

PMR Operational Report

Operation Number	HA-L1087	Chief of Operations Validation Date	10/15/18
Year- PMR Cycle	First period Jan-Jun 2018	Division Chief Validation Date	
Last Update	09/28/18	Country Representative Validation Date	
PMR Validation Stage	Validated by Chief of Operations		

Basic Data

Operation Profile

Operation Name	Water Management Program in the Artibonite Basin	Loan Number	3089/GR-HA
Executing Agency	Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural	Sector/Subsector	AG-DEV - AGRICULTURE AND RURAL DEVELOPMENT-SUSTAINABLE AGRICULTURAL DEVELOPMENT
Team Leader	GACHOT, SEBASTIEN	Overall Stage	Disbursing (From eligibility until all the Operations are closed)
Operation Type	Loan Operation	Country	HAITI
Lending Instrument	Investment Loan	Convergence related Operation(s)	
Borrower	REPUBLIQUE D' HAITI		

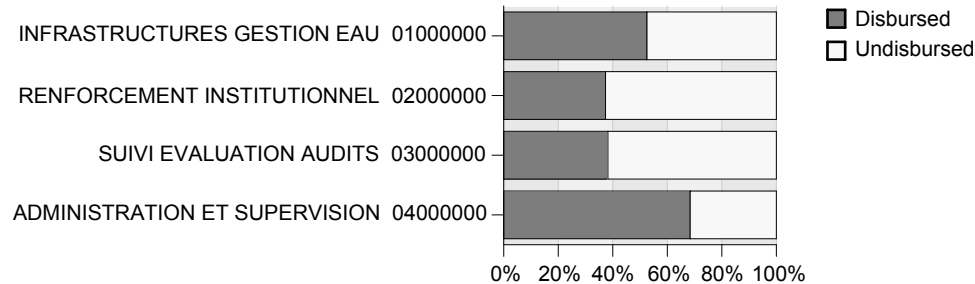
Environmental and Social Safeguards

Impacts Category	B	Was/Were the objective(s) of this operation reformulated?	NO
Safeguard Performance Rating		Date of approval	
Safeguard Performance Rating - Rationale			

Financial Data

Item	Total Cost and Source					Available Funds (US\$)			
	Original IDB	Current IDB	Local Counterpart	Co-Financing / Country	Total Original Cost	Current IDB	Disb. Amount to Date	% Disb	Undisbursed Amount
HA-L1087	25,000,000	25,000,000	2,500,000	0	27,500,000	25,000,000	15,025,500.56	60.10%	9,974,499.44
Aggregated	25,000,000	25,000,000	2,500,000	0	27,500,000	25,000,000	15,025,500.56	60.10%	9,974,499.44

Expense Categories by Loan Contract (cumulative values)



Please note that the Overall Stage represents the stage of the operation at the time of this report's publication, which might not necessarily match the stage of the operation during the PMR Cycle to which the report pertains. Please also note that inactive indicators and outputs are not displayed; totals in the actual cost table may not match the sum of the cost of the outputs displayed, due to the cost of inactive outputs.

PMR Operational Report

RESULTS MATRIX

IMPACTS

Impact Nbr. 1: Decrease crop, livestock and infrastructure losses caused by flooding in the Artibonite watershed.

Observation:

Indicator		Unit of Measure	Baseline	Baseline Year		2019	EOP 2020
1.1	Value of annual agricultural damages caused by flooding in the Artibonite watershed	USD thousands	8,700.00	2013	P		1,738.00
					P(a)		1,738.00
					A		

Details

Means of verification: Means of Verification: Specific evaluation by the Ministry of Agriculture, using the same sample as Artelia.

Observations: Source of baseline: Artelia surveys

Pro-Gender	No	Pro-Ethnicity	No
-------------------	----	----------------------	----

Impact Nbr. 2: Increase agricultural productivity in the Artibonite watershed.

Observation:

Indicator		Unit of Measure	Baseline	Baseline Year		2019	EOP 2020
2.1	In the irrigation district: average annual gross margins of rice for beneficiary farmers	US\$/Ha	1,176.00	2013	P		1,515.00
					P(a)		1,515.00
					A		

Details

Means of verification: Household surveys during the final evaluation (ex-post economic analysis), using the same sample as Artelia.

Observations: Source and year of baseline: Artelia and AECOM.

Pro-Gender	No	Pro-Ethnicity	No
-------------------	----	----------------------	----

Indicator		Unit of Measure	Baseline	Baseline Year		2019	EOP 2020
2.2	In the upper watershed: difference in average annual gross margins in selected gullies between the group of beneficiaries and control	US\$/Ha	0.00	2013	P		1,556.00
					P(a)		1,556.00
					A		

Details

Means of verification: Household surveys conducted by the firm contracted for impact evaluation.

Observations: (1) According to a study (Bayard, 2013), the typical crop association in gullies change from a low-profit grain-based cropping pattern ?without? infrastructure to a high-profit banana-grain-based pattern ?with? infrastructure.(2) The randomized phase-in o

Pro-Gender	No	Pro-Ethnicity	No
-------------------	----	----------------------	----

PMR Operational Report

RESULTS MATRIX

OUTCOMES

Outcome Nbr. 1: OUTCOME 1: Improve water and sediment containment in selected gullies of the upper Artibonite watershed.

Observation: During rainfalls events, infrastructures built in the gullies will contain (i) Sediments: with time, sediments will accumulate and create highly fertile areas where high-value crops can be grown (ii) Water: it will be contained on the upstream side of che

Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	EOP 2020
1.1	Indicator 1.1: Total volume of sediment contained by check-dams	m3	0.00	2013	P							66,500.00
					P(a)							66,500.00
					A							

Details

Means of verification: Day-to-day observations and measurements performed by field-based students affiliated to MARNDR's Studies and Programming Unit (UEP)

Observations: The volume of sediments contained is a good indicator of the program's environmental benefit because in the absence of check-dams, these sediments would have flown downstream and contributed to the silting of infrastructures, including the Péligre reservo

Pro-Gender No **Pro-Ethnicity** No

Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	EOP 2020
1.2	Indicator 1.2: Market gardens created in the gullies	Ha	0.00	2013	P							620.00
					P(a)							620.00
					A							

Details

Means of verification: Day-to-day observations and measurements performed by field-based students affiliated to MARNDR's Studies and Programming Unit (UEP)

Observations: The total area of market gardens created on the upstream side of check-dams is a good indicator of the program's local economic benefit (agricultural intensification systematically observed on those areas).

Pro-Gender No **Pro-Ethnicity** No

Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	EOP 2020
1.3	Indicator 1.3: Total annual volume of water stored by water retention tanks	m3	0.00	2013	P							52,000.00
					P(a)							52,000.00
					A							

Details

Means of verification: Day-to-day observations and measurements performed by field-based students affiliated to MARNDR's Studies and Programming Unit (UEP)

Observations: Water retention tanks built on the downstream side of check-dams will store rainwater and will thus facilitate access to water usable for agricultural as well as domestic purposes by local populations. Field observation (Saintil, 2013) suggests that a wat

Pro-Gender No **Pro-Ethnicity** No

PMR Operational Report

RESULTS MATRIX

OUTCOMES

Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	EOP 2020
1.4	Indicator 1.4: Farmers who benefit from new cultivable area and better access to water.	Farmers (#)	0.00	2013	P							2,350.00
					P(a)							2,350.00
					A							

Details

Means of verification: Household surveys performed by field-based students affiliated to MARNDR's Studies and Programming Unit (UEP)

Observations: Each check-dam will benefit one farmer (and his family). Each water tank will benefit at least 10 additional farmers (and their family).

Pro-Gender		No	Pro-Ethnicity		No							
	Afro-descendant				P							
					P(a)							
					A							
	Boys				P							
					P(a)							
					A							
	Girls				P							
					P(a)							
					A							
	Indigenous				P							
					P(a)							
					A							
	Men				P							
					P(a)							
					A							
	Women				P							
					P(a)							
					A							

Outcome Nbr. 2: OUTCOME 2: Improve water distribution in the Artibonite irrigation district

Observation:

Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	EOP 2020
2.1	Indicator 2.1: Surface of the irrigation district that	Ha	0.00	2013	P							3,300.00

PMR Operational Report

RESULTS MATRIX

OUTCOMES

2.1	benefit optimal waterflows in the pilot area	Ha	0.00	2013	P(a)								3,300.00
					A								

Details

Means of verification: Water flows will be measured at gates (100 measuring devices installed, including a tele-monitoring unit at ODVA = output 6).

Observations: ?Optimal flows? means that actual waterflows measured are consistent with theoretical waterflows (for which the canals were designed) and that there is no excess, scarcity or waste of water in the irrigation system.

Pro-Gender	No	Pro-Ethnicity	No
-------------------	----	----------------------	----

Indicator	Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	EOP 2020
2.2	Indicator 2.2: Number of farmers that benefit a better water distribution in the pilot area of the irrigation district	Farmers (#)	0.00	2013	P						6,400.00
					P(a)						6,400.00
					A						

Details

Means of verification: Water Users Associations' registry of members.

Pro-Gender	No	Pro-Ethnicity	No
-------------------	----	----------------------	----

	Afro-descendant				P							
					P(a)							
					A							
	Boys				P							
					P(a)							
					A							
	Girls				P							
					P(a)							
					A							
	Indigenous				P							
					P(a)							
					A							
	Men				P							
					P(a)							
					A							
	Women				P							

PMR Operational Report

RESULTS MATRIX

OUTCOMES

	Women				P(a)							
					A							

Outcome Nbr. 3: OUTCOME 3: Decrease waterlogging in the Artibonite irrigation district

Observation:

Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	EOP 2020
3.1	Indicator 3.1: Surface cultivated in formerly uncultivated and hydromorphic area	Ha	0.00	2013	P							3,000.00
					P(a)							3,000.00
					A							

Details

Means of verification: Measures of areas with GPS.

Pro-Gender	No	Pro-Ethnicity	No
-------------------	----	----------------------	----

Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	EOP 2020
3.2	Indicator 3.2: Number of farmers cultivating in formerly uncultivated and hydromorphic area	Farmers (#)	0.00	2013	P							7,500.00
					P(a)							7,500.00
					A							

Details

Means of verification: WUA's registry of members.

Pro-Gender	No	Pro-Ethnicity	No
-------------------	----	----------------------	----

	Afro-descendant				P							
					P(a)							
					A							
	Boys				P							
					P(a)							
					A							
	Girls				P							
					P(a)							
					A							
	Indigenous				P							
					P(a)							

PMR Operational Report

RESULTS MATRIX

OUTCOMES

	Indigenous				A							
	Men				P							
					P(a)							
					A							
	Women				P							
					P(a)							
					A							

Outcome Nbr. 4: OUTCOME 4: Improve flood management at Peligre dam

Observation: One of the main roles of the Péligre commission is to ensure that EDH complies with key operating rules at Peligre dam, including rules for flood management

Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	EOP 2020
4.1	Indicator 4.1: Days with water level at Péligre dam above the maximum limit for flood management	Days	75.00	2011	P	75.00	0.00	0.00	0.00	0.00		0.00
					P(a)	75.00	0.00	0.00	0.00	0.00		0.00
					A	0.00	0.00	0.00				

Details

Means of verification: EDH operation reports at Peligre dam and flood management software (see output 8)

Observations: According to the dam's operations manual, if the water level is above 166 Meters Above Sea Level (MASL) between May 1st and June 15th or above 168 MASL between September 15th and October 15th, the Péligre dam cannot act as a buffer in case of heavy rains

Pro-Gender	No	Pro-Ethnicity	No
-------------------	----	----------------------	----

Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	EOP 2020
4.2	Indicator 4.2: Days with water flows released by Péligre dam above 400 m3/sec	Days	18.00	2011	P	18.00	0.00	0.00	0.00	0.00		0.00
					P(a)	18.00	0.00	0.00	0.00	0.00		0.00
					A	0.00	0.00	0.00				

Details

Means of verification: EDH operation reports at Peligre dam and flood management software (see output 8)

Observations: Flooding in the Valley is inevitable if Canneau dam receives water flows above 500 m3/sec, then if Peligre dam releases more than 400 M3/sec (flow at Canneau = flows from Peligre + flows for others tributaries).

Pro-Gender	No	Pro-Ethnicity	No
-------------------	----	----------------------	----

Outcome Nbr. 5: OUTCOME 5: Improve ODVA's internal management

Observation:

Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	EOP 2020
-----------	--	-----------------	----------	---------------	--	------	------	------	------	------	------	----------

PMR Operational Report

RESULTS MATRIX

OUTCOMES

5.1	Indicator 5.1: Financial statements prepared by external auditors issued with a positive opinion	Audit	0.00	2013	P	0.00	0.00	0.00	1.00	1.00		1.00
					P(a)	0.00	0.00	0.00	1.00	1.00		1.00
					A	0.00	0.00	0.00				

Details

Means of verification: Annual audits prepared by external auditors..

Observations: The correct fiduciary and internal control management of ODVA is a key part of the general capacity of ODVA to properly operate and maintain the main infrastructures of the irrigation district. Targets don't cumulate.

Pro-Gender No **Pro-Ethnicity** No

Outcome Nbr. 6: OUTCOME 6: Improve operations and maintenance of hydraulic infrastructures and equipment in the irrigation district

Observation:

Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	EOP 2020
6.1	Indicator 6.1: Secondary and tertiary canals and drains dredged (manually) by the 3 WUAs in the pilot area	Meters	86.00	2012	P	86.00	86.00	108.00	136.40	136.40		1,364.00
					P(a)	86.00	86.00	108.00	136.40	136.40		1,364.00
					A	0.00	0.00	40.60				

Details

Means of verification: WUAs annual reports on operations, maintenance and collection of water tariffs (reports controlled by Technical Assistance firm)

Observations: Measures the level of maintenance provided by WUAs. The existing network counts with 86Km of canals and drains; the project will built 50.4 additional Km. The dredging of the existing 86Km by WUAs in 2012 was financed by ODVA. Targets don't cumulate.

Pro-Gender No **Pro-Ethnicity** No

Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	EOP 2020
6.2	Indicator 6.2: Rate of cost recovery in the 3 WUAs of the pilot area	%	0.00	2013	P	0.00	50.00	75.00	75.00	75.00		75.00
					P(a)	0.00	50.00	75.00	75.00	75.00		75.00
					A	0.00	0.00	0.00				

Details

Means of verification: WUAs annual reports on operations, maintenance and collection of water tariffs (reports controlled by Technical Assistance firm)

Observations: Measures the WUAs' financial viability (the capacity of WUAs to operate without subsidies). Water tariffs will be at least \$US10/Ha/year. Targets don't cumulate.

Pro-Gender No **Pro-Ethnicity** No

RESULTS MATRIX

OUTPUTS: ANNUAL PHYSICAL AND FINANCIAL PROGRESS

Component Nbr. 1 Component 1. Water and sediment management infrastructures

	Output	Unit of Measure		PHYSICAL PROGRESS		FINANCIAL PROGRESS	
				2018	EOP 2020	2018	EOP 2020
1.1	Output 1: Water and sediment containment infrastructures built in gullies in the pilot area of the upper watershed	Infrastructures	P	225	950	1,220,000	5,262,500
			P(a)	300	950	3,000,000	4,762,500
			A	50	65	833,258.75	1,654,644.85
1.2	Output 2: Electromechanical system (gates and automatic control) at Canneau dam rehabilitated	System	P		1		621,143
			P(a)	0	1	2,195	621,143
			A	0	0	1,797.66	101,921.99
1.3	Output 3: Protection walls preventing the Left and Right Banks Master Canals from collapsing downstream Canneau dam: built	Wall	P		2		2,690,986
			P(a)		2	0	2,188,486
			A	0	2	14,627.94	1,854,757.95
1.4	Output 4: Secondary and tertiary irrigation and drainage canals built or rehabilitated, and equipped, in the pilot area of the irrigation district	Kilometers	P	0	50.4		4,441,708
			P(a)	0	50.4	79,060.41	4,441,708
			A	0	41.7	63,292.5	3,453,022.46
1.5	Output 5: Primary irrigation and drainage canals dredged in the irrigation district	Meters	P	30,000	120,000	796,500	3,451,500
			P(a)	0	120,000	121,436.44	3,451,500
			A	1,954	115,168	59,576.07	1,498,453.7
1.6	Output 6: Equipment to regulate and measure water flow built/installed on the main canals of the irrigation district	Device	P		100		1,435,320
			P(a)	0	100	8,728.77	1,435,320
			A	0	1	0	195,035.76

RESULTS MATRIX

OUTPUTS: ANNUAL PHYSICAL AND FINANCIAL PROGRESS

Component Nbr. 2 Component 2. Institutional strengthening

	Output	Unit of Measure		PHYSICAL PROGRESS		FINANCIAL PROGRESS	
				2018	EOP 2020	2018	EOP 2020
2.1	Output 7: Meetings of the Péligre Commission taking place	Meetings	P	6	27	69,000	345,000
			P(a)	4	16	60,000	375,000
			A	0	6	58,588.58	115,707.17
2.2	Output 8: Flood management system (composed of water level gauges, flood management software and one computer per dam) operating at the Péligre and Canneau dams	System	P		1		338,725
			P(a)	0	1	0	338,725
			A	0	0	0	0
2.3	Output 10: ODVA's procedures manual for operation and maintenance of infrastructure and equipment prepared	Manual	P		1		128,011
			P(a)	1	1	31,659.38	186,511
			A	1	1	5,406.09	130,538.08
2.4	Output 11: CIA-ODVA's staff trained	Staff	P		20		256,024
			P(a)	0	20	63,318.76	373,024
			A	0		10,812.18	261,075.15
2.5	Output 12: Annual technical and financial plan and annual technical and financial report of operation and maintenance of primary infrastructures under ODVA's responsibility prepared	Reports/plans	P	2	9	51,204	256,023
			P(a)	2	7	63,318.76	373,024
			A	0	4	10,812.18	261,075.05
2.6	Output 13: CIA-ODVA equipped with a package of operating equipment	Package of equipment	P		1		90,000
			P(a)	0	1	0	90,000
			A	0	1	0	32,124
2.7	Output 14: ODVA's administrative and financial staff trained	Staff	P		10		150,000
			P(a)	0	10	0	153,000
			A	0		1,847.09	21,110.39
2.8	Output 15: Accounting software installed at the ODVA's administrative and financial service	Accounting software	P		1		15,000
			P(a)		1	1,782	21,500
			A	0	1	0	19,474.65
2.9	Output 16: ODVA's administrative and financial service equipped with a package of operating equipment	Package of equipment	P		1		60,000
			P(a)		1	0	66,000
			A	0	1	0	65,759.42
2.10	Output 17: DGSE-ODVA equipped with a package of operating equipment	Package of equipment	P		1		140,000
			P(a)		1	72,433.52	236,000
			A	0	1	9,626.7	169,250.42
2.11	Output 18: Water Users Associations (WUAs) equipped with office, IT equipment and motorcycles	WUAs	P		16		695,000
			P(a)	6	16	470,033.98	695,000
			A	0	0	137,376.78	199,439.59
2.12	Output 19: DGSE and WUA staff trained	Staff	P	170	170	274,080.5	1,487,054.5
			P(a)	80	170	350,000	1,532,795.42
			A	93		231,348.94	526,583.96
2.13	Output 20: Annual technical and financial plan and annual technical and financial report of operation and maintenance of infrastructures under WUAs' responsibility: prepared	Reports/plans	P	6	24	274,080.5	1,487,055.5
			P(a)	6	15	350,000	1,532,796.42
			A	0	3	231,348.94	526,583.96

Other Cost

	Administration, Monitoring and Evaluation, Audits, Contingencies	P			739,451	3,898,950
		P(a)			711,434.32	4,625,967.16
		A			353,144.87	2,977,305.17

Total Cost

	Total Cost	P			3,486,816	27,500,000
		P(a)			5,385,401.34	27,500,000
		A			2,022,865.27	14,063,863.72

PMR Operational Report

CHANGES TO THE MATRIX

Section	Name	Type of Change	Reasons	Entered in the System	Agreed with Executing Agency
Output	Output 3: Protection walls preventing the Left and Right Banks Master Canals from collapsing downstream Canneau dam: built	Modify Output	P(a) physical for 2017 should be 2 instead of 0.25 (it's an error that was done while filling out the PMR last year).	09/10/2018	09/03/2018