

# PMR Operational Report

<b>Operation Number</b>	HA-L1087	<b>Chief of Operations Validation Date</b>	10/23/19
<b>Year- PMR Cycle</b>	First period Jan-Jun 2019	<b>Division Chief Validation Date</b>	
<b>Last Update</b>	10/22/19	<b>Country Representative Validation Date</b>	
<b>PMR Validation Stage</b>	Validated by Chief of Operations		

## Basic Data

### Operation Profile

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

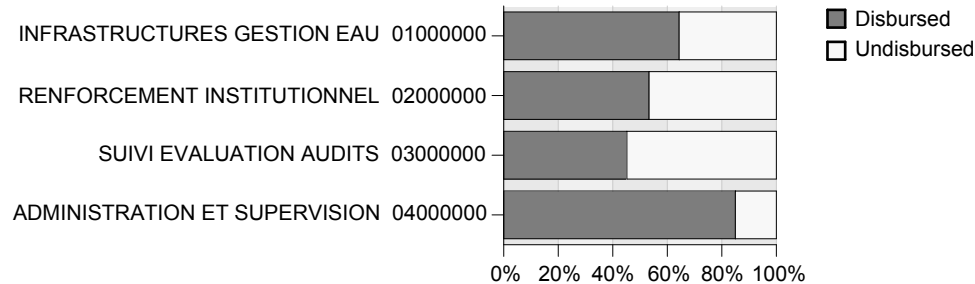
## Environmental and Social Safeguards

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

## 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	18,815,917.83	75.26%	6,184,082.17
<b>Aggregated</b>	<b>25,000,000</b>	<b>25,000,000</b>	<b>2,500,000</b>	<b>0</b>	<b>27,500,000</b>	<b>25,000,000</b>	<b>18,815,917.83</b>	<b>75.26%</b>	<b>6,184,082.17</b>

## Expense Categories by Loan Contract (cumulative values)



## 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

<b>Pro-Gender</b>	No	<b>Pro-Ethnicity</b>	No
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**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.

<b>Pro-Gender</b>	No	<b>Pro-Ethnicity</b>	No
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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

<b>Pro-Gender</b>	No	<b>Pro-Ethnicity</b>	No
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## 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	2020	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

<b>Pro-Gender</b>	No	<b>Pro-Ethnicity</b>	No
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Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	2020	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).

<b>Pro-Gender</b>	No	<b>Pro-Ethnicity</b>	No
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Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	2020	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

<b>Pro-Gender</b>	No	<b>Pro-Ethnicity</b>	No
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## PMR Operational Report

### RESULTS MATRIX

#### OUTCOMES

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

<b>Pro-Gender</b>	No	<b>Pro-Ethnicity</b>	No
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Indicator	Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	2020	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.

<b>Pro-Gender</b>	No	<b>Pro-Ethnicity</b>	No
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	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	2020	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.

<b>Pro-Gender</b>	No	<b>Pro-Ethnicity</b>	No
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Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	2020	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.

<b>Pro-Gender</b>	No	<b>Pro-Ethnicity</b>	No
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	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	2020	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

<b>Pro-Gender</b>	No	<b>Pro-Ethnicity</b>	No
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Indicator		Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	2020	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).

<b>Pro-Gender</b>	No	<b>Pro-Ethnicity</b>	No
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**Outcome Nbr. 5:** OUTCOME 5: Improve ODVA's internal management

**Observation:**

Indicator	Unit of Measure	Baseline	Baseline Year		2014	2015	2016	2017	2018	2019	2020	EOP 2020
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## 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	2020	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	2020	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	
				2019	EOP 2020	2019	EOP 2020
1.1	Output 1: Water and sediment containment infrastructures built in gullies in the pilot area of the upper watershed	Infrastructures	P		950		5,262,500
			P(a)	200	523	1,392,888.48	5,711,841.31
			A	134	329	373,395.48	2,684,274.18
1.2	Output 2: Electromechanical system (gates and automatic control) at Canneau dam rehabilitated	System	P		1		621,143
			P(a)	1	1	330,815	597,503.9
			A	1	1	14,949.67	281,638.57
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	1,854,757.95
			A		2	0	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		50.4		4,441,708
			P(a)	4	50.7	500,000	4,841,707.88
			A		41.7	0	3,453,022.46
1.5	Output 5: Primary irrigation and drainage canals dredged in the irrigation district	Meters	P		120,000	132,750	3,451,500
			P(a)	0	115,168	47,474	3,370,030.04
			A		115,168	0	1,522,556.04
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	1	0	195,035.76
			A		1	3,962.75	198,998.51

## RESULTS MATRIX

### OUTPUTS: ANNUAL PHYSICAL AND FINANCIAL PROGRESS

#### Component Nbr. 2 Component 2. Institutional strengthening

	Output	Unit of Measure		PHYSICAL PROGRESS		FINANCIAL PROGRESS	
				2019	EOP 2020	2019	EOP 2020
2.1	Output 7: Meetings of the Péligre Commission taking place	Meetings	P		27	59,000	345,000
			P(a)	4	16	219,151	335,295.13
			A	2	12	33,594.51	149,738.64
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	0	248,000	548,725
			A		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)	0	1	36,337	195,541.22
			A		1	6,208.08	165,412.3
2.4	Output 11: CIA-ODVA's staff trained	Staff	P		20		256,024
			P(a)	0	20	57,345	375,752.44
			A			12,416.15	330,823.59
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		9	30,000	256,023
			P(a)	2	9	12,990	366,131.34
			A		4	12,416.15	330,823.49
2.6	Output 13: CIA-ODVA equipped with a package of operating equipment	Package of equipment	P		1		90,000
			P(a)	0	1	57,876	90,000
			A		1	0	32,124
2.7	Output 14: ODVA's administrative and financial staff trained	Staff	P		10		150,000
			P(a)	0	10	131,889	152,999.39
			A			0	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)	0	1	2,025	21,499.65
			A		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)	0	1	240	65,999.42
			A		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)	0	1	51,699	224,553.94
			A		1	9,681.17	182,536.11
2.11	Output 18: Water Users Associations (WUAs) equipped with office, IT equipment and motorcycles	WUAs	P		16		695,000
			P(a)	4	16	353,714	948,368
			A	3	3	85,402.44	326,056.44
2.12	Output 19: DGSE and WUA staff trained	Staff	P		170	270,330	1,487,054.5
			P(a)	40	170	277,129	1,408,867.1
			A	65		9,181.11	760,919.21
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		24	270,331	1,487,055.5
			P(a)	4	11	266,140	1,270,365.77
			A		3	9,181.11	760,919.2

RESULTS MATRIX

OUTPUTS: ANNUAL PHYSICAL AND FINANCIAL PROGRESS

Component Nbr. 3 Administration, Monitoring and Evaluation, Audits, Contingencies

				PHYSICAL PROGRESS	FINANCIAL PROGRESS
	Output	Unit of Measure		EOP	EOP
3.			P		
			P(a)		
			A		

Other Cost

	Administration, Monitoring and Evaluation, Audits, Contingencies	P			215,893	3,898,950
		P(a)			987,504	4,925,024.76
		A			252,168.69	3,589,689.45

Total Cost

	Total Cost	P			1,040,804	27,500,000
		P(a)			4,973,216.48	27,500,000
		A			822,557.31	16,730,634.6

### CHANGES TO THE MATRIX

No information available for this section

## PMR Operational Report

### IMPLEMENTATION STATUS AND LEARNING

Lesson Learned - Categories