers had difficulties not only in servicing their loans but also with the profitability of the rice production. For example for the perimeter of *Diaguily*, where the rehabilitation cost was 2.9 million UM/ha, rice production will only be profitable only with a yield of more than 5.5 tons/ha and annual repayment equivalent to 1.7 tons of paddy. And this can only be possible with a yield of at least 4 tons/ha, resulting thus in zero cash-flow after repayment over the loan period (see table 3.2 below).

9. For private irrigation farmers (up to 40ha), the credit conditions for participating in PDIAIM II were not attractive. They would have had to pay 70% of the rehabilitation costs. This would have been only feasible and interesting if they had achieved yields of about 5t/ha.

**Table 3.2: Producers' Organizations operating account and loan repayment capacity (UM/ha)**

	2005			2013 (Average)			2013 Diaguily		
	Quantities	Unit cost	Total	Quantities	Unit costs	Total	Quantities	Unit costs	Total
Operating expenses									
Seed	40	80	3.200	120	140	16.800	120	140	16.800
Fertilizer									
Urea	250	35	8.750	300	118	35.400	300	118	35.400
TSP	200	60	12.000	120	155	18.600	120	155	18.600
Herbicides	5	800	4.000	5	1.140	5.700	5	1.140	5.700
Fuel	200	250	50.000	200	384	76.800	200	384	76.800

Water pump maintenance	1	800	800	1	2.000	2.000	1	2.000	2.000
Labour/offset	1	5.800	5.800	1	12.000	12.000	1	12.000	12.000
<b>Sub-total 1</b>			<b>84.550</b>			<b>167.300</b>			<b>167.300</b>
Harvest	0	0	0	1	30.000	30.000	1	30.000	30.000
Transportation and miscellaneous	1	2.000	2.000	1	27.450.0	27.450	1	27.450.0	27.450
Staff cost	120	300	36.000	1	27.000	27.000	1	27.000	27.000
Financial costs(short term)			8.455			15.615			15.615
Unforeseen	0	0	0	1	10.797	10.797	1	10.797	10.797
<b>Sub-total 2</b>			<b>131.005</b>			<b>278.162</b>			<b>278.162</b>
<i>Equivalent paddy (kg)</i>		50	2.620		90	3.091		90	3.091
<b>Amortization</b>									
Amortization Water pump			22.500			22.500			22.500
Amortization Rehabilitation			52.500			140.000			290.000
<b>Sub-total 3</b>			<b>75.000</b>			<b>162.500</b>			<b>312.500</b>
<i>Equivalent paddy (kg)</i>		50	1.500		90	1.806		90	3.472
<b>TOTAL COSTS</b>			<b>206.005</b>			<b>440.662</b>			<b>590.662</b>
<i>Equivalent paddy (kg)</i>		50	4.120		90	4.896		90	6.563
<b>Loan amounts (med and long term)</b>									
Loan, Medium term, Water pump			24.700			24.100			24.100
Loan, Long term, Rehabilitation			24.600			63.400			131.300
<b>Sub-total 4</b>			<b>49.300</b>			<b>87.500</b>			<b>155.400</b>
<i>Equivalent paddy (kg)</i>		50	986		90	972		90	1.727
<b>NET RESULT AND CASH FLOW WITHOUT REMUNERATION FOR HOUSEHOLD LABOR</b>									
<b>Paddy selling price(UM/kg)</b>		50			90			90	
<b>Straw selling price (UM/kg)</b>		15			15			15	
<b>Yield(kg/ha)</b>	<b>Net result</b>	<b>Cash-flow</b>	<b>Available after repayment</b>	<b>Net result</b>	<b>Cash-flow</b>	<b>Available after repayment</b>	<b>Net result</b>	<b>Cash-flow</b>	<b>Available after repayment</b>
2.500	-32.255	42.745	-6.555	-166.912	-4.412	-91.912	-316.912	-4.412	-159.812
3.000	2.495	77.495	28.195	-112.162	50.338	-37.162	-262.162	50.338	-105.062
3.500	37.245	112.245	62.945	-57.412	105.088	17.588	-207.412	105.088	-50.312
4.000	71.995	146.995	97.695	-2.662	159.838	72.338	-152.662	159.838	4.438
4.500	106.745	181.745	132.445	52.088	214.588	127.088	-97.912	214.588	59.188
5.000	141.495	216.495	167.195	106.838	269.338	181.838	-43.162	269.338	113.938
6.000	210.995	285.995	236.695	216.338	378.838	291.338	66.338	378.838	223.438

Source: PDIAIM II Independent Evaluation Report

10. The project also failed in terms of achieving the set target for cropping intensity. The PAD had as an objective to reach a cropping intensity of 150% and to introduce crop diversification on a large scale. It has to be pointed out, that there is a great variability between the different perimeters and while some perform well, other perimeters are in a worse state than they were before the rehabilitation. As it can be seen in table 3.3 below, the average results during 2012/2013 and 2013/2014 were cropping intensity of 60%, and crop diversification happened only on 1% of the rehabilitated areas (corn, sorghum, and vegetable growing) in two small irrigation perimeters.

**Table 3.3 : Average cropping intensity of the irrigation perimeters rehabilitated by PDIAIM during 2012/2013 and 2013/2014**

Wilaya	Rehabilitated Perimeters		Perimeters evaluated		Average 2012/2013-2013/14				
	No.	Area (ha)	No.	Area (ha)	Area cultivated compared to total area				Cropping Intensity
					Rainy season rice	Off-season rice	Off-season maize and sorghum	Off season market-gardening	
Trarza	12	1.009	12	1.009	68%	20%	0%	0%	87%
Brakna	10	591	6	359	44%	0%	7%	1%	52%
Gorgol	10	699	9	678	32%	0%	0%	0%	32%
Guidimagha	1	160	1	160	28%	0%	0%	0%	28%
<b>Total PDIAIM</b>	<b>33</b>	<b>2.459</b>	<b>28</b>	<b>2.205</b>	<b>50%</b>	<b>9%</b>	<b>1%</b>	<b>0%</b>	<b>60%</b>

Source: PDIAIM II Independent Evaluation Report;

11. The main reasons for the low cropping intensity were: (i) poor quality of the rehabilitated perimeters (some plots received too much, others too little irrigation); (ii) problems linked to pumping equipment; (iii) lack of social cohesion and poor leadership in some of the cooperatives; (iv) complete dependence on credit which is risky since many events can lead to repayment arrears and therefore to ineligibility for credit; (v) credit system that only provided credit for rice growing in the rainy season but not for double cropping or production of crops other than rice; (vi) insufficient availability of agricultural machinery for land preparation and harvesting; and (vii) insufficient agricultural advice from SONADER extension agents.

## Annex 4. Bank Lending and Implementation Support/Supervision Processes

### (a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
<b>Lending</b>			
Amadou Oumar Ba	Sr. Agricultural Spec.	AFTS4	
Amadou Soumalia	Irrigation Engineer	FAO/CP	
Batouly Dieng	Program Assistant	AFMMR	
El Hadj Adama Toure	Sr. Lead Agriculture Economist	AFTS4	
Helene Bertaud	Sr. Counsel	LEGAF	
Henri Aka	Procurement Specialist	AFTPC	
Huong-Giang Lucie Tran	Operations Analyst	AFTS4	
Ismael S. Ouedraogo	Sr. Agricultural Services Specialist	AFTS4	TTL
Joselito Gallardo	Rural Finance Consultant	OPD	
Moustapha Ould El Bechir	Sr. Procurement Specialist	AFTPC	
Myrina McCoullough	Operations Analyst	AFTH3	
Nestor Coffi	Financial Management Specialist	AFTFM	
Ousmane Bangoura	Sr. Health Specialist	AFTH2	
Robert A. Robelus	Sr. Env. Assessment Specialist	AFTS1	
Salah Darghouth	Adviser	ARD	
Salamata Bal	Sr. Social Development Spec	AFTS4	
Sossena Tassew	Information Assistant	AFTA1	
Yahya Ould Aly Jean	Disbursement Assistant	AFMMR	
<b>Supervision/ICR</b>			
Amadou Oumar Ba	Sr. Agricultural Spec.	AFTA2	TTL
Andre Ryba	Consultant		
Batouly Dieng	Program Assistant	AFMMR	
Bella Lelouma Diallo	Sr. Financial Management Specia	AFTMW	
Benjamin Billard	Operations Officer	AFTA1	
Bleoue Nicaise Ehoue	Sr. Agriculture Economist, TTL	AFTA1	TTL
Brahim Sall	Sr. Rural Development Specialist	AFTA1	
Christian Berger	Sr. Agricultural Specialist,	AFTA1	TTL, Additional Financing
El Hadj Adama Toure	Lead Agriculture Economist	AFTA1	
Fatou Fall Samba	Financial Management Analyst	AFTFM	
Huong-Giang Lucie Tran	Sr. Operations Officer		
Ismael S. Ouedraogo	Sr. Agricultural Services Specialist		TTL
Francois Onimus	Sr. Water Resources Spec.	AFTA3	
Korotoumou Ouattara	Sr. Financial Economist	SASFP	
Maimouna Mbow Fam	Sr. Financial Management	AFTMW	

	Specialist		
Maman-Sani Issa	Sr. Environmental Specialist		
Marie-Claudine Fundi	Language Program Assistant	AFTA2	
Mohamed El Hafedh Hendah	Procurement Specialist	AFTPC	
Moustapha Ould El Bechir	Sr. Procurement Specialist	AFTPW	
Nestor Coffi	Sr. Financial Management Specialist	AFMNE	
Robert A. Robelus	Consultant	AFTA1	
Saidou Diop	Sr. Financial Management Specialist	AFTMW	
Salamata Bal	Sr. Social Development Spec	AFTCS	
Setareh Razmara	Lead Social Protection Specialist		
Sossena Tassew	Operations Analyst	AFTA1	
Taleb Ould Sid'ahmed	Communications Officer	AFRSC	
Taoufiq Bennouna	Sr. Natural Resources Mgmt. Specialist	MNSEE	
Yahya Ould Aly Jean	Disbursement Assistant	AFMMR	

**(b) Staff Time and Cost**

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
<b>Lending</b>		
FY05	9.7	78,492.27
<b>Total:</b>	<b>9.7</b>	<b>78,492.27</b>
<b>Supervision/ICR</b>		
FY06	3.8	15,516.54
FY07	6.2	19,266.99
FY08	2.7	6,771.34
FY09	2.9	2,446.02
FY10	3.9	23,708.46
FY11	9.5	22,449.45
FY12	10.8	16,135.31
FY13	6.7	16,167.42
FY14	4.2	17,659.42
FY15	4.0	10,568.00
<b>Total*:</b>	<b>54.6</b>	<b>150,688.95</b>

\* The Total includes the data for the TF012593 additional financings as follows: Lending of 2.3 SW and cost of \$8,217.76 and Supervision cost of 1.1 SW and cost of \$5,683.94

**Annex 5. Beneficiary Survey Results**  
(N/A)

## **Annex 6. Stakeholder Workshop Report and Results**

*(N/A)*

## **Annex 7. Summary of Borrower's ICR**

*(The following is an extract from the Borrower's ICR that summarizes the achievements, constraints and lessons learnt)*

### **REALISATIONS**

1. Depuis la mise en vigueur du PDIAIM II, l'équipe du PDIAIM s'est attelée à la réalisation d'activités visant l'atteinte des objectifs de la deuxième phase et à consolider les acquis de la première phase, l'objectif ultime étant de jeter les bases nécessaires pour un développement durable de l'agriculture irriguée.
2. C'est ainsi que plusieurs actions ont été réalisées. Il s'agit notamment de :
  - L'exécution des travaux de réhabilitation de 21 périmètres collectifs situés dans les wilayas du Trarza, du Brakna du Gorgol et du Guidimakha. Ces périmètres totalisent une superficie globale de 1700,7 ha. La mise en valeur de ces périmètres est affectée par plusieurs handicaps dont notamment les défauts d'aménagement, le manque d'équipements de pompage, l'organisation et la cohésion sociale...
  - L'exécution de l'étude relative à l'aménagement de la zone agricole de Wandama à Kaédi et sa restitution auprès des exploitations de la plaine. Après constat de la cherté de l'aménagement proposé, Une deuxième étude complémentaire est en cours d'exécution pour un aménagement future de la plaine.
  - L'appui aux opérateurs de la diversification pour une superficie globale de 974,95 ha. Ces superficies portent sur des cultures maraîchères et fruitières à haute valeur ajoutée. Elles ont bénéficié à environ 4375 individus dont 2220 femmes.
  - Le recrutement d'une firme internationale pour l'appui au développement et à la promotion de la diversification
  - L'élaboration des plans de développement stratégique (PDS) des filières oignon et patate douce
  - Le développement et le renforcement des statistiques agricoles à travers les enquêtes sur les ménages et exploitations agricoles. Ces enquêtes EMEA sont effectuées annuellement sur financement du PDIAIM en vue de mettre à disposition du Département des données fiables et exhaustives sur les superficies et les productions agricoles.
  - Raccordement électrique de la station de pompage du périmètre pilote du Gorgol (PPGI) au réseau de la SOMELEC
  - La contribution aux efforts entrepris par le Département du développement rural pour la lutte anti-aviaire à travers la fourniture de produits phytosanitaires, en l'occurrence 10.000 litres d'avicides. Cet appui s'est accompagné par la fourniture d'équipements pour la lutte mécanique contre les oiseaux granivores;

- L'appui aux structures chargées de la filière semencière pour le suivi, le contrôle et la certification des semences.
- L'établissement d'un contrat programme tripartite entre le Ministère du développement rural (MDR), l'UNCACEM et les établissements semenciers. Ce contrat vise à assurer le financement des semences sélectionnées.
- La mise en œuvre de la convention signée avec la SONADER pour l'exécution du volet relatif au conseil rural. Cette convention porte sur l'appui conseil aux périmètres réhabilités, l'appui au transfert de la gestion des ouvrages collectifs des grands périmètres ainsi que l'appui aux activités génératrices de revenus en faveurs des femmes...
- La conduite de l'étude relative à la revue des dépenses publiques du secteur rural.
- La conduite de l'étude d'actualisation de la stratégie de développement du secteur rural à l'horizon 2025.
- Dans le cadre du financement additionnel exécuté à partir de 2013 la distribution de 1616 tonnes d'urée additionnels au profit 10 084 bénéficiaires dont 2 795 femmes, vaccination de 2 395 884 animaux au profit de 78 315 dont 28 000 femmes et fourniture de 11.700 tonnes métriques de blé au profit de 1520 SAVS pour 305 500 individus dont 122 200 femmes , répartis sur dix wilayas du pays.

## **CONTRAINTES**

- La complexité du montage du programme et la multiplicité de ses centres d'exécution a pesé lourdement sur le déroulement de ces activités. Il faut ajouter à cela l'instabilité du staff technique au niveau de ces structures ce qui a entraîné la déperdition des efforts et des informations ;
- Le manque de professionnalisme des entreprises et bureaux de contrôle au niveau national a constitué un sérieux handicap sur la qualité des périmètres réhabilités ;
- Le non performance de certains services étatiques surtout pour l'accompagnement et le suivi rigoureux des actions sur le terrain notamment la SONADER en ce qui concerne le volet réhabilitation, le Centre de Contrôle de la Qualité des Semences et Plans pour la certification des semences et la Direction de l'Aménagement Rural (Service foncier) en ce qui concerne la rapidité des procédures de régularisation foncière ;
- Les périmètres réhabilités ont souffert d'un certain nombre de contraintes. Il s'agit notamment du fait que la réhabilitation ne comprend pas les équipements de pompage ; Il s'en suit que la réception provisoire est souvent faite à l'aide d'anciens équipements du périmètre généralement vétustes ou par les propres moyens de l'entreprise. En conséquence, on observe parfois des périmètres qui restent en jachère pendant une ou plusieurs campagnes consécutives en attendant que la coopérative trouve le moyen (avec ou sans crédit) d'équiper le périmètre en moyen d'exhaure (cas de Sarandougou, Diaguili, Najah II, Fraye Boss etc....).

Ces périmètres qui n'ont pas pu être mis en valeur dès la première campagne se dégradent davantage sous l'effet conjugué des intempéries et de la divagation des animaux. Ainsi, on se heurte à des difficultés de procéder à la réception définitive du périmètre car d'une part, l'entreprise ne se considère plus responsable de l'état du périmètre et d'autre part, la coopérative estime que le périmètre ainsi dégradé ne peut pas être mis en valeur de manière convenable. . A cela s'ajoute le fait que le bureau du contrôle dont le contrat s'arrête à la réception provisoire, se désengage et ne participe plus à l'arbitrage entre les parties prenantes.

- Manque d'engouement pour la réhabilitation du PDIAIM qui comporte un volet crédit (80 % pour les privés) alors que d'autres projets font des aménagements clef en main ce qui est de nature à limiter la superficie totale réhabilitée en plus des coûts élevés de réalisation des périmètres irrigués par rapport aux prévisions initiales ;
- Malgré le fait que l'UNCACEM devait étendre ses activités de crédits à la diversification et aux cultures autres que le riz, il a été constaté que ceci n'a pas eu lieu surtout pour les coopératives féminines qui pratiquent les cultures maraîchères essentiellement;
- Manque de rigueur dans la certification des semences constatée pour certains établissements semenciers dont les semences dites « certifiées » ont des pouvoirs germinatifs qui se sont révélés faibles.
- Environnement de production défavorable (abondance des oiseaux granivores, prolifération de typha, inondations chroniques de certains périmètres) ;
- Problème de mécanisation : l'insuffisance des tracteurs occasionne le retard du démarrage des campagnes agricoles et donc la baisse de la productivité et l'insuffisance des moissonneuses-batteuses entraîne la difficulté de récolte en temps opportun et donc des pertes énormes allant parfois à un abandon total des parcelles ;
- La faible mobilité des services du conseil rural au niveau des zones de production, qui handicape la supervision de leurs activités ;
- L'insuffisance de financement pour élargir l'action du conseil et mettre en place de véritables pôles de développement qui serviront de référence pour les agriculteurs et les services du conseil rural. Cette contrainte n'a pas permis à la SONADER de faire de la sous-traitance du conseil rural pour les zones et les catégories d'agriculteurs qui ne sont pas suffisamment couvertes par le dispositif de la SONADER ;
- Un environnement peu favorable à la diversification surtout au niveau des petits producteurs, avec le manque d'infrastructures de conservation, de transformation, et de stockage et la forte concurrence des produits importés des pays limitrophes ;
- Absence d'un système de financement de la double campagne compatible avec la réalité du petit producteur et favorisant l'augmentation de l'intensité culturale ;

- La non réhabilitation à ce jour de certains grands périmètres (PPGII. CPB, Foun Gleïta, R’Kiz) constitue un obstacle à la négociation des documents officiels de transfert notamment les projets de convention de transfert qui sont disponibles.

### **PRINCIPAUX ENSEIGNEMENTS**

- Renforcement des capacités des structures impliquées dans la mise en œuvre par la conduite d’études spécifiques et la formation de leur personnel,
- Libéralisation de la filière rizicole : Le PDIAIM était à l’origine de la libéralisation de la filière riz qui était le monopole d’un pool d’acheteurs. Ceci a favorisé la compétitivité entre les différents acteurs comme les agriculteurs qui ont commencé à améliorer la qualité du riz qu’ils produisent car les prix sont devenus fonction d’un test de qualité ; Les commerçants et les usiniers donnent des prix plus rémunérateurs au meilleur riz ;
- Création d’une dynamique de diversification basée sur le secteur
- L’appui conseil a permis de renouveler les semences de riz habituellement utilisées par les agriculteurs avec des variétés plus performantes
- Professionnalisation des acteurs impliqués dans la mise en œuvre du Programme

### **RECOMMANDATIONS**

- Alléger le montage institutionnel des projets dans le futur et éviter la duplication des responsabilités ;
- Renforcer le dispositif de supervision et de suivi évaluation à tous les niveaux d’exécution ;
- Améliorer la présence des services du conseil rural sur le terrain pour assurer un accès rapide et performant aux services agricoles
- Améliorer l’approche de vulgarisation notamment par la mise en place de pôles de références ;
- Instaurer la double culture et améliorer la sole des cultures de diversification pour augmenter la rentabilité des aménagements hydro agricoles,
- Réhabiliter et engager le processus du transfert au niveau des grands périmètres.
- Encourager la contractualisation avec des opérateurs spécialisés pour la production de plants, de semences et de boutures afin d’encourager la diversification ;
- Adopter l’approche filières et apporter les appuis nécessaires à tous les maillons de la chaîne
- Etablir une liste noire d’entreprises et bureaux de contrôle qui ont failli à leurs engagements ;
- Harmoniser les interventions en matière de politiques de développement dans le domaine de l’irrigation.

**Annex 8. Comments of Cofinanciers and Other  
Partners/Stakeholders**

*(N/A)*

## Annex 9. UNCACEM

1. **Credit for Diversification by UNCACEM.** Despite the fact that credit for diversification was foreseen in the PAD and UNCACEM was reminded by several implementation support missions of the importance of this type of credit, UNCACEM never provided credit for diversification with the exception of two agricultural export enterprises (GDM) and Horti-Mauritanie. Those credits were never fully reimbursed.

2. **Operational and financial autonomy of UNCACEM.** Despite its legal status as a cooperative belonging to its members, UNCACEM has been the Government's arm for providing financing to the agricultural sector. It has functioned more as a fund charged with distributing public resources to farmers than as a credit institution. The Bank's line of credit provided to UNCACEM was in addition to the funds provided by the Government without affecting or changing the modus operandi of UNCACEM. UNCACEM's operations were based on instructions (*circulaire*) of the MDR that fixed the volume of credit to be provided per agricultural campaign and per ha

3. UNCACEM's problems were already existent under phase 1, where it was faced with delay in loan repayments (mainly due to natural disasters and delays in land title regularization). This was exasperated under phase 2, and especially starting 2007 due to the natural disasters, the global food price crisis, the 2008 political unrest and the repetitive government interventions. A performance review of UNCACEM carried out by a WB consultant in December 2011 found that the institution was in a difficult financial situation. This review mission went to *Rosso*, where UNCACEM is headquartered to meet with the general manager and his staff and subsequently in a meeting in Nouakchott met with the Chairman of the Board and Board members and with the supervisor at the central Bank (BCM). The review mission based its analysis on the World Bank funded external audit of 2010 based on consolidated data.

4. Major findings of this mission were that:

- (i) Regulatory banking supervision. There had been no on-sight inspection of UNCACEM by the Central Bank (BCM) since 2007. This constituted a regulatory/supervisory failure for which the Government, the management of UNCACEM and the supervisory authority were responsible.
- (ii) Balance Sheet of UNCACEM. For 2010, UNCACEM boasted total assets of 23.7 billion UM. However, there was a claim on the Government of 9.2 billion resulting from a decision by the Prime Minister to abandon interest collection and to forgive a percentage of the principal. This amount should have been provisioned. In addition, there were other credits by UNCACEM that were not repaid and should have been provisioned. Altogether, the provisions should have been for a total of 19.1 billion UM.
- (iii) Income and Expenditure Statement of UNCACEM. In 2010, the net banking product was 250 million UM and net profit minus (-) 1.3 billion UM before provision, or minus (-) 20.4 billion UM including the provisioning stated above.
- (iv) Net worth of UNCACEM. Depending on how one treats Government advances for lending in 2011 and whether UNCACEM should have applied

all the provisions mentioned above, the net worth of the institution becomes negative by 12.6 to 17.2 billion UM.

5. In conclusion, by December 2011 it was clear that UNCACEM was in a difficult financial situation, with negative net worth and little resources. It could not continue operating in its current condition and future lending for agriculture became dependent completely on Government advances.

6. The reasons for the demise of UNCACEM are several:

- Interventions by Government
- Lack of land titles. UNCACEM accepted other documents (called precarious land titles) such as exploitation permits
- Inadequate regulatory/supervisory context
- Insufficient profitability of rice growing, i.e. insufficient cash revenue to honor repayment obligations.

7. It is the contention of this ICR, that the key reason for the demise of UNCACEM was the last factor: insufficient profitability of rice growing and the fact that many cooperative irrigation farmers were not in a financial position to repay their short-term loans for agricultural inputs and especially their long-term rehabilitation loans. With respect to the last point, as shown above, with the high costs of rehabilitation (1.7 million UM/ha) farmers would have only been able to honor their financial obligations towards UNCACEM if their paddy yields would have been above 4t/ha, which often was not the case. Farmers would have had to spend the equivalent of 3.5t/ha of paddy just to meet their annual financial obligations. The problem was not immediately visible. Under these circumstances, the problem was more an economic than a legal one. Legally enforceable land titles given as loan guarantee would not have been sufficient to halt the decline of UNCACEM, as it is politically inconceivable that the majority of irrigation farmers would have lost their land due to economic reasons of incapacity to repay their loans.

8. A study of UNCACEM was carried out by a consulting firm (Meridies) that proposed four main scenarios for its restructuring. The one chosen by Government was the creation of a new public bank (*Caisse de Depot*).

9. **Historical performance of UNCACEM.** In 2007, the German development bank (KfW) carried out an ex-post evaluation of one of their projects in support of UNCACEM. This project, with investment costs of EUR 1.28 million, had as its overall objective to contribute to stabilizing and raising family incomes, to securing employment opportunities and to developing rural financial systems. The project objective was the granting of loans on a sustainably efficient base to target-group agricultural units.

10. Some of the main findings of the evaluation were that the "portfolio at risk" figure was very high (46%), and many of the loans in the remaining 54% of the portfolio were not declared as in arrears for the sole reason that they had been rescheduled. Moreover, no significant contribution was made to the development of rural finance systems, as the credit technology needed to underpin sustainable structural improvements was not introduced, for example in terms of loan collateralization systems or the establishment of a risk fund.

11. The overall assessment of the development policy effectiveness of the project concluded that while the relevance of the project was satisfactory, effectiveness was unsatisfactory, efficiency was highly unsatisfactory, and overarching development impact and sustainability were both unsatisfactory.

12. The report noted particularly a reticence on the part of UNCACEM's management to embrace "state of the art banking", and an apparent lack of interest in reducing dependence on external donor funding by aiming for an improved and realistic cost-cover ratio and attracting customer deposits.

13. The report concluded by pointing out that banking effectiveness indicators based solely on balance sheet and the profit and loss account provide a reliable picture but are subject to a certain delay. In critical cases, in addition the balance sheet and the profit and loss account, other operative parameters (e.g. changes in the volume of loan portfolio, loan rescheduling, risk adjustments, liquidity development) should therefore be defined as indicators and monitored.

## **Annex 10. Independent Evaluation of PDIAIM**

*No stakeholder workshop or beneficiary survey was carried out. However, from January 18 to February 6, 2014 an independent evaluation of PDIAIM was done by a team of 5 consultants (two international and three national). Team leader was Joel Hourticq, agricultural economist. The other team members were Abdoulaye Dicko (international expert in civil engineering), Mohamed Baba (national expert in civil engineering), Mohamed Didi (national expert in rural credit), and Isakha Diagana (national expert in land tenure legislation) Below is a presentation of the executive summary of the team's report.*

### **EXECUTIVE SUMMARY**

i. This assessment focuses on irrigation and support for diversification development activities implemented during phases 1 and 2 of the *Programme de Développement Intégré de l'Agriculture Irriguée en Mauritanie* or PDIAIM (Program for the Integrated Development of Irrigated Agriculture in Mauritania). It builds on the analysis of available documents, a field survey and interviews with many resource persons. The field survey, which lasted 10 days, allowed for visits of 22 out of the 33 perimeters rehabilitated by the PDIAIM, as well as of a number of other project achievements throughout the affected regions (Trarza, Brakna, Gorgol and Guidimagha) and meetings with many beneficiaries' representatives. It must be noted however that the work put into this assessment was undermined by the almost complete lack of a formal report on the project's realizations, whether from the PDIAIM's Coordination Unit (UC-PDIAIM) or the implementation agencies.

ii. The PDIAIM was designed based on Adaptable Program Lending (APL), which was originally supposed to be rolled out in three phases of 3, 4 and 4 years respectively. The first phase, totaling \$46.6 M (of which \$36.8 M on IDA credit), was initially planned for 2000 to 2002 and was extended for two years until the end of 2004. Its development objective was to set up the foundations for a sustainable management of irrigated agriculture in the valley of the Senegal River, from a technical, financial, economic and environmental point of view. The second phase, amounting to a total of \$46.6 M (of which \$39 M on IDA credit), was extended during its ex-ante assessment to 5.5 years, from mid-2005 to the end of 2010. Having been penalized by a 16-month suspension of disbursements from August of 2008 to November 2009, following the coup in August 2008, it had to be extended two years until the end of 2012 in order to complete the initiated activities and use the available credits. This second phase's objective was to consolidate and build upon the gains of phase 1, in particular: (i) to consolidate key incentive measures; (ii) increase viable irrigation perimeters; (iii) intensify the diversification of irrigated agriculture production. The idea for a third phase was finally dropped. After 2012, the PDIAIM served as a channel for additional financing from the World Bank and the GFRP for an emergency program unrelated to the initial objective or the project's usual activities. For this reason, its closing date has been pushed back several times and is now set for the end of May 2014. The IDA credits meant for the first two phases have been completely used up.

iii. The vision governing the setup of the PDIAIM towards the end of the 1990s was to make the Senegal River one of the main sources of economic development and growth in the country, by making the most efficient use of its limited water and land resources, in order to result in rapid social and economic growth driven by the private sector. In particular, the PDIAIM fell within the implementation of the *Lettre de Politique de Développement de l'Agriculture Irriguée* or LPDAI (Policy letter for the development of irrigated agriculture) adopted in 1999, which aimed at lifting constraints faced by irrigated agriculture: (i) low-quality land use planning resulting in under-farming or complete neglect (it was estimated in 1999 that over 135,000 ha of potentially irrigable land, 47,000 ha were developed for agriculture but less than 20,000 ha were farmed each year); (ii) poor management and lack of maintenance of irrigated perimeters; (iii) poor organizational and technical capacity of the farmers (iv) land-locked irrigated areas; (v) poor profitability of irrigated perimeters due to a low level of intensification, diversification and incorporation within national, regional and international markets; (vi) lack of financing for irrigated agriculture; (vii) lack of property securing, whether individual or collective, which is detrimental to investment in irrigation and infrastructure maintenance; (viii) environmental deterioration linked to irrigation contributing to waterlogging and soil salinization.

iv. Moreover, the PDIAIM was launched with the Mauritanian government's commitment to set up and maintain a new framework for the sale of locally grown rice, so as to make it more competitive in relation to imported rice, both in terms of price and quality. This commitment was upheld and the hoped-for results were achieved. The end of the 2000s and beginning of the 2010s saw massive state intervention in the local rice trade, which, in correlation with the increase in global rice prices, led to significant improvements in local rice production profitability and a boom in production since 2010, the sustainability of which however remains to be seen.

v. In order to reach its development objective, the PDIAIM's favored strategy was to rehabilitate and expand, insofar as this was economically justified, perimeters still being farmed, in order to make them move towards sustainable means of production incorporating intensive rice production and other speculations. In particular, the first two phases provided for the rehabilitation of 5,500 ha of rice-growing perimeters (communally and privately owned) and the creation of 650 ha of new perimeters dedicated to diversification.

vi. Three implementation agencies were responsible for the project's implementation, each one with access to a special account directly replenished by the IDA:

- a. SONADER, developer appointed to the supervision of public infrastructure plans and works, consulting engineer of the UC-PDIAIM in charge of monitoring the preparation and implementation of the development of irrigated perimeters financed by the project, responsible for R&D activities in regard to drainage and pumping, as well as in charge of producer support when it came to agricultural popularization and perimeter management;

- b. The UNCACEM<sup>17</sup>, in charge of granting loans to finance perimeter development, production and product processing;
- c. And finally the UC-PDIAIM, in charge of political and institutional framework strengthening activities, incentive support management for the rehabilitation of rice-growing perimeters, diversification initiatives and activities to promote diversification and the project's general coordination as well as its M&E.

vii. This assessment has shown that in terms of irrigation development and diversification, the project's results are rather underwhelming. In regard to the rehabilitation of perimeters, the inflation of unit costs has led to achievements reaching only 40% of the objectives, with the quality of works considered mediocre overall, an average reclamation rate of barely 60% and paddy rice yields close to 4 t/h, which is no higher, or only marginally higher, than the yields from non-rehabilitated perimeters (when the initial economic analysis was based on a 150% cultural intensity and 6 t/ha yields after rehabilitation). Moreover, private farmers refused to take part in the perimeter rehabilitation component.

viii. Likewise, it is difficult to conclude there has been a significant increase in diversification thanks to the project: firstly, the project mostly worked with communities that were already engaged in diversification activities; secondly, if it did manage to prove the feasibility/interest of certain speculations, cultural practices and outlets, it generally had no effect on the constraints affecting their sustainability and, consequently, a significant number of innovations that were introduced ceased to be used at the end of the project; thirdly, studies on sector businesses did not lead to the implementation of national strategies despite strong potential in some speculations.

ix. Regarding agricultural credit, PDIAIM results were also underwhelming: even though it can be considered to have contributed to the emergence of a significant number of private paddy fields, the uncontrolled debt of the cooperatives generated a considerable number of outstanding loans and led to the non-viability of the only agricultural credit institution, the UNCACEM, now in the process of being replaced by a state institution, the functioning method of which is not yet precisely known. Contrary to what was intended, the credit was not extended to diversification or even out-of-season rice growing.

x. Concerning property securing, much progress was made from a legal standpoint (numerous decrees and orders). However, only a thousand cases were resolved in the river valley, mostly in Trarza, in more than 10 years. And, despite the support of the project, the regional SAFC<sup>18</sup> and BAFs<sup>19</sup>, except the one from Rosso, came out greatly weakened and, for some, non-operational. The assessment of the Trarza structural blueprints was not carried out despite repeated recommendations from monitoring

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<sup>17</sup> *Union Nationale Des Coopératives Agricoles De Crédit Et D'Épargne De Mauritanie* (Mauritanian national union of farmers' cooperatives' credit and savings bank)

<sup>18</sup> *Service des Affaires Foncières et de la Cartographie* (Department of property affairs and cartography)

<sup>19</sup> *Bureau des Affaires Foncières* (Bureau of property affairs)

missions to do so. Finally, the ambiguity between permanent concession and title deed persists and, in many cases, particularly for women, the granted concession titles represented more of an open sesame to access the project than a real and permanent property securing.

xi. There is no need for calculations; the economic profitability of the project's irrigation and diversification components is without doubt negative. It is important to try and learn from this in order to avoid making the same mistakes in future programs.

xii. The reasons given for the project's underwhelming results have often been the innovative characteristic of the approach (combination of credit and AI), the weakness of the implementation agencies, particularly SONADER, the limited capacities of engineering and design departments and contracting businesses, the limited capacities of beneficiaries, the speculative nature of private investments in irrigation, property issues and competition from other projects that subsidize investments entirely. However, the analysis developed in this study shows that, although the mediocre quality of the works and weakness of implementation agencies are partly responsible for the underwhelming results, the project's first restriction lies in an overly interventionist approach, one too focused on rehabilitation and achieving immediate results instead of on appropriation and sustainability. Such an approach inevitably led to a loss of control over the quality and cost of the works and, as a logical consequence, to a lack of interest from private producers.

xiii. Overly interventionist approach: The LPDAI and initial PAD of the project were based on the principle that the appropriation of the project by the beneficiaries would be guaranteed by the fact that a substantial part of the investment would be financed on credit. The facts show that this mechanism did not have the expected effects and the degree to which the land and infrastructure were appropriated by the beneficiaries remained small for the following reasons:

- a. Possible pressure exerted by the engineering and design departments and contractors to arouse "interest" within communities and win over the market or obtain temporary works;
- b. Insufficient dialogue and consultation with the beneficiaries throughout the process, from the initial study to the supervision and completion of works;
- c. The perimeter's rehabilitation was not necessarily the top priority of the beneficiary communities (see further down);
- d. The limited capacities of certain communities in terms of leadership, organization and management;
- e. The development of a "handout" mindset that led communities to passively accept all exterior interventions, a state of mind clearly exacerbated by the state's massive intervention in the rice sector since 2007;
- f. And finally, the loss of credibility of the notion of credit, with the experience of the last few years showing beneficiaries that credit sooner or later becomes a subsidy.

xiv. An approach overly focused on rehabilitation: recent studies<sup>20</sup>, consistent with the observations made during the mission, have shown that communities producing rice in the river valley face many risks and constraints (floods, crop pests (birds, crickets, rodents), land-locked positioning, lack of pumping means, lack of soil preparation means, harvesting and threshing, lack of quality seed, lack of funds for a double crop or diversification, impossibility of an out-of-season agriculture in certain areas), which means that the rehabilitation of their rice-growing perimeter is not necessarily one of their top priorities. Moreover, these same studies have also shown the limited profitability of rice production, both in absolute and relative terms (compared to other crops or activities performed by these same communities). In particular, these studies have shown that without a double crop, rice production is not profitable at current yield levels if the maintenance costs of the perimeter are taken into account. This result, coupled with the potentially bad quality of the rehabilitation works, explains the weak cultural intensity observed on most rehabilitated perimeters (by the PDIAIM and other similar projects): the rehabilitated perimeters are farmed as long as there is no need for maintenance and then progressively abandoned. Moreover, the mission's observations have also shown that the affected communities are extremely vulnerable to the risks they face and that any adverse event during the agricultural season can easily place them in a very insecure situation, from which they may take years to recover. During these years they would no longer have access to credit and subsidized inputs to farm their perimeter, which in turn would deteriorate all the more rapidly.

xv. An approach too focused on rehabilitation and achieving immediate results instead of on appropriation and sustainability: whether it be perimeter rehabilitation or diversification, it is clear that notions of appropriation and sustainability have been largely neglected. This is due in part to the weakness of the M&E system set up within the UC-PDIAIM, which is known for being efficient when it comes to monitoring the project's physical accomplishments (even if the mission found few traces of this), but has failed to assess the impact and viability of these accomplishments, and therefore has not provided the project's monitoring authorities with the elements needed to reorient it. In particular, the M&E system did not manage to detect the often artificial and precarious nature of the results obtained in regard to property regularization, the durable establishment of a viable agricultural credit institution, the quality of rehabilitation works, economic profitability for the beneficiaries and the sustainability of diversification activities.

xvi. The PDIAIM's experience has also illustrated the difficulties of a coordination unit functioning at the margins of the administration in coordinating the action of different state services and encouraging the political orientations needed for reaching project objectives. Despite its theoretical role as coordinator of the project as a whole, it seems the UC-PDIAIM mainly managed activities that were directly under its administrative supervision (institutional strengthening, incentive support, diversification) and took on an essentially administrative function, without managing to organize the tight coordination between all the implementation agencies concerned, as was recommended

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<sup>20</sup> Connor et al. 2007, Mateos et al. 2010, Garcia-Bolanos et al. 2011, Comas et al.2012.

by almost all the supervision missions since the start of the project. Therefore, a great number of recommendations by these supervision missions were never put into action. Furthermore, whereas the formulation of the project had allowed for important progress to be made in regard to policy governing the sector (liberalization of paddy rice trade, lighter property securing procedures), the PDIAIM then failed to promote a significant number of reforms and political orientations that would have contributed to better project and general irrigation sector performance. This includes: the development of a policy to support irrigated agriculture applied by all projects, the reform of the UNCACEM, the extension of credit to double crops and diversification, a mechanization strategy, the effective securing of access to property, particularly for women, seed policy, etc.

xvii. This study's recommendations are twofold, in the short-term and in the medium-term for programs to come. In the short-term, the following actions are recommended:

- a. Balance in an equitable manner the credit situation of all perimeters having taken part in the PDIAIM, while particularly taking into account that similar projects implemented at the same time as the PDIAIM (PRPB, PGIRE, National Program) financed works and pumping and drainage means through subsidies<sup>21</sup>;
- b. Offer solutions to perimeters that are not developed due to a simple technical problem (lack of, or inadequate pumping means, lack of pipes, etc.);
- c. Organize the transfer of conditioning and storage centers (in *Rosso* and Nouakchott airport) to consortiums of private operators, before they deteriorate any further;
- d. Produce an assessment of the various engineering and design companies and contractors that worked on the project.

xviii. For the programs to come, the lessons learned from the assessment of the PDIAIM point to the need for the following changes in the approach:

- a. A much more participative and holistic approach towards communities' constraints, so as to increase their resilience to adverse events (in particular focusing more on improved access, diversification, pumping and drainage means, improved seed, agricultural advice, intermediate mechanization, etc.);
- b. Redefinition of structural planning norms in favor of a much more modest intervention in regard to rehabilitation, one limited to essential works and favoring quality, with a greater contribution from the beneficiaries in regard to secondary and tertiary networks and plots;
- c. A limited and compact intervention for small perimeters (50 ha maximum), without complex works and long channels, thus allowing for management and maintenance that is accessible to the beneficiary communities;
- d. An intervention that includes securing adequate and less expensive (electrification) pumping means and maintenance;

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<sup>21</sup> This recommendation may however be rendered null and void by the decision made by the Council of Ministers on 13 February 2014 to cancel the whole of agricultural debt.

- e. A limited intervention in communities that have the leadership, organizational and managerial capacities needed for proper management and maintenance of the perimeter;
- f. Encouraging new farming systems that include intermediate mechanization and diversification;
- g. In regard to agricultural financing instruments, distinguishing between subsistence farming and agriculture with trade as an end with, in particular, for poor communities, limiting the use of credit to finance crops and using solely matching grants for structural planning, pumping and drainage means and other investments;
- h. Simplification of institutional setups for granting matching grants to a single agency;
- i. An end to state interventions prone to spread confusion between agricultural credit and subsidies;
- j. Simplification of credit granting procedures in order to reduce transaction expenses;
- k. Development of sector approaches on which the state may rely but not substitute itself to operators;
- l. Disengagement of the state in all sectors where its intervention impedes the growth of private operators or leads to their disappearance (agricultural mechanization, input supply, etc.);
- m. Long term support for research and popularization, including advice on management and organization;
- n. Generalization of property structure blueprints, clarification of the ambiguity between permanent concession and title deed and transfer of property to farmers based on the ongoing PPG 1 experience;
- o. An institutional setup guaranteeing full state involvement and support, particularly in regard to policies governing the sector (insofar as possible avoid setting up autonomous project units);
- p. The setup of M&E systems that actually analyze the viability and sustainability of interventions and provide supervising authorities with the elements allowing for a decision to reorient activities if necessary.

## **Annex 11. PDIAIM Additional Financing SAVS<sup>22</sup> Component**

*For the AF, no stakeholder workshop or beneficiary assessment was carried out. However, an independent evaluation of the food security net Emel (Boutiques Emel and Stocks Alimentaires Villageous de Sécurité (SAVS) was done. This evaluation was carried out by Messrs. Limam Abdawa and Joel Hourticq, consultants from September 26 to October 10, 2013. The executive summary of this evaluation is presented below.*

### **EXECUTIVE SUMMARY**

1. Within the framework of the PDIAIM II's additional financing, the World Bank has contributed to the foodstuffs for human consumption component of the Emel ("hope" in Arabic) program launched by the Mauritanian government in 2012 to alleviate the effects of the 2011 drought on the most vulnerable populations. The World Bank financed the acquisition of 7,200 tons of wheat and its distribution amongst 1,070 SAVS. The cost of the World Bank's operation amounted to \$4 M, of which \$3 M were spent on wheat purchase, \$0.5 M on internal transport and \$0.5 M on supervision. This operation, managed by the *Commissariat à la Sécurité Alimentaire (CSA)*<sup>23</sup>, was part of a larger operation, co-financed by WFP, which allowed for the distribution of about 18,000 tons of wheat to almost 2,600 SAVS in 2012 and 2013.
2. The SAVS started to be set up in rural areas within the framework of the WFP's and Mauritanian government's interventions in the early 2000s, with a peak in 2005-2006-2007. The principle is as follows: a given community receives a starting bank of wheat as a donation, which it sells at a reduced price to its most vulnerable members during the hunger gap; with the profits generated from the sales, the community amasses a bank for the village during harvesting season, which is used during the next hunger gap to alleviate the intra-annual price variations for the most vulnerable, and so on. The total number of SAVS was estimated to be around 3,800 at the end of 2011. Of these, very few (less than 3%) were considered to be functional<sup>24</sup>. Most of the SAVS replenished in 2012-2013 already existed; only around a hundred new SAVS were created in 2013 within the framework of the World Bank's financing.
3. Regarding logistics, the operation took place in a satisfactory manner thanks to the CSA's experience in the area. However, due to the slow pace of implementation procedures, distributions did not start before July 2013, even though the critical situation for beneficiary populations occurred during the 2012 hunger gap (May-June-July-August 2012). Furthermore, the slow pace of disbursements forced the CSA to pre-finance the operation in part, and some transporters remain unpaid to this day, which has disrupted the CSA's later operations, with the affected transporters refusing to take part in other operations before having been paid.

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<sup>22</sup> *Stock Alimentaire Villageois de Sécurité*, or village cereal safety banks.

<sup>23</sup> Committee for food security.

<sup>24</sup> CSA/WFP. 2011. Diagnostic study of the *Stocks Alimentaires Villageois de Sécurité « SAVS »*, December 2011.

4. It must also be noted that the operation's initial target was not reached: the 7,200 tons of wheat were originally supposed to benefit 705 communities (or 10.2 tons per SAVS on average) and equal the predicted needs of the most vulnerable part of the population during the hunger gap. Administrative authorities then decided to increase the number of beneficiary SAVS to 1,070 (or 6.7 tons per SAVS on average), which led to a real disconnection between the quantity of wheat provided and the emergency needs of the communities.

5. A World Bank team conducted an assessment of the foodstuffs for human consumption component of the Emel program, including the SAVS operation, in September and October of 2013 (see Assessment Document below). This assessment concluded that the SAVS supported by WFP and World Bank financing in 2012 and 2013 still suffered from the same shortfalls outlined in the CSA/WFP 2011 study, that is to say that the great majority of beneficiary communities received this support as emergency aid (that could be renewed if need be) and not as the setting up of a tool that could potentially increase their resilience. As noted during previous similar operations, most replenished SAVS in 2012 and 2013 only served as a self-targeting tool by communities for the distribution of subsidized goods during the hunger gap. Most of these SAVS have not developed replenishment strategies for the following harvest, or even, in many cases, understood that the purpose of this instrument was to set up a long-term village bank in order to even out prices for the most vulnerable. Five factors obviously contributed to this flawed perception:

- Communication, training and monitoring actions meant to accompany the SAVS' replenishment were clearly insufficient;
- More particularly, possible strategies for the autonomous replenishment of SAVS during later rotations were not studied with enough focus; these strategies should probably differ depending on the area (with replenishments *normally* being easier in areas of agricultural production or areas close to important markets, where SAVS can benefit from easier access to larger reserves and a pronounced fluctuation of prices between harvestings and hunger gaps, and replenishments being more problematic elsewhere);
- The lack of a legal status for SAVS has contributed to the perception that their purpose is purely temporary and has prevented notions of responsibility and accountability in terms of results or in cases of misappropriation;
- Undersized operations compared to the needs of the most vulnerable, as mentioned above, have led to diminished interest from beneficiary communities;
- Finally, the fact that the initial provision was made in wheat during the hunger gap on one hand largely contributed to the general perception that the SAVS were an emergency distribution system and, on the other, led to the immediate halving of their circulating capital, with communities pushed to sell this initial wheat endowment at the same price as the Emel stores, therefore at approximately half the market price. The idea of providing circulating capital in the form of cash resources during the harvesting period could be explored.

## Annex 12. List of Supporting Documents

1. Implementation Status and Results (ISRs)
2. Implementation Support Missions Aide-Memoires (AM)
3. Project Appraisal Document : Second Phase of the Integrated Development Program for Irrigated Agriculture in Mauritania (PDIAIM II)
4. Implementation Completion Report, PDIAIM I, December 28, 2005
5. Project Paper on a Proposed Additional Grant from IDA and the Food Price Crisis Response Core Multi-donor Trust Fund to the Islamic Republic of Mauritania for the 2<sup>nd</sup> Phase of PDIAIM, June 27, 2012
6. Restructuring Paper on a Proposed Restructuring of the Additional Financing of PDIAIM II approved on August 2, 2012 to the Islamic Republic of Mauritania, August 5, 2013
7. Comas Jordi, David Connor, Mohamed El Moctar Isselmou, Luciano Mateos et Helena Gomez-Macpherson. 2012. *Why Has Small-Scale Irrigation not Responded to Expectations with Tradition Subsistence Farmers Along the Senegal River in Mauritania?* *Agricultural Systems* 110 (2012) 152-161.
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12. MDRE. 1999. Projet de Lettre de Politique de Développement de l'Agriculture Irriguée – Horizon 2010, 16 Mai 1999.
13. PDIAIM. 2003. Annexe II au Manuel de Mise en Œuvre du PDIAIM – Aide Incitatrice, version finale Juillet 2003.
14. Convention UC – PDIAIM – SONADER Relative à la Mise en Œuvre de la Sous-Composante « Conseil Agricole » du PDIAIM 2, 2005-2010. Novembre 2005.

15. Rapport d'achèvement de la phase II du PDIAIM, Unité de Coordination du PDIAIM, Avril 2014.
16. Rapport Bilan du 15 juillet 2005 au 15 aout 2012, Unité de Coordination du PDIAIM, Aout 2012.
17. Note on UNCACEM, December 6, 2011 as part of elaboration of the financial sector development strategy (FSDS) for Mauritania.
18. République Islamique de Mauritanie, Evaluation Indépendante des Activités Irrigation et Diversification du Programme de Développement Intégré de l'Agriculture Irrigue en Mauritanie (PDIAIM), Rapport Provisoire, Mars 2014. Messrs. Joel Hourticq (agricultural economist and mission leader), Abdoulaye Dicko (international consultant in irrigation/civil engineering), Mohameden Baba (national consultant in irrigation/civil engineering), Mohamed Didi (national agricultural credit specialist), and Isakha Diagana (national specialist in land tenure questions).
19. Note d'Evaluation des Filets de Security Alimentaire du Programme Emel (Boutiques Emel et Stocks Alimentaires Villageois de Sécurité (SAVS). October 10, 2013, Messrs. Joel Hourticq and Limam Abdawa.

# MAP

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