Document of
The World Bank

Report No: ICR00003287

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IDA-H5090)

ON A

GRANT

UNDER THE GLOBAL FOOD RESPONSE PROGRAM

IN THE AMOUNT OF SDR 3.40 MILLION
(US$ 5.0 MILLION EQUIVALENT)

TO THE

REPUBLIC OF HAITI

FOR A

STRENGTHENING AGRICULTURE PUBLIC SERVICES PROJECT

February 20, 2015

Agriculture Global Practice
Haiti Country Management Unit
Latin America and Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective December 2014)

Currency Unit = Gourde
Gourde 1.00 = US$ 0.0216
US$ 1.00 = 46.25 Gourdes

FISCAL YEAR
October 1 – September 30

ABBREVIATIONS AND ACRONYMS

AOP	Annual Operating Plans
BAC	Agriculture Communal Office
CIDA	Canadian International Development Agency
DAAF	Directorate of Administrative and Financial Affaires
DDA	Departmental Agriculture Directorate
DEEDS	Economic Development for a Sustainable Environment
DEFI	Rural Supply Chain Development Project
DRF	Research and Training Directorate
DG	Director General
DSNCRP	Poverty Reduction National Strategy Document
EA	Environmental Analysis
EU	European Union
FAO	Food and Agriculture Organization
FIOP	Investment Proposal
GDP	Gross Domestic Product
GFRP	Global Food Response Program
GOH	Government of Haiti
IADB	Inter-American Development Bank
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IFR	Unaudited Interim Financial Report
ISR	Implementation Status and Results Report
IT	Information Technology
LAC	Latin America and the Caribbean Region
M&E	Monitoring and Evaluation
MARCHE	Market Chain Evaluation Project
MARNDR	Ministry of Agriculture, Natural Resources and Rural Development
MEF	Ministry of Economics and Finance
MIS	Management Information System
MPCE	Ministry of Planning and External Cooperation
MPCE	Monthly per Capital Expenditure
NGO	Nongovernmental Organization
PDO	Project Development Objective
PEMFAR	Agriculture Public Expenditure Review
PIA	Agriculture Intensification Project
PICV	Food Crop Intensification Project
PIU	Project Implementation Unit
PPI	Small Irrigation Rehabilitation Project
PRODEP	Participatory Development Program

RESEPAG	Strengthening Agriculture Public Services
R&D	Research and Development
SOP	Standard Operating Procedures
SYSCOP	Accounting Software
SYSGEP	Project Management Monitoring System
TA	Technical Assistance
TP	Public Treasury
UEP	Planning and Studies Unit
USAID	U. S. Agency for International Development
UTES	Technical and Sectoral Environmental Unit

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Haiti
Strengthening Agriculture Public Services

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A. Basic Information

Country:	Haiti	Project Name:	Strengthening Agriculture Public Services
Project ID:	P113623	L/C/TF Number(s):	IDA-H5090
ICR Date:	02/20/2015	ICR Type:	Core ICR
Lending Instrument:	SIL	Recipient:	REPUBLIC OF HAITI
Original Total Commitment:	SDR 3.40M	Disbursed Amount:	SDR 3.40M
Revised Amount:	SDR 3.40M		
Environmental Category: B			
Implementing Agencies: Ministry of Agriculture, Natural Resources and Rural Development (MARNDR)			
Cofinanciers and Other External Partners:			

B. Key Dates

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	01/12/2009	Effectiveness:	10/13/2009	10/13/2009
Appraisal:	04/27/2009	Restructuring(s):		05/03/2010 06/27/2014 08/27/2014
Approval:	06/25/2009	Mid-term Review:	10/31/2012	10/22/2012
		Closing:	06/30/2013	08/31/2014

C. Ratings Summary

C.1 Performance Rating by ICR	
Outcomes:	Satisfactory
Risk to Development Outcome:	Substantial
Bank Performance:	Satisfactory
Recipient Performance:	Moderately Satisfactory

C.2 Detailed Ratings of Bank and Recipient Performance (by ICR)

Bank	Ratings	Recipient	Ratings
Quality at Entry:	Satisfactory	Government:	Moderately Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Satisfactory
Overall Bank Performance:	Satisfactory	**Overall Recipient Performance:**	Moderately Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators

Implementation Performance	Indicators	QAG Assessments (if any)	Rating

Potential Problem Project at any time (Yes/No):	Yes	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Moderately Satisfactory		

D. Sector and Theme Codes		
	Original	**Actual**
Sector Code (as % of total Bank financing)		
Agricultural extension and research	66	60
Public administration- Agriculture, fishing and forestry	34	40

Theme Code (as % of total Bank financing)		
Administrative and civil service reform	10	30
Rural policies and institutions	24	30
Rural services and infrastructure	66	40

E. Bank Staff		
Positions	**At ICR**	**At Approval**
Vice President:	Jorge Familiar Calderon	Pamela Cox
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F. Results Framework Analysis

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

The project development objective (PDO) is to enable MARNDR to prioritize and target investments according to sector policies, and improve local agriculture support services.

Revised Project Development Objectives (as approved by original approving authority)
N/A

(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**

Indicator 1 :	Rate of commitment of the operating budget (excluding salaries) at MARNDR central office			
Value quantitative or Qualitative)	80 percent	95 percent		95%
Date achieved	07/01/2009	07/01/2009		06/30/2014
Comments (incl. % achievement)	Achieved (100%): Based on the annual report produced by the M&E team of the Ministry and confirmed by MEF report.			
Indicator 2 :	MARNDR Investment budget reflects prioritization and targeting by the end of the second project year			
Value quantitative or Qualitative)	N/A	Completed		Substantially achieved
Date achieved	07/01/2009	07/01/2009	10/22/2013	08/30/2014
Comments (incl. % achievement)	Substantially Achieved: A review of policy and prioritization completed in the last year of implementation shows investments are substantially targeted and aligned with sector strategies.			
Indicator 3 :	At least 3000 farmers receiving more diverse support services in the pilot zones before the end of the project			
Value quantitative or Qualitative)	280	3000		4565
Date achieved	07/01/2009	07/01/2009		08/30/2014
Comments (incl. % achievement)	Exceeded (152%): The program has generated high demand and with reallocation of resources the quantitative objective has been well surpassed.			

(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
Indicator 1 :	Number of MARNDR staff passing a skills test post training			
Value (quantitative or Qualitative)	None	80 individuals	dropped	N/A
Date achieved	07/01/2009	07/01/2009	06/30/2014	08/30/2014
Comments (incl. % achievement)	Dropped: Objective testing could not be conducted as no independent testing body exists within government. Indicator was dropped in third restructuring.			
Indicator 2 :	Preparation of Manuals of procedures for managing the operation and investment budgets			
Value (quantitative or Qualitative)	None	completed by year 2		Completed
Date achieved	07/01/2009	07/01/2009		08/30/2014
Comments	Achieved (100%): Following Manuals developed:			

(incl. % achievement)	-Accounting and Financial Management for projects -M&E manual of principles for investment projects			
Indicator 3 :	Establishment of a functioning Environmental Unit inside MARNDR			
Value (quantitative or Qualitative)	None, no environmental safeguards capacity	established by year 3		M&E unit of 3 people established within planning and programing unit of the Ministry (UEP)
Date achieved	07/01/2009	07/01/2009		08/30/2014
Comments (incl. % achievement)	Achieved (100%): Unit established with 3 people, paid mostly from project funds but with limited capacity for effective field supervision.			
Indicator 4 :	Increase the commitments of the operating budget (except salaries) in the DDAs to 70%			
Value (quantitative or Qualitative)	45%	70%		99.7%
Date achieved	07/01/2009	07/01/2009		08/30/2014
Comments (incl. % achievement)	Exceeded (152%): According to records of MEF fiscal year exercises ending 2012-2013			
Indicator 5 :	100% of procurement records over US$100,000 and managed by MARNDR published on its website			
Value (quantitative or Qualitative)	None	10% first year 30% second year 80% fourth year		100% of documents over US$ 100,000 on web site
Date achieved	07/01/2009	07/01/2009		08/30/2014
Comments (incl. % achievement)	Achieved (100%): Some 20 records representing 100% of over US$100,000 procurements on web site.			
Indicator 6 :	Reduction from 15 days to 5 days for emission of checks			
Value (quantitative or Qualitative)	15 days	5 days		4 to 5 days
Date achieved	07/01/2009	07/01/2009		08/30/2014
Comments (incl. % achievement)	Achieved (100%): With adoption of software based accounting, check issuance reduced to between 4 and 5 days			
Indicator 7 :	Intranet and E-mail system installed for 300 MARNDR staff			
Value (quantitative or Qualitative)	None	E-mail and intranet accounts for 300 staff		260 E-mail accounts and connection of regional offices (DDAs) and research farms in pilot areas.
Date achieved	07/01/2009	07/01/2009		08/30/2014
Comments (incl. % achievement)	Substantially achieved (87%): Network established with computers and training on cloud based site. Technical challenges with connections. IT unit informally established to support system maintenance.			
Indicator 8 :	FIOPs (project identification sheet) transmitted to MPCE for 80% of projects in the PIP (Public Investment Program)			

Value (quantitative or Qualitative)	10%	80%		100% of FIOPs are in the PIP
Date achieved	07/01/2009	07/01/2009		08/30/2014
Comments (incl. % achievement)	Exceeded (125%)			
Indicator 9 :	Creation of a registry of services providers and producers/beneficiary for pilot zones			
Value (quantitative or Qualitative)	No records of producers/beneficiaries or services providers	Completed in year 2		Farm and service provider register in place in pilot areas.
Date achieved	07/01/2009	07/01/2009		08/30/2014
Comments (incl. % achievement)	Achieved (100%): Basic farm and beneficiary as well as services provider register established with geo-referencing of land parcels with individual identification code by beneficiary. National expansion underway.			
Indicator 10 :	At least 2 R&D studies completed in pilot areas			
Value (quantitative or Qualitative)	None	2 studies		1 study
Date achieved	07/01/2009	07/01/2009		08/30/2014
Comments (incl. % achievement)	Partially achieved (50%): A study on coffee value chain completed			
Indicator 11 :	Coverage Mechanism against agricultural risks elaborated in pilot zones			
Value (quantitative or Qualitative)	No risk management	N/A	Dropped	N/A
Date achieved	07/01/2009	07/01/2009	06/30/2014	08/30/2014
Comments (incl. % achievement)	Dropped: Indicator was dropped due to indirect relevance to overall project and due to other donor program (CIDA) focusing on risk management in agriculture.			
Indicator 12 :	20 agricultural agents trained and educational material on environmentally friendly agricultural techniques prepared and disseminated in pilot zones			
Value (quantitative or Qualitative)	0	5 in year 2 15 in year 3		Some 38 offices trained and equipped with information material
Date achieved	07/01/2009	07/01/2009		08/30/2014
Comments (incl. % achievement)	Exceeded (153%): Environmental Unit Developed Integrated Pest Manual to help with more effective application of pesticides and phyto sanitary treatments.			

G. Ratings of Project Performance in ISRs

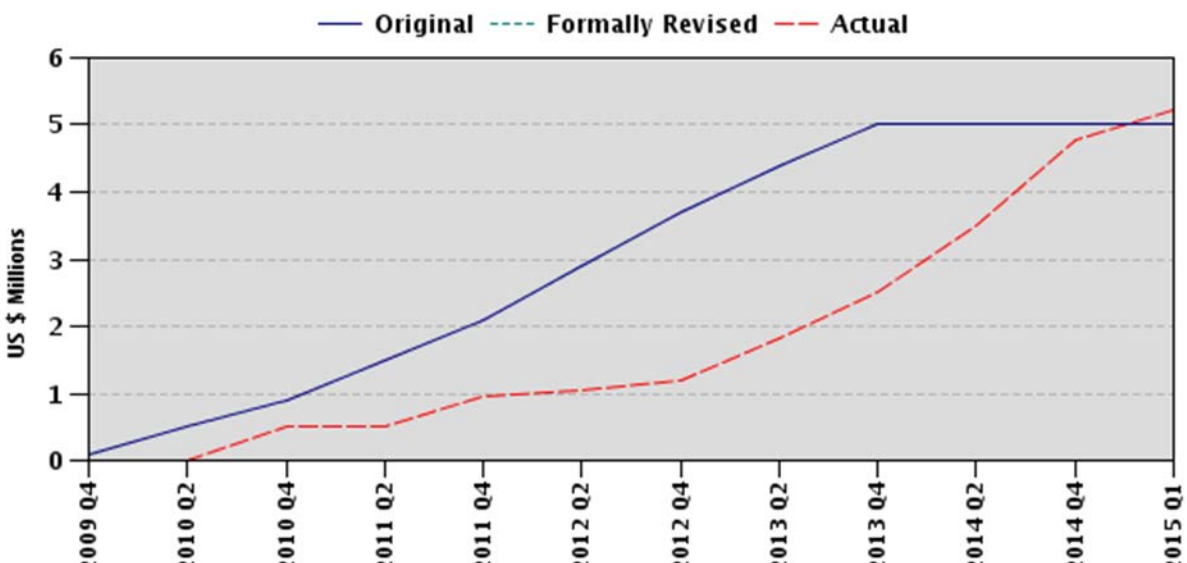
No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	08/11/2009	Satisfactory	Satisfactory	0.00

2	02/17/2010	Satisfactory	Satisfactory	0.00
3	05/28/2010	Moderately Satisfactory	Moderately Satisfactory	0.50
4	01/24/2011	Moderately Satisfactory	Moderately Satisfactory	0.50
5	07/19/2011	Moderately Satisfactory	Moderately Satisfactory	0.96
6	03/28/2012	Moderately Satisfactory	Moderately Satisfactory	1.10
7	09/26/2012	Moderately Satisfactory	Moderately Satisfactory	1.41
8	04/24/2013	Moderately Satisfactory	Moderately Satisfactory	2.14
9	12/03/2013	Moderately Unsatisfactory	Moderately Satisfactory	3.24
10	06/09/2014	Moderately Satisfactory	Moderately Satisfactory	4.78
11	08/11/2014	Moderately Satisfactory	Moderately Satisfactory	4.97

H. Restructuring (if any)

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		
05/03/2010	N	S	S	0.50	Reallocation of resources to address needs stemming from earthquake, plus first extension of closing date to 6/30/2014.
06/27/2014	N	MS	MS	4.78	Project second closing date extension to 8/31/2014.
08/27/2014	N	MS	MS	4.97	Reallocation to input support program.

I. Disbursement Profile



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1. The socio-economic situation in Haiti deteriorated throughout the 1990s and early 2000s. Poverty remained endemic, inequality was severe, and Haiti's social indicators were among the lowest anywhere, signaling a chronic humanitarian crisis. At appraisal, some 76 percent of its population lived below the poverty line, with 56 percent in extreme poverty. The average per capita income of an extremely poor household was a mere 44 percent of the extreme poverty line, comparable to Sub-Saharan Africa.[1] Poverty was most widespread in rural areas where education and economic opportunities are limited, and basic social services and infrastructure are severely lacking. Some 90 percent of poor households and 67 percent of extremely poor households lived in the rural areas at appraisal.

2. ***Livelihood challenges*** - Haiti had struggled to emerge from a cycle of political instability and internal conflicts that devastated its economy, further weakened state institutions, augmented poor governance practices, increased poverty and, at times, prompted the withdrawal of external assistance to the government. The political situation had become more stable in 2004, but in 2008, a combination of exogenous shocks, once more showed the country's high vulnerability to crises.

3. In 2007, Hurricane Noel led to flash floods and mudslides in the western part of the country, causing 66 deaths and 14,000 displaced families, while the 2008 hurricane season brought four major storms and hurricanes (Fay, Gustav, Hanna and Ike), resulting in major damage to roads, bridges, crops, and human suffering. The country had only limited capacity for recovery from these events in spite of significant emergency aid.

4. The country was also one of the worst affected by high commodity prices that had increased beginning 2007, which led to higher food prices throughout the world. The crisis most severely affected the poorest countries where a larger share of household income went to food purchases at the detriment of other household expenditures. In Haiti, the food price increases led to riots that presented a risk of increased instability. In response to the crisis worldwide, the Bank established the Global Food Response Program (GFRP) and Haiti would be one of the first beneficiaries with the Strengthening Agriculture Public Services Project (RESEPAG).

5. ***The role of agriculture in the economy*** - The country's surface is 80 percent mountainous with more than 50 percent of land having slopes steeper than 40 percent (that does not lend itself to efficient production of field crops), with the exception of some large irrigated valleys. At appraisal, Haiti was a net importer of agricultural products, but local production of certain food products was thought to be internationally competitive and could potentially be sourced in increasing quantities. Although the importance of the agriculture

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[1] Haiti Living Conditions Survey 2003 report; according to international poverty lines of US$2 PPP and US$1 PPP per capita per day.

sector had been declining, it remained a potentially important source of pro-poor growth in Haiti, functioning as the backbone of the rural economy, generating some 25 percent of total GDP at the time of appraisal and accounting for about 50 percent of overall employment, 66 percent of employment in rural areas, and 75 percent of employment for the poor.

6. There were an estimated one million farmers in Haiti, who in large part lived in poverty and experienced various levels of food insecurity. Average size of the holding was about 0.5 hectare and productivity of local farming was constrained by the dominance of small-scale subsistence farms, few or non-existent agriculture extension services, insufficiently developed inputs and food supply chains, limited access to rural finance markets, and the inability to meet increasingly important food safety standards.

7. ***Public sector role in the agriculture sector*** - Public sector disbursements to agriculture had diminished (in real terms) over the years, even as overall budget allocations to the sector as percentage of total budget had risen from 3 to 4 percent. However, this increase reflected more the large resources devoted to programs and projects mainly funded by the donors rather than the government providing more resources to the Ministry of Agriculture, Natural Resources and Rural Development (MARNDR).

8. The MARNDR, with its ten Departmental offices (DDA) and 155 Communal offices (BAC) throughout the country (although only 40 were operational at that time), had a relatively substantial presence in rural areas. While this presence was appreciated by farmers and local organizations, service delivery was inadequate because MARNDR's decentralized offices needed enhanced staffing, equipment and linkages to the headquarters in Port-au-Prince. MARNDR's poor capacity in the field, together with administrative constraints at headquarters, led the donors and partners to avoid direct involvement with the ministry by creating "autonomous" project implementation units (PIUs). While these PIUs were established to achieve expeditious results on the ground, this strategy of project execution proved to have limited absorptive capacity.

9. ***Rationale for Bank involvement*** - The World Bank had re-engaged in the agricultural sector in Haiti after almost a decade of near absence. Re-engagement was in part driven by the food price crisis. This project, with limited resources from the International Development Association (IDA) and processed under the Global Food Response Program (GFRP), was to be a testing ground for more extensive re-engagement. The Bank's Country Assistance Strategy (CAS) for Haiti for 2009-2012 was near Board approval. Agriculture was a key sector within the CAS. Given the Bank's involvement in public sector reform, this operation was expected to facilitate the transition from an era of uncoordinated autonomous projects to one of consolidated steering capacity in the MARNDR. The project was to coordinate with ongoing donor-financed agriculture, rural development and public sector modernization programs. Particularly, close collaboration with the Inter-American Development Bank's (IADB) Rural Supply Chain Project was to be established. This US$18.0 million project included institutional strengthening components and investments that would complement some of this operation's proposed activities.

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

10. The project development objective (PDO) was to enable MARNDR to prioritize and target investments according to sector policies, and improve local agriculture support services.

11. The key indicators as formulated in the Project Appraisal Document (PAD) were (i) increase the MARNDR Central Office non-salary operating budget commitment rate (to 95%[2]); (ii) prioritization and targeting of MARNDR investment budget (according to agriculture sector policy[3]); and (iii) increase in the number of farmers (target of 3,000) receiving local (and diverse) agricultural services in pilot areas.[4]

12. The proposed project represented the first stage of an expected fifteen to twenty-year engagement with Haiti on agriculture public sector reform and development. In this process, the government, through the MARNDR, was to regain the stewardship of the public sector resources going to agriculture, fulfilling its normative and regulatory and coordinating mandate. While ambitious, the proposed project was designed as a significant first step in reengaging with the government for the sustainable development of agriculture in Haiti.

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

N/A

1.4 Main Beneficiaries

13. The project had five categories of beneficiaries: (i) About 3,000 farmers in the pilot areas around the Research Center of Ferme Levi and Thiotte-Savane Zombi; (ii) MARNDR (at the headquarters level), including the General Directorate (DG) and its Planning and Studies Unit (UEP), the Directorate of Administrative and Financial Affairs (DAAF), the Directorate of Research and Training (DRF), and the newly established Environmental Sectoral Technical Unit (UTES); (iii) MARNDR (at the local level), including the Departmental Directorates of Agriculture (DDA) and Departmental Directorates of Finance (DDF); (iv) Research and Development Centers of Ferme Levi and Thiotte-Savane Zombi; and (v) input suppliers and services providers.

1.5 Original Components

<u>Component 1: Strengthening MARNDR's Managerial Functions (US$2.1 million)</u> was to finance (at the central and local level) two subcomponents.

14. **Subcomponent 1a: Sector policies and coordination** (US$0.7 million). This subcomponent was to finance the formulation and coordination of sector and subsector policies, the mainstreaming of environmental aspects within the agriculture sector policy,

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[2] From Results Framework

[3] According to agricultural sector policy. From Results Framework

[4] From Results Framework. Related to improving diversity of services, defined as mainly extension services and incentives (partial re-imbursement grants to farmers).

and the prioritization of investment and regulatory instruments, which are today fulfilled by the MARNDR's Direction Générale (DG) and its Planning and Studies Unit (UEP). The main products were: (i) the training of staff in policy issues for strengthening the agriculture sector; (ii) the establishment of an Environmental Unit (UTES); and (iii) regular inter-ministerial, sectoral, and sub-sectoral meetings between donors, nongovernmental organizations (NGOs) and the government.

15. **Subcomponent 1b: Enhancing administrative, human resources (HR), and fiduciary management** (US$1.4 million). This subcomponent was to finance the improvement of MARNDR's administrative, HR, and financial management (FM), including budgetary processes and procurement capacity. The main products were: (i) procedural manuals for budget preparation, procurement, and administrative procedures (including the project management monitoring system--SYSGEP); (ii) improvement in check issuance, procurement processes, project monitoring and evaluation (M&E), and harmonization of financial nomenclature between DDAs (Departmental Directorates of Agriculture) and DDFs (Departmental Directorates of Finance); (iii) improvement in communications by connecting MARNDR's staff to email; and (iv) improved job profiles and job family descriptions and management performance indicators and mechanisms.

Component 2: Strengthening Farmer Extension and Support Services (US$2 million)

16. This component was to finance the expansion of the provision of improved agriculture support services in pilot areas near the Research Center of Ferme Levi and the Research Center of Thiotte-Savane Zombi. This component was executed by the UEP, in coordination with the Directorate of Research and Training (DRF). It financed: (i) technical assistance (TA) and training for extension agents, farmers, farmer-groups and service providers (including environmental and social aspects); (ii) strengthening of local support service structures (R&D Centers and DDAs); (iii) the development of a farmer and service provider registry (including equipment and software); and (iv) incentive payments to farmers for adoption of improved agriculture technologies that are both revenue increasing and environmentally friendly.

17. In pilot areas, a service contract was awarded to private operators of agriculture support services with local experience (NGOs). A contract was in place between the MARNDR and a financial institution for the payment of farmer subsidies. The operators supervised the subsidy scheme in coordination with the MARNDR, in particular the local DDA, but did not handle the financial resources. Farmer incentives for adoption of technologies were to meet certain criteria in terms of beneficiary eligibility, type of technology, and expected economic and environmental impacts.

Component 3: Project Coordination and Supervision (US$0.8 million)

18. Project execution was the responsibility of the Director General (DG) of the MARNDR. This component financed incremental costs associated with project implementation. To support project coordination and supervision, this component was to finance TA, operational costs, and other related costs. The Project Coordinator would be a member of the DG advisory team, while fiduciary responsibility (procurement and FM) would be with the DAAF. The Project Coordinator in the DG team was the primary Bank

counterpart for the purposes of project supervision and interfaced with the fiduciary functions of the DAAF and the various directorates responsible for the various subcomponents.

1.6 Revised Components

19. The components were substantially implemented as designed and most activities were implemented as intended. Component 1 experienced a number of minor changes including: (i) cancelling the proposed support for developing risk mitigation measures because a more in-depth effort related to insurance mechanisms was already being undertaken by the Canadian International Development Agency (CIDA), (ii) dropping the strengthening of the ministry's public relations and communication campaign; and (iii) dropping the training and testing of ministry staff on agricultural policies due to lack of an adequate testing body available to the ministry. Indicators related to these activities were dropped in the final process of restructuring.

1.7 Other significant changes

20. First Restructuring (Level 2): Given the hurricanes that pounded the country before the project and the devastating effect of the earthquake in early 2010, followed by another series of hurricanes, the project was restructured on May 3, 2010. This restructuring: (i) reallocated resources from the farmer subsidy scheme under Component 2 to Component 1 to build and rehabilitate office space and facilities at the MARNDR headquarters in Port-au-Prince after the damage caused by the earthquake; (ii) simplified the disbursement categories by merging all categories related to Components 1 and 3; and (iii) extended the closing date from June 30, 2013 to June 30, 2014. An obvious effect of the transfer of funds from the farmer subsidy scheme was to reduce the number of beneficiary farmers from 3,000 to 1,500.

21. Second Restructuring (Level 2): The project was restructured on June 27, 2014 to extend the closing date by two months. The GOH had also requested a reallocation to respond to a larger than expected demand for the farmer subsidy scheme (voucher incentive program) deployed in the South and Southeast. However, the reallocation could not be processed by the June 30, 2014 Closing Date due to posting errors (funds charged to an incorrect category) that took several weeks to resolve.

22. Third Restructuring (Level 2): The final restructuring approved on August 27, 2014 to address the GOH's request included reallocating the Grant proceeds to increase the financing for the voucher system for agriculture producers and dropping three activities under Component 1a (see Section 1.6 above). The amount for vouchers, which was decreased in the first restructuring, was increased in response to: (i) high demand for this subsidy system and expectation that it would serve 4,500 producers instead of the 3,000 originally targeted; (ii) an increase in the average size of the subsidy as a response to an increase in input prices (while remaining well below the maximum per-producer-amount planned in the PAD); and (iii) the interest by a number of donors to scale-up this voucher scheme to US$100 million, justifying an additional round of vouchers to strengthen the process and draw possible lessons. This increased allocation was financed through a number of savings from other activities, primarily: (i) a part of the consultant-related costs

for the management of the voucher system were shifted to the second phase of the project (RESEPAG2) (P126744) that was already under implementation; (ii) ministerial building rehabilitation was covered by other donors; and (iii) completion of a number of activities by other donors (e.g. agriculture insurance supported by CIDA, the creation of an unified procurement unit and the strategy to consolidate research and development (R&D) in the agricultural sector supported by IADB), or with financing by the ministry itself.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

23. ***Background*** - The project was prepared after a long period of political instability that left Haiti with more poverty, weakened institutions, and the withdrawal of external assistance, including a notable retreat of the Bank's operations in agriculture for over a decade. The Bank maintained a dialogue with the government and undertook an agricultural Public Expenditure Review (PER) in 2007. The study highlighted the disconnect between: (i) the donor resources allocated and sectoral priorities; (ii) the lack of continuity in programs and resources from year to year; and (iii) resource management inefficiency and weak program monitoring and evaluation. Finally, in 2007, the global food price crisis, which caused social tensions and riots, led to the establishment of the Global Food Response Program (GFRP). Haiti was identified as one of the first beneficiaries and within this context, the project was prepared rapidly (five months from concept review to approval).

24. ***Primary objectives*** **–** At the same time, the Bank was entering a deeper reengagement with the country and preparing a Country Assistance Strategy (CAS) that defined agriculture as one of the key sectors that would provide economic growth. The project appropriately aimed to institute basic management systems that would help the MARNDR to deliver substantial donor resources to farmers, generate growth from the sector, and address the issues identified in the PER. The project simply aimed to return the control of the development agenda to the ministry and help formulate policy and monitoring in line with funding largely provided by donors. The preparation team was composed of members with multifaceted skills and extensive experience. The strong involvement of MARNDR staff and most of the technical directorates in project preparation ensured full ownership.

25. ***The project design*** **–** The project design reflected a longer term perspective of reengagement in Haiti's agricultural sector. This project would represent the first step to improve the institutional and administrative capacity of the MARNDR while also providing an immediate stimulus to local production to help mitigate food price hikes. The design also allowed for strong ownership from all directorates of the MARNDR. However, there were some weaknesses, particularly the large number of discrete consultancies considering the low capacity of the ministry to either source these services or even integrate them at the ministerial level. The PDO was vague, indicators did not necessarily reflect the breadth of the objective and the results framework only partially reported on the expected results of project activities.

26. The project had a number of disbursement categories for Component 2, intended to protect technical assistance (TA) from potential redirection of project funds to subsidies. In some ways, this made financial accounting and linking with specific project activities complicated. Given the very weak capacity for FM in the ministry, this arrangement would have presented a major continuing challenge during implementation. The first restructuring of the project simplified the disbursement categories for consultancies to provide the necessary flexibility in the project to provide TA where the needs were greatest, proactively respond to MARNDR's requests, and simplify ledger accounts and FM.

27. The institutional arrangements reflected a desire to embed project management within the government institutions without a separate PIU or coordination body. This decision created ongoing challenges for the ministry, particularly related to satisfying the fiduciary requirements of the Bank. While the project design specifically attempted to counter this risk with consulting services in procurement and FM as well as the introduction of a software-based FM system, this software was delayed by procurement challenges.

28. ***Risks*** - Overall risks were adequately assessed and rated either Substantial or High. Fiscal and financial constraints were realistically rated High. Indeed, without further support from the follow-on project (RESEPAG2), the sustainability of the structures established and capacities built within the ministry under the project would have been unlikely to be sustained.

2.2 Implementation

29. ***Impact of earthquake*** - After effectiveness, the project was immediately affected by the earthquake that destroyed much of the ministry's headquarters.

30. ***Mid-term review*** - A mid-term review was undertaken in October 2012. The review did not raise any significant issues beyond the delays with a number of key activities to help administrative and budget performance at the ministry as well as the perennial FM and procurement difficulties. The project and its activities were largely maintained. By this time, the preparation of RESEPAG2 was already well advanced and it was understood that it would strengthen some of these aspects.

31. ***Main challenges*** - As explained above, the project faced challenges with the fiduciary requirements. Staffing of a procurement specialist was initially delayed because no qualified candidates could be found, even after three rounds with wide publication. Moreover, the capacity to integrate comments and revise procurement packages in line with comments from Bank procurement specialists was slow throughout project implementation. Contract management was equally challenging with many major contract deliveries, including the various information systems, only delivered within the last year of implementation.

32. As a consequence, the information technology (IT) networking of the MARNDR, including its building in Port-au-Prince, its 10 regional offices, along with the research farms, was only completed in early 2014. Similarly, the financial management software for the ministry was completed about 18 months before the closing date. Activities related

to strengthening the ministry were developed with a number of manuals and standard operating procedures (SOPs) in the last year of implementation. Overall training was reduced and focused mainly on the IT systems financed by the project.

33. Aide Memoires report significant challenges in the development of the various policy and training manuals. In the cases where they were drafted, the quality was questioned by UEP. Some of the manuals and SOPs were not entirely completed and the finalization of some of these products has been incorporated into the RESEPAG2 Project.

34. The cost of the IT systems, network installation, registers and databases and development of procedures were more expensive and time consuming than envisaged at project appraisal. However, it was understood that concluding these systems was of primary importance to meet the project objective and build systems that would benefit the ministry beyond the immediate project. Ultimately, given the high demand for the voucher program, as well as the availability of RESEPAG2 as a source of funding, the payments under the voucher program were financed by the GFRP project before closing, and those relating to other contracts were assigned for disbursement under RESEPAG2. This arrangement was agreed between the task team leader and the Project Coordinator and allowed the full absorption of the financial resources under the project, while dovetailing important support services with the follow-on project.

35. ***Introducing innovation in resource flow*** - The farmer support scheme required careful coordination between the various actors involved in delivering the program, which was normal for an innovative pilot project. Establishing the farmers registry and the registry of service providers, as well as organizing the flow of the resources for the program proved challenging. There were some interesting innovations that developed to make the system work. For instance, farmers were expected to pick up vouchers directly from the participating bank and proceed to input suppliers for their package of inputs, but this was time consuming due to the distances involved. To resolve this issue, in agreement with all parties, the operator was designated to pick up the vouchers at the participating Bank and deliver them to the farmers. The operators ended up playing a much bigger role in ensuring that inputs reached farmers and, in the process, somewhat weakened their primary role of providing advisory and extension services. However, it was understood that getting the voucher system to work in a transparent manner and building trust across all participating parties took priority over farm advisory support. With subsequent rounds and resolution of most of the glitches, the attention of operators has been refocused on providing technical advice to farmers.

36. ***Other external challenges*** - Project stakeholders were well aware that the project was ambitious and risky. Beyond the many internal challenges that resulted from weak institutional capacity, it had to contend with the realities that affect farmers every day, including a severe drought affecting crop production during the first voucher campaign and heavy pest infestation in the second campaign, affecting yields and the demonstrative potential. The project also had to overcome the general skepticism of farmers who had over the years, seen many unfulfilled promises of support. Similarly, convincing the participating bank to open an account for each voucher recipient and input suppliers

involved significant costs and was initially met with significant resistance. Over time however, these accounts have been seen as an opportunity for future business ties, especially with local input suppliers and for possible mobile phone-based payments. Finally, limited imports often led to shortages of seeds, fertilizers and agro-chemicals at the level of local input suppliers during the greatest seasonal demand.

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

37. The project had a basic and fairly broad PDO; there were no clear quantitative variables and it was to be understood in a continuum of longer-term engagement beyond the scope of this project. As the first step in a series of investments, project achievement was to be measured by three key indicators that were formulated in a slightly different wording and order in the results framework. These variables need to be considered in the context of the reengagement of the Bank with the Ministry of Agriculture to build capacity to improve policy making, monitoring, and streamlining of investments in line with an overall vision.

38. *Quality of the M&E framework:* The premise of the M&E framework was that once certain activities were completed or consultancies delivered, the development objective would be achieved, and this was reflected in the three outcome indicators. However, the indicator measuring prioritization of budget resources with overall policy objectives was not clearly defined and there was no target to assess achievement. It is also clear that an open-ended indicator related to objectives such as alignment of budgets with strategy and improvements in services delivery represent by definition, elements that can be subject to near continuous improvement and refinement up until the point where costs would outstrip benefits. Overall, the results framework included useful information that would make tracking of progress fairly straightforward.

39. *Use of the M&E data for project management*. The M&E data was collected from the main technical partner unit (UEP). By the mid-term review however, it was clear that more efforts had gone into developing processes and procedures for M&E to improve overall institutional capacity than into the effective collection of project data to report on the results framework. Generally, M&E data was obtained too late to be used effectively or to reorient the project in a significant way. Yet, once the financial management system was in place to support better oversight, a quick reallocation was processed to ensure these resources could be absorbed quickly and effectively. Data on indicators and the results framework were only substantially completed in the last year of implementation.

2.4 Safeguard and Fiduciary Compliance

40. *Environmental safeguards* - The project was rated as a B category, with an environmental assessment. The assessment did not identify significant risks and assessed project environmental impacts to be mostly favorable. The agriculture support, composed of a technical package involving inputs and advisory support, helped ensure the minimization of any negative environmental impacts. No environmental issues were raised during implementation and the project focused on building the capacity of the environmental unit and ensuring input packages followed guidelines that were developed

by the environmental unit. Specifically, the environmental unit developed an integrated pest manual that is part of any crop support program.

41. *Social Safeguards* - The project was not associated with any social safeguard risks, however the importance of gender was identified. In response, the project appointed a gender specialist to conduct targeted information campaigns and ensure adequate participation of women in the program. The newly established M&E unit has a permanent gender specialist in its ranks.

42. *Fiduciary* – The project introduced FM software, a new accountant was engaged near the end of implementation and overall fiduciary performance started showing gradual improvements. This FM system is expected to improve the follow-up project, RESEPAG2 notably and future donor-funded projects administered by MARNDR. During early implementation, the project struggled with fiduciary compliance with challenges in both procurement as well as FM. Procurement delays accumulated mainly due to weak capacity and little familiarity with the Bank's procurement rules. In spite of intensive implementation support, timely responses to comments from the Bank's procurement specialist and management of procurement documentation and contracts remained a constant challenge. The weak procurement capacity also delayed the introduction of the financial management software. Due to mainly manual bookkeeping and ledger accounts on paper, significant delays were experienced with processing of payments and production of Interim Financial Reports. Similarly and as a result, audits were delayed. The rating for both FM and procurement in the last Implementation Status and Results Report (ISR) were moderately unsatisfactory in spite of gradual improvements.

2.5 Post-completion Operation/Next Phase

43. Institutional capacity building is always a challenging undertaking that takes some time. Haiti offers particular difficulties given the political climate, weak institutional capacity as well as a high vulnerability to natural catastrophes that disrupt the process.

44. *IT infrastructure and registers* - The investments in IT have the potential to improve the efficiency of the ministry and its departmental offices. While equipment, networking and training to users has been delivered, the management of an IT network for a decentralized structure such as the MARNDR remains an ongoing activity. To date, a functioning IT unit responsible for: (i) system maintenance; (ii) IT technical support to users; and (iii) updating of the system and software troubleshooting remains to be effectively established, although both the Bank and the IADB have stepped forward with support. The internet links with field offices (DDAs) are unstable and prone to connection issues that field offices typically do not have the capacity to resolve. Fortunately, RESEPAG2 as well as other donor programs are supporting the IT system since the farmers and services provider registries offer a platform to help improve transparency and data collection for all donor-financed programs in agriculture. In the medium term, the ministry needs an IT strategy that will help it define how to sustain the system, where to house the platform (within the ministry or cloud storage as present), and address staffing and financing.

45. *Environmentally sustainable agricultural policy making and programming* - Five technical staff were hired as consultants and assigned to the various technical units of the ministry. Three of these specialists form the Environmental Unit and help in developing the guidelines and environmental safeguards for projects. In addition, they have developed a number of manuals on specific environmental topics that will be distributed to extension offices to mainstream environmental measures into the services. The most recent document is an Integrated Pest Management handbook. Looking forward, the ministry will need to address the regulatory and legal framework given that their responsibilities are not aligned or sometimes even conflict with the responsibilities of the Ministry of Environment. There is also a lack of enforcement capacity as there are no Agricultural Inspectors in the country and the few staff of the unit cannot undertake systematic field inspections for all the projects of the ministry.

46. *Monitoring and Evaluation capacity* - One of the broader expected project outcomes was the establishment of an M&E unit. The first step in building this capacity has been achieved: the ministry is producing an annual report on its activities and agricultural-related projects and a budget based on the conclusions of the annual report of the previous fiscal year. This report establishes a foundation for streamlining of programs and policy. Effective annual reports had not been produced for over 30 years and activities had largely evolved in individual departments with little strategic control of resources. The annual report is now an important undertaking that collects information from all programs and involves all program leaders as a joint undertaking to provide an understanding of programs and activities. The report provides a basis for better policy making and programming and more targeted and efficient use of financial resources.

47. *Accounting Software SYSCOP* – RESEPAG 1 and 2 are now using the SYSCOP accounting software, after some initial difficulties. Eventually, a full transition of the ministry's accounting systems is expected. Moving forward, the ministry will need to address overall IT capacity and the maintenance of the system as well as finding accounting staff familiar with IT-based FM. To optimize the value of this investment, it will be important that the ministry strengthens overall FM and budget management capacity and fully adopts digital bookkeeping and FM for programming as well as administration.

48. *Farm support mechanism* - The project has established an innovative, transparent, more efficient and trusted subsidy mechanism for farmers that stimulates the development of a better input supply market and an overall improved supply chain in the country. However, there is a lack of sufficient supplies in country, leaving suppliers often short of quality seed, fertilizer and phytosanitary products. Future efforts will have to address increased use and demand by input providers.

49. At present, RESEPAG2 is addressing some of these pending issues with continued funding for building the capacity and personnel in IT, M&E, FM, the Environmental Unit, as well as maintaining the specialists supporting the nutrition and gender agenda. The RESEPAG project laid the groundwork for the MARNDR's improved capacity for policy formulation and alignment with available funding, reporting on results and transparent use of resources. This was a small project, designed as the first stage of a 15 to 20 year

engagement with Haiti and therefore, it was also understood that more work would be needed for the functions and accompanying capacity to be sustainable. The pilot program was innovative, not just for Haiti, but also for the overall global rural development and agriculture sector.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

50. *Relevance of Objectives* - The project, its PDO and its outcomes remain a priority and highly relevant. The effective absorption of donor resources remains one of the primary challenges for the Haitian government because it obtains a substantial amount of resources from donor support that is for the most part, delivered via individual projects. The development of an annual report and the ensuing budgeting process help to rebuild the credibility of the ministry with donors. The systems put in place by this project, which have been strengthened and adopted by other donors, will help the ministry to consolidate its efforts and improve the synchronization of activities across its own and donor-financed programs.

51. *Relevance of Design and Implementation* - The project design addressed fundamental institutional and administrative weaknesses of the ministry and is thus highly relevant. Based on data available from the independent evaluation, the improvement in administrative and institutional capacities has also led to an increased alignment of investments with sector strategies and policy to ensure that limited resources are increasingly focused on policy priorities. With the strengthening of the M&E and FM systems and procurement capacity, the MARNDR is now in a much better position to implement, monitor and evaluate a project. The voucher system, with its clear mechanism to improve services and input delivery to farmers, has brought renewed interest by the donor community in working with the MARNDR to improve sector productivity and food security as required under the GFRP. All of these factors are crucial pieces to secure continued necessary external financial support. The close linking of RESEPAG and RESEPAG2, and good coordination with other donor activities, has helped build synergies and maximize the impact of the project's limited resources. Given the above, the ICR rates the relevance of the project design as ***High***.

3.2 Achievement of Project Development Objectives

52. The PDO involved (i) the improved targeting of investments in line with sector policies and (ii) improved local agricultural services. The degree to which these objectives were to be achieved was not clearly defined, reflecting the intent for this project to be the first step in a longer term engagement. Both of these variables are value judgments that are not answered by either yes or no, but reflect objectives to strive towards. These aspects of the PDO were assessed as below:

(i) The regular cycle of strategic planning, investment program development, implementation of the investment program along with M&E of program achievement, and policy adjustments takes a number of years to be effectively implemented and is subject to continual improvements. The project substantially delivered improved processes and procedures by: (i) formalizing the process of developing investment proposals (FIOPS) (ii) aligning these proposals with the investment plans by requiring formal approval, and (iii) re-introducing the annual report listing and reporting on the performance of each investment of the ministry, thus ensuring that increasingly, resources are spent in line with overall policy objectives.

(ii) The improvement of local agricultural services is understood to be improved extension and advisory services as well as the efficient, transparent and market-friendly delivery of incentives to farmers. The gradual improvement of these services has many facets and the project made a crucial step forward by installing transparency into support programs. Systems now exist that record the beneficiaries and the service provider, and there is a clear mechanism for support to reach farmers and for timely payments, while crowding-in the private sector. These systems have an almost unlimited capacity to be refined, augmented and improved, but at present, farmers within pilot areas are benefiting from improved local agricultural services. The mechanism established in this little "pilot" of two million dollars is being improved, adopted and has generated a commitment of about 100 million dollars from other donors, eventually to cover the entire country.

53. ***PDO indicator #1***: ***increasing the rate of commitment of the operating budget at MARNDR.*** This indicator has been achieved. There is a commitment rate of 95 percent of the operating budget according to reports of the Ministry of Finance and the MARNDR's annual report. The project has helped develop systems and processes to improve the efficient use of budget resources, including the enforcement of systematic programming of project investment proposals into the Public Investment Plan of the ministry, thus providing information on how investment resources are committed up front. This information is then verified with the systematic production of an annual report that compares projects' investments with outputs and deliverables.

54. Reintroduction of an actual budgeting process and production of an annual report that involves reporting and information provision by all project managers across projects is a major milestone in the ministry's capacity to justify its resources with the Ministry of Finance, the parliament and donors. This process had not been performed for nearly 30 years, ever since the political turmoil after Duvalier's resignation. Thanks to these processes, the Minister of Agriculture successfully requested additional investment resources from the MEF in 2013, mainly due to his ability to account and document how investment resources have been spent on projects and the actual outputs achieved. While this says little about the actual impact of the individual projects on agricultural productivity and economic rates of return, it provides for improved transparency of the investment budget, which was one of the main problems with the ministry and a key reason for the gradual withdrawal of donor resources from the agriculture sector.

55. While optimal budget efficacy can only be achieved once there is capacity to provide effective M&E of projects aligned with policy goals, the capacity to manage project financial resources reasonably and transparently, with the new accounting/ FM software and manual is a major achievement, even if the software is not yet used to its full

capacity. Improvements in FM are also the result of enhancements in procurement. A new unit was established with clear transparent procurement rules and the systematic publication of any purchase greater than US$100,000. The improved budget transparency has already born fruit as the agricultural sector is attracting increasing donor funds. ***The achievement is rated Satisfactory.***

56. ***PDO indicator #2: MARNDR investment budget reflecting prioritization and targeting* -** The PAD results framework included an independent evaluation of the MARNDR budget and prioritization of its expenditures, which was carried out in the last semester of the project. Given that only two fiscal years were analyzed, the alignment question remains somewhat open as this only happens gradually as programs that are not closely aligned are replaced with better aligned programs. However, evidence is available to suggest that indeed, this alignment of policy with resources has improved in a continuing trend. The study notes that the alignment was adapted to the investment program rather than policy guiding the program. According to the ministry, the prioritization is taking place in the sense that programs receive budget resources in line with sector policy priorities. Yet, this is only part of the equation as prioritization should not only be based on timing of budget resources availability, but on strategic priorities reflected in the investment plan in accordance to a schedule and milestones.

57. Capacity in the ministry related to prioritization and targeting has increased. While the assessment was only based on a limited set of data, there has been significant effort to improve the ministry’s capacity to select the most effective and efficient investments. The new M&E unit within the programming department (UEP) is committed to preparation of the annual report starting each year in July, which helps with tracking resources and expenditures. At the same time, prioritization and targeting of resources is an ideal that is never really completely achieved and represents a continuum. This alignment can be perfected almost to the infinite and remains an issue, even for many developed economies. Discussions with ministry staff and project personnel indicate that the project has brought significant changes. Before the project, various programs were often conducted “off the public investment plan” without any evident policy targeting and as a response to some political or economic objective of well-connected individuals or groups in the regions or the capital. ***In spite of only a short time series, the achievement is rated Satisfactory.***

58. ***PDO indicator #3: farmers receiving more diverse support services in pilot zone*** - This indicator was exceeded. More than 4,500 farmers have benefitted from the support services developed under the project, representing nearly 1.5 times the target. The support services were delivered as a voucher that provided farmers with financing for inputs, combined with a technical package including basic advice on crops, pest and weed management and fertilization, including the optimal harvesting time. Although this was not one of the project objectives, significant yield increases where achieved that also stimulated surrounding producers to adopt the techniques delivered under the project. The main achievement was not just the delivery of services to farmers, but the successful creation of mechanism for providing support services that can be replicated nationwide. The various pieces of the system are major institutional achievements that will pay dividends well beyond the project closing. The farm/beneficiary and services provider register is a major

achievement in itself. This register will help the ministry well beyond this project to have an overview of the sector, target its resources, refine objectives in line with farmer demands responding to market needs and more effectively target support to respond to disasters or emergencies in the sector.

59. The voucher system offers a basis to develop efficient and transparent agricultural support programs with disbursement mechanisms that prevent interference or possible graft and build trust between the ministry and its ultimate customers, the farmers. The system by which the financial resources reach the farmer via a third party operator has permitted a wholesale change in how goods and services are provided to farmers shifting from the purchase and distribution of inputs by the Government to a private provision of these goods/services. The pilot has shown considerable increases in both yields and cultivated areas and, with the interest that this approach has generated from other donors who have already committed some US$100 million to scale up the operation, it will be important to re-visit these beneficiaries in a few years to evaluate the long-term impact. The IADB, who is also implementing a voucher program using the methodology of the pilot, is in the process of conducting an impact evaluation which should further inform policy decisions (see Annex 3 and 8). Services and input supply providers have also benefitted and were crowded-in as the program has stimulated demand for their services.

60. The system is operating and expanding as it has been accepted by other donors as an effective vehicle to bring resources to the agricultural sector. However, there is still a challenge related to the national supply of inputs, which remains unpredictable, of uneven quality and often poorly timed with the agricultural seasons, leading to shortages at the local village level. If delivery cannot be completed in a timely fashion, not only does productivity suffer, but the trust in the mechanism developed under the project might be undermined over time.

61. Under the project design, extension and advisory services were to be provided substantially by the operators, who were often not able to satisfy their advisory extension function fully as part of the project. The next generation of vouchers financed by other donors has already incorporated a stronger role of extension services based on the experience of this pilot. However, evidence of more intensive cropping with peas and beans in the winter season shows the value added at the farm level from the project and indicates the potential high impact of such advisory support. ***The achievement is rated Satisfactory because the project reached 1.5 times more beneficiaries than planned, successfully established and tested an agricultural support services delivery mechanism, and had a positive impact on overall production.***

3.3 Efficiency

62. The methodology used for the financial and economic analysis at appraisal consisted of a break-even analysis for the project as a whole and a separate economic assessment for Component 1 (institutional strengthening) and Component 2 (voucher system). The break-even analysis was based on the assumption that institutional strengthening by the project would accelerate the disbursements in the Public Investment Program (PIP) of the MARNDR and hence would have a positive impact on the rate of return of the project. To analyze Component 1, it was assumed that project benefits would

materialize through an increase of overall agricultural GDP. For Component 2, a cost-benefit analysis was carried based on the improved coffee production model.

63. The analysis conducted at project completion does not attempt to reconstruct the analysis conducted at appraisal for the following reasons: (i) the link between the institutional strengthening by the project and disbursements of the PIP is very uncertain and the assumption that the project would accelerate the disbursement rate of the PIP seems to be overly optimistic; and (ii) given the overall impact of the devastating earthquake on the country as a whole and on the agricultural sector in particular, the comparison between the agricultural GDP before and after project couldn't show pertinent results. The analysis conducted at project completion looked at the benefits (financial and economic) resulting from institutional strengthening and the voucher system using key M&E data collected by the project and the mission's findings to provide an estimation of the economic return of technologies introduced by the project.

64. **Component 1** involves benefits gained from improved policy with an increased alignment of policies with sector investments. Benefits are gained from more efficient public administration, improved procedures for design, approval and implementation of projects, more efficient communications, and improved financial management and public procurement processes. All of these improvements lead to a better return on investment from the yearly agricultural budget. Individually, the main benefits of this component can be identified as follows:

65. ***IT networking and communications improvements***:

- Reduction of the transaction costs due to the installation of the internet with a unique contract subscription with the provider. Economies of scale due to the centralization of the procurement of IT/communications (internet subscription, maintenance).
- Number of field trips that could be reduced thanks to the wider use of email and teleconferencing (cameras, speakers and microphones installed by the project).
- Cloud computing and relocation and storage of documents and data on the "cloud". Creation of a reliable institutional archive.
- Positive impact in terms of image, communication and corporate identity of the MARDNR, with the creation of domain <www.agriculture.gouv.ht> and professional emails (.gouv.ht).
- Change in the approach to IT and its management. The most important trend is that the MARDNR is moving from crisis management to long-term management.

66. ***M&E improvements:***

- Sector policy framework has been elaborated for the fiscal year 2015/16 based on the analysis of results achieved and summarized in the public balance sheet. The framework is an asset for better targeting of the government's investments in the context of national budget preparation and approval.
- Gradual increase of the financial envelope provided by the state to the agricultural sector with an improvement in the quality of the argument for the budget presented at the House of Deputies.

67. **Component 2. Improvement of local support services to agriculture/Farm Input Subsidy Program.** The Farm Input Subsidy Program, together with agricultural extension and training, generated some positive overall economic results in terms of crop performance as well as higher sown area (for maize and beans). The technical package introduced by the project has been beneficial in terms of agricultural production and from an environmental prospective, given a better regulation of use of chemical fertilizers and pesticides. Positive environmental externalities associated with increasing soil fertility and soil conservation would be difficult to quantify, however, they can be subject to a longer-term assessment.

68. **Economic crop models.** To conduct an economic analysis of crop production supported by the system of incentives (beans and coffee), financial models have been recalculated using their economic values. The final report of RESEPAG1 indicates that nearly 57 million Gourdes (about US$ 1.36 million) have been invested at the farm level through the subsidy program. Given the data collected on the increase in agricultural production, the volume of the additional agricultural production would represent nearly 5,489 tons of corn, 2,674 tons of beans and nearly 108 tons of coffee, with the total value of incremental production of about US$ 3.4 million, or US$ 2.56 of additional food production generated for each USD 1 of subsidy. In addition, evidence shows that the benefit doesn't only last for one year, but for the years to come, although with a slight decrease after the first year. The EIRR from increased crop production is estimated to amount to some 33 percent. If one assumes that the project was instrumental in attracting another US$100 million thus far and expecting similar yield and area increases, the rates of return would be substantially higher.

69. Project Estimated Return. At appraisal, it was assumed that project benefits would materialize through an increase of agricultural GDP. Under this assumption, an EIRR of 16% was estimated. At completion, given the overall impact of the earthquake on the country as well as on the agricultural sector in particular, the comparison between the agricultural GDP before and after project cannot show pertinent results and therefore a different analytical approach has been used. It should be noted that the EIRR includes the costs of all investments for the two components as well as their recurrent costs and on the benefits side, it includes the benefits quantified previously. ***The Economic Internal Rate of Return (EIRR) of the project as a whole at completion is estimated at 16%, which is comparable to the results assumed at appraisal.*** Adding the unquantifiable benefits (see Annex 3) would certainly raise the ERR substantially.

3.4 Justification of Overall Outcome Rating

Rating: Satisfactory

70. RESEPAG was a small, but ambitious institutional project. In spite of all the challenges, some outcomes exceeded expectations, particularly the innovative pilot for providing agricultural services.

- ***Relevance:*** The PDO was to be seen in the context of a longer term engagement. The project was conceived as the first in a series of steps that linked with the closely coordinated follow-on project, and other donor-funded programs designed to improve the capacity of the ministry to deliver on its mandate. The relevance is rated ***High***.

- ***Efficacy:*** The project has helped to improve the budget transparency and administrative capacity of the ministry and delivery of support services in pilot areas. While investments related to the capacity building, including IT networking, database development and TA for M&E, were higher than expected at appraisal and have faced significant implementation challenges, the outcomes are important in terms of the ministry's capacity to function and deliver on its mandate. The creation of a sustainable and continuously perfectible system for subsidy payments, and improvements in the M&E has helped to improve the ministry's efficacy in supporting the agricultural sector. The efficacy is rated ***Satisfactory***.
- ***Efficiency:*** Efficiency could be considered Highly Satisfactory because this project has played a major role in attracting substantial donor resources and improving capacity to monitor investment programs in the agricultural sector. There were understandable delays with implementation and a need for cross financing of some of the expenditures for the TA delivered by operators by RESEPAG2. Given the various assumptions that can be made, especially as this project was conceived as the first step of a longer term engagement, the overall efficiency is rated ***Satisfactory.***

3.5 Overarching Themes, Other Outcomes and Impacts

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

71. From inception, the project put a strong emphasis on the role of women in agriculture. It is estimated that about 30 percent of participants under the voucher program are women. The gender specialist that is now part of the ministry has been coordinating efforts with the Ministry of Women's Status and Rights to deliver awareness on improved nutrition and family health in project areas. Agricultural extension can (and has in the past in a number of developed countries) play a key role in helping women to develop agricultural production and provide training or advice on home economics, including sanitary food preparation, food preservation, a balanced diet and child and family health. A permanent gender specialist in MARNDR provides the potential to design programs that improve agriculture, but also help with improving the overall status of farm families and strengthening the crucial role women play in rural areas.

(b) Institutional Change/Strengthening

72. The project has built basic capacities in the ministry that will help it in its function as an administrator of donor-funded programs and with its broader mandate. The project also helped to improve transparency of resources used with the introduction of software-based accounting and FM and a return to a systematic budgeting process with an annual report. Institutional capacity has been built by establishing (i) a unit for M&E, (ii) an environmental unit, (iii) gender capacity within a sub-unit, (iv) a permanent procurement unit, and (v) a nascent IT unit. Even though all these bodies have not yet been fully systematized in the ministry's administration, they provide the groundwork to deliver on its mandate to provide services to the rural communities and its responsibilities for agriculture and natural resources.

(c) Other Unintended Outcomes and Impacts

73. While the project did not have any direct agricultural productivity objectives, the various sowing campaigns have produced yield increases from anywhere between 50 and 60 percent depending on crop type. Sowing on time with a bit of fertilizer can have major impacts on productivity. The pilot voucher activity has been scaled up and lessons learned included in the next generation of the vouchers. The challenge once there is more generalized productivity will be to work downstream to help with supply chains to markets. Prices of some of the supported crops have already dropped in the pilot areas due to the additional supply and larger farmers are envisaging storage facilities for their production in order to be able to sell between seasons when prices are higher.

74. The vouchers have had an impact on reducing fallow land, with beneficiaries returning to cultivation of their unused land. In the area of Les Cayes, voucher campaigns planned for 350 hectares had a real impact on about 1,000 hectares. Other unintended impacts were the increase in the interest of the producers in good environmental practices and nutritional issues, the increase of the national production in the supported value chains and related increased food security.

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

75. A participatory evaluation of the project was undertaken in December 2014 involving consultations with the various stakeholders in the Les Cayes region. The discussions with operators focused on the process of managing the voucher mechanism. The opinion expressed was that this process is beneficial as it had developed trust between the various parties involved in processing the transaction. The DDA praised the program for its effectiveness in getting the supplies to the field, which under the previous system was not functioning because many suppliers (who are also farmers) tended to horde supplies speculating on increasing prices resulting in very poor timing of input deliveries. Overall, farmers were grateful and expressed satisfaction with the project design. The impact has been that a number of participants reported that school fees could be paid for children or some made investments to increase production or improvements to the home and household. Some complaints were raised as to the timing of the delivery of the inputs and the fact that other inputs, such as certain pesticides for specific infestations, were not available. Suppliers reported a significant improvement in the volumes in sales that helped them to invest and specialize more as services providers, retreating from farming altogether.

4. Assessment of Risk to Development Outcome

Rating: Substantial

76. As a project with mostly institutional objectives, the main risks include political instability since the entire reform agenda was agreed with and supported by the ministers of the MARNDR in office during preparation and implementation. The same risk relates to the voucher mechanism, which has been backed by current ministers with a clear vision and who have been willing to test the pilot and support scale up.

77. The mechanisms, units and processes established under RESEPAG are dependent on adequate financing of the ministry’s administrative budget to ensure that the newly

engaged personnel are permanently absorbed into civil service. Most of the units established are not yet reflected in the ministry's functional diagram or organizational chart. The units are mostly established as cells and funded from donor project resources, located within existing ministerial units such as the planning and programming unit (UEP).

78. A concern relates to the IT system and databases that have been developed under the project. Reportedly, the MARNDR was the first ministry to adopt IT and, in spite of some problems, it is ahead of the entire government structure. While IT systems offer the potential for huge efficiencies, they also generate costs in staffing and equipment for which a vision is necessary at both, government and ministerial level. Further support from donors has been provided to make this happen. It will be crucial that the MARNDR takes a leadership role in helping government to formulate its own IT strategy and help avoid/minimize compatibility issues or getting locked into provider arrangements that make harmonization and establishment of system linkages difficult or impossible.

79. A key issue that is threatening the voucher system relates to the import of agricultural inputs and the adequate supply. To date, imports seem mostly managed by the government or by only very few companies that fulfill the necessary licensing requirements. It is imperative that the government facilitates the development of more competition in the private import market to ensure a more secure supply of agricultural inputs. The voucher system helps in ensuring that farmers are the ultimate beneficiary of the subsidy and when packaged with advisory services, the project showed real potential for crop productivity improvements. However, the system could collapse under its own demand if the necessary supplies cannot be acquired by the local suppliers and ultimately provided to farms with adequate quantity, quality and at the right time for sowing/planting.

5. Assessment of Bank and Recipient Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

Rating: Satisfactory

80. After several years of very limited engagement, this project was prepared to address an emerging need in the agriculture sector and it was an urgent investment as donor fatigue was beginning to affect continued support. The design also included variables that were identified as part of the GFRP, including boosting production and reducing risks that lead to food shortages and price hikes, both of which affected the country at the time of project preparation. Due to the intent of mitigating the food crisis, the project was prepared in a record time (six months from identification to Board approval). The risks were adequately taken into account and proper mitigation actions set up. The project contributed towards ensuring a sustainable footprint of agriculture in the island's overall environment and build awareness of the role of environment and gender in rural areas and women's contribution in the sector. The widespread interest of the donor community in adopting the voucher program vindicates the institutional capacity building approach of the project.

(b) Quality of Supervision

Rating: Satisfactory

81. In spite of the challenging environment and a number of major and unforeseeable events that disrupted the project as planned, with close implementation support, the project managed to deliver major building blocks that will help the ministry in developing capacity and transparency in its operations. A total of 11 formal implementation support missions producing ISRs and aide memoires where undertaken, in addition to a number of visits from the fiduciary team and informal visits as part of implementation support for other projects. The Bank was proactive in accommodating the client to maximize the impact of the project and provided close intensive supervision that led to positive overall results in a difficult country with implementation of a challenging institutional project**.** Several indicators were dropped late in implementation, in part due to the delayed restructuring due to the difficulties in resolving the financial information needed for the reallocation. These indicators were not crucial to measure PDO achievement, and were obsolete because most of these activities had been picked up by other donors.

(c) Justification of Rating for Overall Bank Performance

Rating: Satisfactory

82. The Bank designed a fairly ambitious institutional project that would help the ministry to assume its mandate and credibility in the sector. The Bank provided significant implementation support to ensure this project would deliver. The Bank remained flexible and pragmatic, but ensured the delivery of the essential pieces that would make the project a success and from which subsequent operations could build further capacity. The Bank was responsive and helped address the ministry's immediate needs after the earthquake. For the farm support program, the Bank was effective in increasing its reach by reallocating funding to address demand while simultaneously testing the new institutional systems. The project was also well synchronized with the follow-on project.

5.2 Recipient Performance

(a) Government Performance

Rating: Moderately Satisfactory

83. The project launched during a difficult time in Haiti that was aggravated by a series of natural disasters. Nonetheless, the government maintained the institutional capacity objective of the project by seizing the activities to rebuild its capacities. This process was not always easy because many of the new systems introduced under the project required significant changes from the way things used to be done, such as in procurement and IT-based FM. Occasionally, the lack of personnel for establishing these new processes and systems created obstructions that were difficult to overcome and government showed little interest in directly intervening. As a consequence, the adoption of the SYSCOP for instance and the functioning of the procurement unit with adequate staffing, were severely delayed, negatively affecting project implementation. To date, the accounting software that is expected to handle all the investment programs of the ministry remains underused. Systematic use of the software for projects will greatly help with production of the annual report and regular financial statements, all of which would provide credence to the ministry's administrative capacity. Top management at the MARNDR will need to enforce the effective use of the systems and procedures developed under the project to optimize potential benefits.

(b) Implementing Agency or Agencies Performance
Rating: Satisfactory

84. The Ministry of Agriculture was the Implementing Agency and most of the activities were implemented under its department for policy and programming (UEP). The UEP gained significant capacity in personnel in the M&E unit, the Environmental Unit, a gender specialist as well as well as the IT system. The IT system now allows the ministry to store information in a central location, but has also improved its ability to link with research facilities and departmental offices. The Project Coordinator often invested heroic efforts in getting things done and pushing for changes against considerable institutional "headwinds". Overall, the efforts and commitment by the UEP and parties involved with implementation was good.

(c) Justification of Rating for Overall Recipient Performance
Rating: Moderately Satisfactory

85. The project faced many challenges and at times, the response times to Bank inputs on fiduciary aspects in particular were very long. Yet, the ministry was engaged and did its best to rectify any errors. Given the difficult circumstances the country was confronted with, and considerable implementation challenges, some of which were beyond its own doing, government overall showed goodwill and provided necessary support when needed.

6. Lessons Learned

86. ***Institutional capacity building in a challenging environment***. A primary lesson from this project is that a relatively small institutional capacity building project, even in a country fraught with crises and challenges can, if the government is truly on board, and with intensive Bank supervision, result in significant improvements in the way a ministry performs its mandate. It is noted that these transformations might not be permanent gains unless continued follow up is maintained. The project envisaged a long-term engagement and it successfully laid the groundwork, but continuous support will be needed.

87. ***Implementation without a PIU in a situation of weak institutional capacity***. When a project is implemented directly within the ministry without a PIU, the project design and implementation arrangements must be simple and well defined at preparation and design stage. Implementation speed must be expected to be slower than with a PIU. Moreover, institutional projects are time consuming, but have potential for high rewards. Such projects, even when involving modest lending amounts, require significant implementation support with many staff weeks and adequate supervision budgets.

88. ***Client ownership of results framework***. Results frameworks need to be simple and the linkages between the activities and the indicators need to be readily understood by the client in order to have adequate ownership and buy in to collect the necessary data to assess the outcomes.

89. ***Needs for continued institutional change and reform***. Policy dialogue at the ministerial level, ownership of technical staff and active involvement of a broad range of

stakeholders are important for institutional change and subsidy reform. In particular the ministry will have to maintain its effort in prioritization and further increase its efficiency of its spending.

90. ***Lessons learned on the pilot voucher system***:

- Pilot with small scale initiative before scaling up. The voucher mechanism introduced a major re-thinking of how farmers receive subsidies. Before jumping into the full scale project, the ministry tested a small-scale innovative methodology. This type of small scale approach is also critical to show results and generate broad support from policy makers, donors and beneficiaries. The scaling up is now being launched, and efforts to keep key stakeholders informed about the project will need to be maintained to show the benefit of the reform (and decrease the chances of a policy reversal).
- Anticipate agricultural cycles to decrease administrative bottlenecks and increase the impact.
- Remember that the national supply of inputs remains unpredictable, of uneven quality and often poorly timed with the agricultural seasons, leading to shortages at the local village level. If delivery cannot be completed in a timely fashion, not only does productivity suffer, but the trust in the mechanism developed under the project might be undermined over time.
- Take into consideration the entire value chains of the supported products, ensure linkages of producers to markets, improve post-harvest handling and take opportunities for value-adding.
- Avoid monoculture and promote diversification to avoid price decrease and increase food and nutrition security.
- Use digital communication to simplify and make more efficient some of the transaction costs and steps from the disbursing bank to the final beneficiary.

7. Comments on Issues Raised by Recipient/Implementing Agencies/Partners

91. The draft ICR was provided to the Recipient for comments and subsequently discussed directly with key counterparts during a Bank mission. However, the Recipient did not send the Bank the requested letter. Comments received from IADB as a partner institution working on agriculture in Haiti were included in Annex 8.

Annex 1. Project Costs and Financing

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

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Comp. 1Strengthening MARNDR Managerial Functions	2.10	3.05	145%
Comp. 2 Strengthening Farmer Extension and Support Services	2.00	3.10	155%
Comp. 3 Project Coordination Supervision	0.80	.70	87.5%
Total Baseline Cost	4.90	6.85	
Physical Contingencies	0.10		
Price Contingencies			
Total Project Costs	5.00	6.85	
Total Financing Required	5.00	6.85	

Note: Financing of operators (NGOs) under component 2 came from RESEPAG2, without these contracts, the amount under component 2 amounts to US$ 1.6 million and total project costs amount to US$5.3 million.

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Recipient		0.0	0.0	0.0
IDA Grant		5.0	5.3	0.0

Annex 2. Outputs by Component

Component 1 Strengthening MARNDR's Managerial Functions

1. *Under Sub component 1a: sector policies and coordination*, the following contracts with international and national consultants were supported.

Agro-Economist supporting policy and M&E	INDV	USD	22,119.81	07-Nov-2013
Agricultural technician	INDV	USD	6,912.44	07-Nov-2013
Market Supply, Installation, Implementation of the computer system of the Ministry of Agriculture, Natural Resources and Rural Development and training of staff.	ICB	USD	1,924,079.00	03-Sep-2012
Computerized Accounting System	CQS	USD	116,501.18	13-Mar-2012
Development Services, and M&E capacity building	INDV	USD	138,000.00	31-Dec-2011
Support for Statistical Services	INDV	USD	40,000.00	27-Feb-2012
Support for Statistical Services	INDV	USD	43,750.00	27-Feb-2012
Acquisition of two all-terrain vehicles - Lot 2	ICB	USD	46,000.00	28-Jan-2011
Supply, installation, implementation of the Ministry of Agriculture computer system, Natural Resources and Rural Development (MARNDR)	SSS	USD	721,529.63	15-Apr-2014
TOTAL COMPONENT 1			**3,058,892.06**	

2. The following tasks were delivered:

- Equipping the MARNDR with essential tools, including an M&E system for better monitoring of results indicators focusing on the results framework of the agricultural sector policy. A key element was the establishment of the M&E system for programs and projects at the operational level, and the establishment of M&E as part of the agricultural sector institutional system. The M&E consultant, in addition to the design of a manual of procedures for monitoring and evaluation, also developed the capacity and competencies of five university graduates selected by the MARNDR to renew and strengthen the capacity for programming in the UEP. These five young engineers have been funded by the RESEPAG projects since their entry in service to the UEP. The expectation is that these individual will be converted to civil servants over time.
- The project also supported an analysis of the alignment of the Department's spending on its sectoral policy. For this purpose, a further contract extension was granted to the M&E Consultant to help distill data from the systems to update indicators on all investments made from public resources in the sector. All of this work will help the Ministry of Agriculture to ensure oversight and establish proper monitoring and evaluation of programs and projects implemented by its various entities and partners.

- The project supported the establishment of the environmental unit within the MARNDR to address issues relating to the integration of the environmental dimension in the projects of the ministry. In connection with the unit, the project produced two important documents entitled environmental management framework and backup (SEMC) and an Integrated Pest and Pesticide Management Plan (PGPP) for extension officers in the field with training to provide the desired integration and environmental safeguard. At present, this unit is moderately functional because it has a fairly small staff (3 persons) housed within the programming study unit (UEP), but it serves as a basis for further development as resources become available. The activities and functioning of the unit remain closely related to those of the RESEPAG project. Gradually, they will be involved in the review of MARNDR's projects and programs.

- The project strengthened gender awareness within the MARNDR operations, including promoting an increasingly gender balanced staffing. The project received the financial support of the Gender Action Plan "to carry out a diagnosis of the constraints faced by women in the project". This support enabled greater awareness by the MARNDR of the importance of this theme, which facilitated the integration of gender aspects in the formulation and implementation of projects of the MARNDR. This effort was coordinated with the Ministry of Women's Status and Rights in the RESEPAG project team to develop a job profile for the recruitment of the gender specialist. The MARNDR continues to ensure the integration of this strategic theme in its programming and development of new investment projects.

3. All of the above capacities will help the Ministry of Agriculture to ensure leadership on the function of monitoring and evaluation of programs and projects implemented by its various entities and partners.

4. Other significant events were also organized with the support of the project:

- a forum bringing together over 150 people on agriculture and the environment to discuss agriculture policy and issues that currently affect the development of the sector.
- A symposia to discuss the outputs of the sectoral policy documents (eg. the PDVA, NIPA) involving the departmental directorates and some technical directorates by facilitating their participation in the various events to help with the drafting of the above-mentioned documents. As an example, the Symposium on the establishment of a definition of an Agricultural Extension Master Plan (PDVA) and its validation for greater ownership by various stakeholders.

5. This kind of workshop is a considerable contribution to improving the competitiveness and efficiency of the MARNDR staff who participated. However, this was also a forum where small producers and organizations of rural producers (OPR) reported on the challenges they faced with post-harvest storage and logistics and the need for development of agribusiness. There is a need for the development of value chains to increase the economic benefits and make small farmers more competitive in the market.

6. Under component 1 (b): enhancing administrative, HR and fiduciary management.

- The design, installation and commissioning of custom accounting software called (SYSCOP) to improve the department's fiduciary management has been slow. However, the software is operational and accounting transaction entry is being carried out for two projects, namely the RESEPAG2 (WB) and the PTTA (IADB). Additional modules need to be developed to optimize the software. This amendment to the contract would include a module for managing the budget in the software, developing ledgers tracking accounts by component, as well as a breakdown of the costs. To date, a number of statements of account and financial reports have been set up in the software that are providing better financial oversight of projects.

- The software provider conducted training sessions for the benefit of the IT managers and the FM staff of RESEPAG 2 and PTTA. Two training programs were conducted with twelve (12) sessions. The objective was to enable participants to become familiar with the system and be able to use it effectively to perform all accounting charges in relation to their function within the MARNDR. With the establishment of the information technology unit (including the tender relaunched in January 2015), the MARNDR is planning the expansion of the system to other FM functions.

- Technical support was provided for MARNDR Procurement Services. An International Procurement Expert was contracted to strengthen the procurement capacity of the ministry. The consultant was entrusted with the formation of six young staff who had been integrated in the public procurement unit. The consultant produced deliverables including a proposed design for the institutional structure, and step-by-step approach for the establishment of such a unit within the framework of existing legislation in the MARNDR. The design and steps are reflected in the final report provided to the client. Based on the work carried out by the consultant, the procurement unit was subsequently established. The unit is currently supported by resources from IADB.

- The project supported the installation and implementation of the system of information and communication for the MARNDR. The work was finalized and the installation of the equipment and materials including the networking cables in government buildings is complete. To date, the five buildings of the ministry are fully equipped (computers, printers, scanner, telephones, software, wireless, fiber optics, internet access networks). Sixteen (16) remote locations (DDAs, faculties of Agriculture {EMA} and Research Centres) also were equipped with hardware and (solar) power supply. In addition, 160 civil servants were trained in October 2013 (over a period of nine days) in the use of the new computer system. The MARNDR has achieved modernization and efficiency of its operating capacity. Information communications technology (ICT) plays a key role in the efficient sharing of documents and information management for a decentralized department

- The computerization of management incentives (SIGI) system was not fully financed by RESEPAG. However, RESEPAG supported the implementation of incentives to farmers from vouchers. There was a pioneering the effort to collect data to establish the registers of producers and suppliers. This process allowed for system testing and learning important lessons for design optimization and eventually digitization of the process under SIGI.

- The project supported the ongoing implementation of a computer system and the establishment of an IT unit at the MARNDR. The Directorate General of MARNDR adopted all the provisions for the implementation of the unit and has also temporarily designated staff who would be assigned to the unit (i.e. 1 Coordinator and 5 members) and 3 other managers that would support to the unit for the maintenance of the department's computer site). Taking into account the highly technological nature of such an entity, the department with funding of the IDB and the World Bank (in RESEPAG2) will proceed with the recruitment of international technical assistance (TA) to strengthen the capacity of the IT unit.

- The establishment of the ministry's website @agriculture.gouv.ht was supported by RESEPAG. The aim of this investment was to strengthen the leadership of the department in the agricultural sector by funding the creation of the website (or even the creation of the extension @agriculture.gouv.ht on gmail). The objective was to focus on the institutional identity of the department in terms of trade and communication and to facilitate the search for information by clients outside of the ministry. Currently, approximately 300 employees have a business address on this domain. The transition from the personal e-mail addresses to those of the MARNDR has been advancing gradually.

Component 2: Strengthening Farmer Extension and Support Services

7. The following contracts supported the voucher program in addition to financing the vouchers themselves.

Junior Eng. Agronomist, RNE	INDV	USD	11,059.91	07-Nov-2013
Technician to work with plants	INDV	USD	16,313.36	07-Nov-2013
Agricultural technician	INDV	USD	8,294.93	07-Nov-2013
Environmental specialist and provide support in the management of incentives	INDV	USD	20,737.32	07-Nov-2013
Administrative assistant	INDV	USD	15,870.96	07-Nov-2013
Regional Coordinator	SSS	USD	28,469.75	19-Nov-2012
Technician to work with plants	INDV	USD	16,313.36	07-Nov-2013
Total grants for vouchers disbursed			1,500,000.00	
Improved Management of the Local Agricultural Services	QCBS		841,601.23	13-Dec-12
Recruitment of Incentives Operator for the Levy Zone	QCBS		710,848.20	4-Jul-12

TOTAL COMPONENT 2				
			3,169,509.02	

NB: Both QCBS contracts were financed from RESEPAG2 due to cost overruns under component 1 and the higher than anticipated expenditures related to operators.

8. In preparation for the voucher program, a register of farmers was established and a number of logistical steps were completed by a team of specialists supporting component 2. Simultaneously, technical packages including inputs, advisory help and financing were developed for delivery in the pilot project areas. The voucher program entailed the support for four campaigns in the region of Les Cayes including two campaigns of bean and two campaigns for corn, ranging from October 2012 to June 2014, benefitting some 3,055 farmers (37% women). The bean campaign involved a package, provided though vouchers including services for tilling of soil, chemical fertilizers, plant protection products, and amounting to 12,000 gourdes per hectare. For corn, support was provided to farmers for cultivation (plowing of the soil, seeds and chemical fertilizers), amounting to 12,500 gourdes per hectare. The provision of the vouchers included the services of operators (NGOs) who provided technical and extension support to farmers as well as facilitated the mobilization, contracting and logistics of farmers with input suppliers and the participating Bank that printed and issued the vouchers.

9. In the town of Thiotte, 1,510 coffee producers (36% women) obtained vouchers for trimming of coffee bushes, fertilizer and technical advice as well as traps for insect pests to support the production of organic coffee. These incentives have benefited 4,565 producers (38% women) through four campaigns in the South and a campaign in the Southeast. In total, 7,328 incentives were distributed, representing 23,406 vouchers and a total of approximately 57 million gourdes.

10. Interventions yielded the following results:

- more than 6,400 farmers enrolled in the registry (3,400 in Les Cayes and about 3,000 in the area of Thiotte)
- 15 providers of inputs and plowing services entered in the register of the providers of Les Cayes
- 16 inputs and service providers registered in the registry for the area of Thiotte
- the allocation of a certain level of purchasing power parities to farmers, thus facilitating access to means of production and stimulating the input market and agricultural services providers contributing to an increase in the turnover of local suppliers
- The intervention helped to consolidate the existence of some providers already well installed in areas, but also facilitated the emergence of new providers
- The regeneration of planting coffee in Thiotte over an area of 1,400 hectares
- the increase of more than 40% of the sown areas, notably corn, which had been in decline in the South of Haiti during recent years due to the low yield
- the increased performance of bean and corn for a good number of farmers--50-60%.

11. Data collected on a sample of 40 plots of corn reveal that farmers receive in most cases, 2.5 to 4.0 tons per hectare, surpassing the average yield of corn at 1.5 tonnes per hectare in the plain of Les Cayes. The incomes of farmers benefiting from the subsidy are 6,600 gourdes per hectare while they are negative for those who do not benefit.

Component 3: Project coordination and supervision

Project Technical Supervisor	INDV	USD	47,583.65	27-Nov-2011
Project Chief Accountant	INDV	USD	12,544.53	15-May-2014
Technical Auditor	INDV	USD	3,110.60	11-Apr-2014
Financial Management Specialist	INDV	USD	39,608.29	07-Nov-2013
Financial Management Specialist	INDV	USD	39,608.29	07-Nov-2013
Procurement assistant	INDV	USD	16,589.86	07-Nov-2013
AUDIT SERVICES	QBS	USD	42,422.81	10-Jul-2013
Internal Audit Services	SSS	USD	18,248.84	07-Oct-2013
Procurement specialist	INDV	USD	54,377.22	19-Nov-2012
International Procurement Specialist	INDV	USD	145,000.00	01-Mar-2012
Procurement Specialist	INDV	USD	41,841.50	05-Dec-2011
Financial Management Specialist	INDV	USD	96,218.72	12-May-2011
Procurement Specialist	INDV	USD	3,169.81	27-Oct-2009
Financial Management Specialist	INDV	USD	3,169.81	27-Oct-2009
Secretarial services	INDV	USD	12,442.39	07-Nov-2013
Acquisition of four 4x4 vehicles - Lot 1	ICB	USD	138,920.00	28-Jan-2011
TOTAL COMPONENT 3			**714,856.32**	

12. The MARNDR was responsible for the general coordination of interventions and the financial management of the project. Activities included:

(a) administrative and technical activities, including processing information from service providers and World Bank communications;
(b) field activities to oversee the work of providers;
(c) production and submission of reports to the World Bank on a quarterly basis;
(d) sought the collaboration of technical directions and involved DDAs.

13. Various training courses were provided for the project (financial management, procurement markets, monitoring and evaluation, environmental assessment) and contributed to the success of project implementation.

Annex 3. Economic and Financial Analysis

1. This Annex summarizes a financial analysis to determine if investments supported by the project are profitable and therefore sustainable at the farm level and an economic analysis of project investments. Major quantifiable benefits from the project would derive from component 1 (institutional strengthening) and 2 (agricultural voucher system).

2. The methodology used for the financial and economic analysis at appraisal consisted of a break-even analysis for the project as a whole and a separate economic assessment for Component 1 (institutional strengthening) and Component 2 (voucher system). The break-even analysis was based on the assumption that institutional strengthening by the project would accelerate disbursements in the Public Investment Program (PIP) of MARNDR and would have a positive impact on the rate of return of the project. To analyze Component 1, it was assumed that project benefits would materialize through an increase of overall agricultural GDP; for Component 2, a cost-benefit analysis was carried based on the improved coffee production model.

3. The analysis conducted at project completion does not attempt to reconstruct the analysis at appraisal for the following reasons: (i) the link between the institutional strengthening by the project and disbursements of the PIP is very uncertain and the assumption that the project will accelerate the disbursement rate of the PIP seems to be over optimistic; (ii) given the overall impact of the devastating earthquake on the country as a whole as well as on the agricultural sector in particular, the comparison between the agricultural GDP before and after project couldn't show pertinent results. The analysis conducted at project completion assessed the benefits (financial and economic) of institutional strengthening and the voucher system using key M&E data collected by the project and the mission's findings to provide an estimation of the economic return of technologies introduced by the project.

<u>I. Financial Analysis.</u>

a) Agricultural production

4. At appraisal, a financial analysis of improved agricultural production (supported by Component 2) was conducted based on a model of coffee production as a proxy. Assumptions were based on information from the work by the Institut de Capacitation, Etudes et Formation (ICEF) on the regeneration of existing coffee plantations. The model presents an incremental net benefit per hectare of 8,375 hectares due to improved coffee production through regeneration of existing plantations would allow more than doubling of a farmer's net annual income per hectare, with an incremental net income per hectare of HTG 8,375 (about USD 210).

5. During implementation, RESEPAG supported five agricultural campaigns and three agricultural crops: maize, beans and coffee. In the valley of Les Cayes, two bean campaigns and two maize campaigns were conducted from October 2012 to June 2014, for

the benefit of 3,055 farmers (37% women). In the commune of Thiotte, vouchers were distributed to 1,510 coffee farmers (36% women) over one agricultural campaign (in 2014). At the end of each agricultural season, the increase in production was observed for annual crops such as corn and beans, related to: (i) increase in yield per hectare and (ii) increase of the sown area (left fallow before the project). Tables 1 and 2 present the evolution of agricultural productivity and the areas sown before, during and after these campaigns.

Table 1

Agricultural productivity (kg/ha)			
culture	before project (1)	with project (1)	
		1st campagn	2nd campagn
maize	1,500	2,500	3,500
beans	400	800	1,200
coffee	250	288	
(1)Source: reports and interviews AVSI and BECSFAR, 2013-2014			

Table 2

Estimation of the cultivated surfaces (hectares)										
	Before project	With project			Projection after the end of the project period					
	Traditional cultivation	Campaign 2012	Campaign 2013	Campaign 2014	2015	2016	2017	2018	2019	2020
Beans traditional cultivation	350	350	350	350	350	350	350	350	350	350
Beans technical package year 1		358	358	358	322	290	261	235	211	190
Beans technical package year 2			457	457	411	370	333	300	270	243
TOTAL		**708**	**1,165**	**1,165**	**1,083**	**1,010**	**944**	**885**	**831**	**783**
Maize traditional cultivation	350	350	350	350	350	350	350	350	350	350
Maize technical package year 1			700	700	630	567	510	459	413	372
Maize technical package year 2				95	86	77	69	63	56	51
TOTAL			**1,050**	**1,145**	**1,066**	**994**	**930**	**872**	**820**	**773**
Coffee traditional cultivation	**1,440**	**1,440**	**1,440**		**1,440**	**1,440**	**1,440**	**1,440**	**1,440**	**1,440**
Coffee technical package year 1				**1,440**						
Source: M&E system of RESEPAG 1										

6. Crop budgets constructed using data collected in the field by regional operators (presented in Tables 3 and 4) show that cultivation for the three crops supported by the project is financially profitable for the project participants because the application of the technical package and the training received by farmers translated into increased agricultural production. It is still too early to assess the benefits of the project interventions on the plantations of a perennial crop such as coffee. However, a future earnings projection was made based on the experience of the operator BECSFAR in the same area. For coffee production, the situation at project completion appeared rather different than the study conducted by the ICEF, an institution specialized in the coffee sector of Haiti, at appraisal given the fact that coffee is usually part of a mixed plantation known as a “creole garden” and it includes other varieties such as banana, citrus and igname. Therefore, support provided to coffee plants (in terms of improved fertilization, irrigation and land cultivation) benefits the other varieties in the garden and increases the productivity and financial benefits of the plantation. It should to be noted that marketing and post-harvest treatment remain major bottlenecks that prevent maximization of the benefits from the agricultural

support activities (especially for maize and beans). In the absence of post-harvest facilities, it is difficult for farmers to cope with seasonal price fluctuations. This issue will have to be addressed for eventual scaling up of the activity. Table 3 presents a summary of the financial benefits to farmers participating in the voucher system pilot promoted by the project.

Table 3

Summary of financial benefits from agricultural production (Gourdes)			
culture	**before project (1)**	**with project (1)**	**incremental**
maize	200	21,500	21,300
beans	3,500	16,475	12,975
coffee/ "creole garden"	57,586	132,614	75,028
Source: reports AVSI and BECSFAR, M&E system of the RESEPAG1			

b. Service providers

7. The voucher-based subsidy program has strengthened the demand for inputs and services and therefore has increased the sales (and profits) of private service providers. According to information obtained from the operators (AVSI and BECSFORT), there were 315 service providers in the Cailles and 16 providers in the Thiotte area. The value of technical packages was 12,500 Gourdes in the Cailles area and 21,730 Gourdes in the Thiotte area, which represents nearly 38.2 million Gourdes in sales for services providers in the Cailles area and about 32.8 million Gourdes in sales in the Thiotte area. Given the number of suppliers registered in both areas, this represents average sales of 212.230 billion Gourdes for the four agricultural seasons in the Cailles region and 2,050,769 Gourdes in Thiotte. Table 4 summarizes the calculations and assumptions.

Table 4

Summary of financial benefits to service providers (Gourdes)					
Zone of intervention	**Number of service providers**	**Number of technical packages sold to farmers**	**Value of one technical package (G)**	**Total sales (G)**	**Average sales per service provider (G)**
LES CAILLES	315	3,055	12,500	38,187,500	121,230
THIOTTE	16	1,510	21,730	32,812,300	2,050,769
Source: Final report by RESEPAG1 (draft version)					

<u>II. Economic analysis.</u>

8. The rationale behind project design was that with institutional strengthening of the MARNDR's managerial capability (Component 1), the linkages between the government's sectoral policies and the investment projects implemented on the ground would improve. It was also expected that strengthening of the delivery of farm support services (Component 2) and increased availability of extension services and financial support (incentives) would

enable farm investment and adoption of technological innovations by farmers, therefore enhancing agriculture production and rural incomes.

Component 1
a) Computer hardware and communication network

9. Electronic administrative communication was nearly non-existent before the project. Correspondence was mainly paper-based, internet access was scarce and few computers were available. Before the internet network was installed and made available to all staff in the MARNDR by RESEPAG, ministry staff described the situation as follows: "Access to the internet was a luxury and its use was reserved for few staff only." Important correspondence and documents requiring fast response or comments were often late or even lost, which affected the decision-making process and hampered the smooth running of different services of the MARNDR. The common practice was each departmental office (DDA) had a "pigeon box" for mail and official communication and they would have to go to Port-au-Prince to "physically" collect mail, a long, difficult and expensive journey.

10. The project has achieved the following: (i) workstations were installed in the central office of the ministry, in 10 DDAs, in the Organization for the Development of Artibonite Valley (ODVA) administration in Thiotte, in 2 research centers of Levy and Baptist and in 2 middle schools (EMAVA [Artibonite] and EMDH [Hinche]); (ii) hardware and equipment were provided at the central and regional level; (iii) ministry staff were trained in the use of new IT tools (Central Office, 10 DDAs, EMAVA, EMDH, Levy, Baptist and ODVA Thiotte); (iv) general computer system training was conducted at the Central Office (30 hours over 5 days for 124 MARNDR officials); (v) 298 executives and employees were connected to the domain <www.agriculture.gouv.ht> and have obtained a professional email address .gouv.ht; and (vi) cloud computing and SysCoP software are available for cloud storage of data and documents. The sub-component's main activities were completed in the last two years so most of the benefits are still forthcoming.

11. The sub-component's quantifiable benefits include:

- reduction of the ministry transaction costs due to the installation of the internet with a unique contract subscription with the provider. There were economies of scale due to the centralization of the procurement of the IT and communication services (internet subscription, maintenance). Table 5 presents the costs of the internet (emergency "Iglou" system provided after the earthquake). The cost of the temporary system ("Iglou"), if extended for the entire ministry represents about de 91,000 USD per year.

Table 5

COST OF THE "IGLOU" / BEFORE PROJECT(USD)	
IGLOU /PERS/MOIS	26
IGLOU/300PERS/MOIS	7,650
IGLOU/300PERS/AN	91,800

- number of trips (to and from the regions) that are reduced for DDAs thanks to the wider use of email communication and teleconferencing facilities (cameras, speakers and microphones installed by the project). The travel cost reductions would represent about 5,400,000 Gourdes per 10 DDAs, annually (see Table 6).

Table 6

AVERAGE TRAVEL EXPENDITURES FOR ONE DDA			
	average trip (number of days)	daily allowance (G)	total (G)
2 staff MARNDR	2	4,500	9,000
1 driver	2	3,000	6,000
fuel			7,500
TOTAL			**22,500**

ECONOMIES IN TERMS OF TRAVEL EXPENDITURES REDUCED FOR ALL DDAs		
Number of trips per DDA and per month	before project	3
	with project	1
Annual travel cost for 10 DDAs (G)	before project	8,100,000
	with project	2,700,000
Economies / travel costs reduced (G)		5,400,000

Source: Project Coordination Unit

12. In addition to the quantifiable benefits, the sub-component interventions are expected to yield some benefits related to the project activities that are difficult to quantify in monetary terms, however, they certainly amount to substantial socio-economic values:

- cloud computing and relocation and storage of documents and data on the "cloud". Creation of a solid base for institutional memory and loss of documents and information avoided;

- positive impact in terms of image, communication and corporate identity of the MARNDR, with the creation of a domain <www.agriculture.gouv.ht> and professional emails (.gouv.ht);

- change in the approach to IT and its management. The important trend is that the MARDNR is moving from crisis management to long-term management and organization.

b) Monitoring and Evaluation (M&E)

13. Work carried out through this activity supported creation of a link between the M&E system and broader programming. It should be noted that the benefits in terms of the M&E system of MARNDR cannot not be solely attributed to the project because the consultant was mainly focused on the procedures manual. The benefit stream of the sub-component comprises includes:

- a sector policy framework has been developed for the fiscal year 2015/16 based on the analysis of results achieved and summarized in the public balance sheet. Until now, there was no systematic annual sector framework for the preparation of the budget. Projects were renewed year after year without a strategic reflection on the advantage of providing funding for a project rather than another. The framework will be an asset for better targeting of the government's investments in the context of national budget preparation and approval.

- a gradual increase of the financial envelope provided by the state to the agricultural sector with an improvement in the quality of the argument of the budget presented at the House of Deputies. In this context, for the fiscal year 2014/15, the minister obtained a promise of a Public Treasury budget increase. His argument was built on the basis of data from the public balance sheet 2012/13. It should be noted that agriculture has been a priority sector, despite relatively small state participation (8-10% of the investment budget of the country).

Component 2.

a) Improvement of local support services to agriculture and Farm Input Subsidy Program

14. The Farm Input Subsidy Program, together with agricultural extension and training, generated some positive overall economic results in terms of crop performance as well as higher sown area (for maize and beans). The subsidy encouraged adoption and diffusion of new technology/technical package by reducing the initial risks and costs associated with learning a new technique. The technical package introduced by the project has been beneficial not only in terms of agricultural production, but also from an environmental prospective, given better regulation of use of chemical fertilizers and pesticides. Positive environmental externalities associated with increasing soil fertility and soil conservation would be difficult to quantify, however, they can be subject to a longer-term assessment.

15. Even after the earthquake of 2010 and the major malfunction of food markets that followed, the farm input subsidy contributed to ensure food security of rural households dependent on agriculture for their livelihood. During 2012/14, the additional production was 1,173 t for beans, 3,389 t for maize and 108 t for coffee, benefitting about 4,565 farmers within the project area (Table 7 summarizes the results of calculations and the additional agricultural production).

Table 7

Summary of the additional agricultural production (kg)	Cultivation traditionne	Campagne 2012	Campagne 2013	Campagne 2014
Beans (kg)	140,000	280,000	420,000	378,000
		286,480	429,720	386,748
			365,272	547,908
Total (kg)	**140,000**	**566,480**	**1,214,992**	**1,312,656**
Additional production(t)		**426**	**1,075**	**1,173**
Maize (kg)	525,000	525,000	875,000	1,225,000
			1,750,350	2,450,490
				238,175
Total (kg)	**525,000**	**525,000**	**2,625,350**	**3,913,665**
Additional production(t)			**2,100**	**3,389**
Coffee (kg)	**720,000**	**720,000**	**720,000**	**828,000**
Additional production(t)				**108**

(1)Pour le café les projections ont été utilisées

16. However, despite the production surpluses forecast, prices haven't been stable in the project area. Overall, the project area has not taken full advantage of this new food security situation to maximize trade (inter-regional exports). Indeed, future project activities focused on the improvement of the input market should be systematically accompanied by activities focused on construction an agricultural produce market and integration of farmers in this market. This issue suggests the need to improve the quality of production estimates, as well as implementation of additional policies on prices and post-harvest infrastructure.

17. **Economic crop models.** To conduct an economic analysis of crop production supported by the system of incentives, financial models have been recalculated using their economic values. The final report of RESEPAG indicates that nearly 57 million Gourdes (about US$ 1.3 million) have been spent on the implementation of the subsidy program. Given the data collected on the increase of agricultural production, the volume of the additional agricultural production would represent nearly 5,489 tons of corn, 2,674 tons of beans and nearly 108 tons of coffee, with the total value of incremental production of about US$ 3.4 million, or US$ 2.56 of additional food production generated for each USD 1 of subsidy. Table 8 summarizes the calculations.

Table 8

Investment /Subsidy	
57,000,000	Gourdes (1)
1,311,551	USD
Aditional production volume (t)	
maize	5,489
beans	2,674
coffee	108
Aditional production value (USD)	
maize	1,263,004
beans	1,845,924
coffee	245,304
TOTAL	**3,354,231**
Value of the additional agricultural production generated by 1$ of subsidy	2.56

18. **Impact on agricultural service providers.** An estimation of the financial benefit to service providers is presented in the financial analysis. From the economic point of view, in order to demonstrate that the economic benefits to the society generated by agricultural input subsidies exceed the costs of these subsidies, it is necessary to assess the impact of the subsidy program on the input market. In the context of RESEPAG, it can be noted that the incentives to farmers had the advantage of stimulating the development of the agricultural input market. The project did not collect data on the impact of the incentives system on service providers. However, the two focal points (AVSI and BECSFAR) confirmed that several new enterprises have been created (especially among laborers in the Cailles region and among the input suppliers in Thiotte) during the project. Overall, qualitative information and interviews collected by the focal points at the end of the project demonstrate that agricultural service providers were able to increase their revenue and benefitted from a stable market.

19. **Advantage of the new subsidy system compared to the traditional system (supply subsidy).** A traditional large-scale (so called universal) agricultural fertilizer subsidy established by the MARNDR was a common and major feature of agricultural development policies. The subsidy contributed to providing inputs at low prices to some farmers, however the fertilizer subsidies system has been particularly expensive, mainly due to growing demands on the government budget as it stimulated increased fertilizer consumption (and hence increased volumes of fertilizer subsidy). There was also political pressure to increase the subsidy rate or at the least to not contract it in the face of rising fertilizer prices. Given the lack of information at this stage, it would be difficult to conduct a quantitative analysis. However, international experience shows that this system can lead to (i) the weakening of private sector performance, which no longer acts on competitive logic and (ii) the strengthening of the state's involvement, both operationally and financially, to compensate for the shortcomings of the private sector. Ultimately, this situation would lead to the complete crowding out of the private sector by a state monopoly without adequate funding or sufficient expertise in this area.

20. The Haitian Government has embarked on a path of strengthening the competitiveness of the private agricultural sector policy through increased farm productivity, and adoption of modernized and market-oriented farming practices. Profitability of these new practices is underpinned by a competitive inputs sector, able to provide farmers with quality inputs in sufficient quantity and at the best price. One of the main economic benefits of a voucher-based entitlement system compared to the universal one would be in terms of economies of financial resources.

21. Farmers (interviewed by the focal points) found that the subsidy program has allowed them to overcome the imperfection of credit and insurance markets. And more specifically, the voucher-based system was evaluated by operators as a system with an "interesting philosophy, an innovative approach that provides incentives to beneficiaries and eliminates the middlemen and therefore the political aspect and nepotism."

Economic analysis of Components 1 and 2 and entire project

22. **Cost Stream.** In order to estimate the project's economic viability, in the form of the Economic Internal Rate of Return (EIRR), the cash flow calculated includes the actual project costs (provided by the World Bank project team). The costs include all investments for all project components as well as their recurrent costs (mainly operation and maintenance for transportation, equipment and materials). **Benefit Stream.** The analysis attempted to identify quantifiable benefits related to the activities undertaken following the implementation of the components of the project. Costs and benefits stream is presented in Tables 9 and 10.

23. **Component 1.** At appraisal, the analysis of the Component 1 assumed that institutional strengthening by the project would accelerate the disbursements in the Public Investment Program (PIP) of MARNDR by 11% and hence would have generated the rate of return of 16% for the component 1. At project completion, it has been concluded that the assumption made at appraisal was excessively optimistic as to the influence of the project investments on the PIP disbursement. Furthermore, the impact of the earthquake on the projects under the PIP would not support the hypothesis made at appraisal that all these projects would have an EIRR of at least 12%. Quantitative data collected by the project on the benefits related to the travel costs reduction doesn't allow generation of the EIRR for the component because the main benefits of the institutional strengthening (mentioned above) would be extremely difficult to quantify in monetary terms. The cash flow of Component 1 is presented in the Table 9.

Table 9

Component 1		2010	2011	2012	2013	2014	2015-20
	Costs	13,038,000	13,038,000	26,076,000	39,114,000	39,114,000	
	Benefits					5,400,000	5,400,000
	Cash flow	-13,038,000	-13,038,000	-26,076,000	-39,114,000	-33,714,000	5,400,000
EIRR	#DIV/0!						

24. **Component 2.** At appraisal, the overall cost-benefit analysis of Component 2 was conducted on the basis of benefits estimates from the regeneration of coffee plantations, thus considering that other activities to be supported by the project would provide equivalent incremental returns per hectare. Based on this assumption, the internal Economic Rate of Return (ERR) was estimated at 57% or 48% with benefits reduced by 20%; 35% with a two-year lag in benefits and 31% with both a two-year lag and reduction in benefits by 20%.

25. At completion, the cost-benefit analysis was conducted based on crop models constructed with project M&E data and information collected during the field mission (assumptions and calculations are presented in the "financial analysis " section). Then, calculations were made using the economic values (calculations are available in the project files). It has to be noted that project activities experienced some delays and therefore agricultural campaigns were conducted beginning in 2012. This corresponds to the 2-years lag of the sensitivity analysis with 35% EIRR made at appraisal. The economic analysis of Component 2 conducted at completion presents comparable results with a 33% EIRR over 11 years. Table 10 below shows the calculations.

Table 10

Component 2												
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Costs		13,907,200	13,907,200	27,814,400	41,721,600	41,721,600						
Benefits				-1,389,543	2,532,640	8,894,690	47,320,185	151,638,660	144,244,588	71,199,241	36,732,931	9,067,880
Cash flow		-13,907,200	-13,907,200	-29,203,943	-39,188,960	-32,826,910	47,320,185	151,638,660	144,244,588	71,199,241	36,732,931	9,067,880
EIRR	33%											

26. **Project Estimated Return.** At appraisal, it was assumed that project benefits would materialize through an increase of agricultural GDP. Under this assumption, an EIRR of 16% has been obtained. At completion, given the overall impact of the earthquake on the country as well as on the agricultural sector in particular, the comparison between the agricultural GDP before and after project couldn't show pertinent results and therefore a different analytical approach has been used. It has to be noted that the EIRR includes the costs of all investments for the two components as well as their recurrent costs. On the benefits side, it includes the benefits quantified previously. The Economic Internal Rate of Return (EIRR) of the project as a whole at completion is estimated at 16%, which is comparable to the results assumed at appraisal. Adding the unquantifiable benefits discussed above would certainly raise the ERR substantially. The summary of the economic analysis is presented in Table 11.

Table 11

Calculation of the EIRR of the project											
	Project year										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<u>**Project Costs (USD)**</u>											
Component 1	300,000	300,000	600,000	900,000	900,000						
Component 2	320,000	320,000	640,000	960,000	960,000						
Component 3	700,000	700,000	1,400,000	2,100,000	2,100,000						
Total	**1,320,000**	**1,320,000**	**2,640,000**	**3,960,000**	**3,960,000**						
<u>**Project Costs (Gourdes)**</u>											
Component 1	13,038,000	13,038,000	26,076,000	39,114,000	39,114,000						
Component 2	13,907,200	13,907,200	27,814,400	41,721,600	41,721,600						
Total	**26,945,200**	**26,945,200**	**53,890,400**	**80,835,600**	**80,835,600**						
<u>**Project benefits (tangible)**</u>											
Component 1					5,400,000	5,400,000	5,400,000	5,400,000	5,400,000	5,400,000	5,400,000
Component 2			- 1,389,543	2,532,640	8,894,690	47,320,185	151,638,660	144,244,588	71,199,241	36,732,931	9,067,880
Total			**- 1,389,543**	**2,532,640**	**14,294,690**	**52,720,185**	**157,038,660**	**149,644,588**	**76,599,241**	**42,132,931**	**14,467,880**
Cash flow	**-26,945,200**	**-26,945,200**	**-55,279,943**	**-78,302,960**	**-66,540,910**	**52,720,185**	**157,038,660**	**149,644,588**	**76,599,241**	**42,132,931**	**14,467,880**
EIRR 16%											

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Solange A. Alliali	Lead Operations Officer	AFCRI	
Diego Arias Carballo	Senior Agriculture Economist	GFADR	Team Lead
Christelle Bernardin	E T Temporary	LCC8C	
Ross Alexander Gartley	Disaster Risk Management Speci	LCSDU - HIS	
Natalia Gomez	Senior Rural Development Speci	GFADR	
Dianelva Montas	Executive Assistant	CASDR	
Rachel Hannah Nadelman	E T Consultant	LCSSO - HIS	
Fily Sissoko	Practice Manager	GGODR	
Klaas Geert Van Vliet	Consultant	LCSAR - HIS	
Yao Wottor	Senior Procurement Specialist	LCSPT - HIS	
Supervision/ICR			
Pierre Olivier Colleye	Sr Microfinance Speciliast	GFADR	Team Lead
Christelle Bernardin	E T Temporary	LCC8C	
Daniel Gerber	Rural Development Specialist	GFADR	ICR Main Author
Eli Weiss	Sr Rural Development Specialist	GFADR	ICR Team Lead
Ross Alexander Gartley	Disaster Risk Management Speci	LCSDU - HIS	
Natalia Gomez	Senior Rural Development Speci	GFADR	
Hassine Hedda	Senior Finance Officer	CTRLA	
Mariano Lafuente	Public Sector Mgmt. Spec.	LCSPS - HIS	
Nara C. Meli	Consultant	GEDDR	
Glenn S. Morgan	Adviser	OPSOR	
Joseph Kizito Mubiru	Lead Financial Management Spec	GGODR	
Rachel Hannah Nadelman	E T Consultant	LCSSO - HIS	
Jules Stuart Pierre	Consultant	LCSAR - HIS	
Jeffrey James Rinne	Sr Public Sector Mgmt. Spec.	LCSPS - HIS	
Fily Sissoko	Practice Manager	GGODR	
Christina Ariani Wartenberg	Junior Professional Associate	LCSAR - HIS	
Yao Wottor	Senior Procurement Specialist	LCSPT - HIS	
Barbara Coello	Consultant	GFADR	

Katie Kennedy Freeman	Agric. Economist	GFADR	
Kathryn Johns Swartz	Consultant	GFADR	
Prospere Nindorera	Senior Procurement Specialist	GGODR	
Fabienne Mroczka	Sr Financial Management Specialist	GGODR	
Franck Bessette	Sr Financial Management Specialist	GGODR	
Josue Akre	Financial Management Specialist	GGODR	
Christophe Grosjean	E T Consultant	GFADR	
Nicolas Weber	Consultant	LCSAR - HIS	
Aboubacar Magassouba	Consultant	GGODR	
Rose Caline Cadet	E T Consultant	GGODR	
Emmanuel Ngollo	Consultant	GENDR	

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)			
	No. of staff weeks	USD Thousand (including travel and consultant costs)		
		Fixed	Variable	Total
Lending	41.56	100,709	179,166	279,875
Supervision/ICR	82.24	271,577	292,011	563,588
Total	123.8	372,286	471,177	843,463

Annex 5. Beneficiary Survey Results
(if any)

Annex 6. Stakeholder Workshop Report and Results

A participatory evaluation of the project was undertaken in December 2014 involving consultations with the various stakeholders in the project in the Les Cayes region. The consultations were held with representatives from the local operator (NGO), the DDA of Les Cayes, a number of beneficiary farmers from the proximity of the Levi State farm, as well as a couple of input suppliers. Separately, a representative of the Bank issuing the vouchers was met in Port-au-Prince. The discussions with the various stakeholders varied a bit in accordance with the specific tasks.

The discussions ***with operators*** specifically focused on the mechanisms developed under the project for the process of managing the voucher mechanism. The opinion expressed was that ***this process is beneficial as it had developed trust between the various parties involved in processing the transaction.*** The basic trust between the various actors in the system is a basic pre-condition for the system to function and it took substantial time and efforts in mobilizing each party and for farmers to trust the Bank, Bank to trust suppliers, suppliers to trust farmers and operator. This basic trust is what finally led to resolution of the challenge related to having the farmers pick up their vouchers from the Bank, which was resolved by delegating this to the operators.

The DDA praised the program for its effectiveness in getting the supplies to the field, which under the previous system was not functioning because many suppliers (who are also farmers) tended to horde supplies speculating on increasing prices resulting in very poor timing of input deliveries. The mechanism under this project involving all actors in the supply chain to get inputs and advise them on timing greatly improved the production level in the district. The concern was that with significantly improved production, more needs to be done to help with value chain development to get produce to the market and develop options for storage so that prices would be more even over the course of the year.

With the farmers, the exchanges mainly concerned discussions of how the project affected them in terms of income and production and consumption. ***Overall, farmers were grateful and expressed satisfaction with the project design***. The impact has been that a number of participants reported that school fees could be paid for children or some made investments to increase production or improvements to the home and household. Some complaints were raised as to the timing of the delivery of the inputs and the fact that other inputs, such as certain pesticides for specific infestations, were not available.

The participating Bank was very favorable to the program although it raised the issue of the cost of voucher issuance. While the program helped with opening a large number of accounts for both, farmers and suppliers, for the most part, the money would be withdrawn as soon as it was deposited, thus not effectively increasing the depositors. To cut costs in future rounds, the suggestion was made that rather than vouchers, the option of electronic transfers via mobile phone would need to be envisaged. The Bank was in the process of developing such a program mainly to have a greater market share in the remittances that flow to the country, but the system could be easily expanded to serve the purposes of the MARNDR in building a more effective subsidy payment mechanism.

Suppliers reported a significant improvement in the volumes in sales that helped them to invest and specialize more as services providers, retreating from farming altogether. The new register of farmers and suppliers helps with improving knowledge on market demand and inventories, in particular regarding inputs available in Port-au-Prince. The irregular availability of supplies is a major constraint preventing the business form growing. However, credit was also raised as a constraint as supplies need to be largely pre-paid before transport can be organized from the port.

Annex 7. Summary of Recipient's Final Report

Le projet RESEPAG 1est mis en œuvre par le MARNDR sous financement de la Banque Mondiale (Accord de Don H509-0-HT) à hauteur de 5 millions de dollars américains pour la période allant d'avril 2010 (date à laquelle le premier décaissement a été effectué) au 30 juin 2014. Le projet a en outre bénéficié d'une extension de 2 mois fixant la date de clôture du Projet au 31 août 2014 et la période de grâce au 31 décembre 2014.

Ce projet visait à renforcer les capacités institutionnelles pour la création de liens entre les politiques sectorielles élaborées par le Gouvernement et les projets d'investissement sur le terrain et d'améliorer les services d'appui agricole locaux. Les principaux résultats attendus sont le développement de la capacité de pilotage du MARNDR dans le secteur agricole et l'augmentation du nombre d'agriculteurs recevant des services agricoles améliorés dans les zones ciblées.

Pour l'obtention de ces résultats, le projet est articulé autour de trois (3) composantes : (i) Renforcement des capacités managériales du MARNDR ; (ii) Amélioration de la gestion des services agricoles locaux, par des appuis directs aux Agriculteurs/Agricultrices ; (iii) Coordination et supervision du Projet.

Le projet est exécuté au niveau national pour sa composante 1 (Renforcement des capacités managériales du MARNDR) et dans les zones de **Thiotte-Savane Zombi** (Département du Sud-est) et de **Lévy (D**épartement du Sud) pour sa composante 2 (Amélioration de la gestion des services agricoles locaux), respectivement au profit des producteurs et productrices de café et des producteurs/productrices de maïs et de haricot.
La composante 1 est mise en œuvre en ayant recours aux services de consultants et des firmes, respectivement pour renforcer les capacités en genre, en environnement et en passation de marchés, et pour la mise en place du système d'incitations agricoles au sein de la composante 2.

Différents acteurs étaient impliqués dans la mise en œuvre du RESEPAG 1; la Banque Mondiale (IDA) qui a mis les fonds à la disposition du Gouvernement haïtien, réalisé des missions de suivi et de supervision, permettant d'améliorer la mise en œuvre du projet, le Gouvernement haïtien, qui, à travers le MARNDR, a su mettre sur pied une coordination qui était donc chargée de la coordination globale et du suivi de la mise en œuvre du Projet dans toutes ses composantes, les DDA Sud et Sud-est, qui, en tant que structures déconcentrées, ont fourni l'accompagnement nécessaire à la mise en œuvre des activités sur le terrain, les OPS mettant en œuvre les activités conformément aux TDR ainsi définis, et les Agriculteurs qui constituent à la fois les bénéficiaires cibles et sont parmi les principaux partenaires du Projet.

Le RESEPAG 1 a permis :

- Le renforcement de la cellule genre mise en place au sein de l'UEP du MARNDR

- La mise en place d’une Cellule Environnementale au sein du MARNDR pour traiter des questions relatives à l’intégration de la dimension environnementale dans les projets du Ministère

- La dotation du MARNDR d’outils indispensables, notamment un Système de Suivi évaluation pour un meilleur suivi des indicateurs

- La conception, le montage et la mise en opération d'un logiciel comptable sur mesure dénommé (SYSCOP), dans le but d'améliorer la gestion fiduciaire du ministère

- La mise en place de la Cellule de Passation des Marchés du MARNDR

- L’installation et la mise en œuvre du système d’information et de communication du MARNDR

- La création du Site WEB du Ministère @agriculture.gouv.ht

- L’établissement d’un registre national d’agriculteurs et un registre de fournisseurs

- L’appui à la réalisation de quatre (4) campagnes agricoles dans la plaine des Cayes dont 2 campagnes de haricot et 2 campagne de maïs, et une dans le Sud’est à Thiotte. Ainsi, le mécanisme d’incitations a bénéficié au total à 4,565 producteurs (dont 38% de femmes). Un montant total d’environ 57 millions de Gourdes a déjà été dépensé, faisant augmenter le rendement des cultures du maïs et du haricot de l’ordre de 40%.

Globalement, les résultats prévus ont été atteints à des pourcentages satisfaisants et encourageants variant de 95% à plus de 100%. Pour ceux ayant dépassé le pourcentage de 100%, on peut citer le nombre de vouchers distribués accusant un taux de réalisation de 234.06% et la quantité de producteurs et productrices bénéficiaires atteignant 152.16%.

Le projet a eu à faire face à de nombreuses difficultés, affectant notamment la composante 2. Citons entre autres le manque, voire l’absence de fournisseurs de semences de qualité obligeant le projet à ne pas financer cette opération, si cruciale pour la production ; La disponibilité parfois limitée des fertilisants dans les zones d’intervention (en quantité et en qualité) et l’augmentation de leur prix supérieur à celui escompté; la faible capacité de trésorerie des fournisseurs d’intrants pour pouvoir disposer de stocks suffisants capables de satisfaire la demande des agriculteurs.

Les principales leçons qui peuvent optimiser les chances de succès d’autres projets similaires sont :

- ✓ Une bonne anticipation des campagnes agricoles est nécessaire pour prévenir les blocages à caractère administratif (émission de coupons au moment opportun, paiement des fournisseurs dans les temps requis) qui constituent éléments cruciaux pour le bon fonctionnement du système

- ✓ L’accompagnement technique pour la bonne utilisation des intrants fournis est nécessaire pour agir sur plusieurs composantes du rendement et ainsi augmenter plus significativement la production agricole et le revenu des producteurs bénéficiaires.

- ✓ Il est nécessaire de travailler en parallèle sur l’offre de biens et services: recherche agronomique, renforcement filière semencière, renforcement du réseau de fournisseurs de biens et services agricoles (coopératives, OP, privés, etc.), vulgarisation

- ✓ Le système de subvention ciblée est incompatible avec le maintien de la subvention de l’offre (non ciblée)

- ✓ Les appuis financiers fournis aux filières maïs, haricot ont certes permis un accroissement de la production mais l’insuffisance de débouchés à prix rémunérateur pour les produits générés, notamment le maïs, constitue un frein au développement de cette filière. Ainsi, quand des efforts sont faits en amont pour inciter les acteurs à produire ou à transformer, il convient aussi de s’assurer qu’en aval, les produits générés seront écoulés dans de bonnes conditions et que la fonction de commercialisation n’annihile pas les efforts de production

Tenant compte des difficultés rencontrées et des leçons apprises dans le cadre du RESEPAG 1, les recommandations suivantes peuvent être formulées :

- ✓ Renforcer les capacités techniques et financières des fournisseurs pour rendre disponibles les biens et services dont les agriculteurs ont besoin
- ✓ Améliorer l’offre des fertilisants et des semences de qualité, tout en faisant attention aux politiques incompatibles
- ✓ Trouver les meilleurs mécanismes à mettre en place pour fournir les conseils techniques appropriés aux producteurs bénéficiaires des incitations agricoles
- ✓ Améliorer le fonctionnement du système informatisé de gestion des incitations qui devrait permettre de diminuer la durée des principales étapes du processus d’incitations
- ✓ Mettre sur pied, au sein du Ministère de l’Agriculture, une unité et un véritable programme d’incitations agricoles, et éviter la multiplication des projets

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

Comments received from IADB as a partner institution working on agriculture in Haiti.

The implementation of the RESEPAG project has strengthened the collaboration between the IADB and the World Bank in the agricultural sector of Haiti, especially regarding the reform agenda and institutional strengthening of the MARNDR. This support includes:

i) Strengthening the fiduciary capacity of the ministry by using and providing capacity building to a common executing unit, responsible for the fiduciary aspects of RESEPAG1, RESEPAG2 and Agricultural Technology Transfer Program (PTTA) projects.

ii) Co-financing through the Program for the Mitigation of Natural Disasters (PMDN) project for the modernization of the computer and information system of the MARNDR.

iii) Development in close collaboration (RESEPAG and PMDN) of the methodology of the agricultural subsidies based on vouchers for the purchase of agricultural inputs and services.

iv) Strengthening the programming, monitoring and evaluation functions of the ministry through its Planning and Studies Unit (UEP).

This close collaboration continues with the RESEPAG2 project, especially for the strengthening of the ministry’s capacity in providing plant and animal health protection services, agricultural incentives and extension services.

As part of its strategy in the agriculture sector in Haiti and in collaboration with the World Bank, the IADB has been supporting the MARNDR in the development of an innovative mechanism for transferring agricultural technologies based on grants to individual small farmers. These incentives (direct financial support) are awarded to farmers through vouchers that allow them to acquire agricultural goods and services required for the adoption of technical packages from approved suppliers. These technical packages can generate income and/or protect soil and water resources, combining economic and environmental goals. These grants are intended to remove or circumvent the following factors that constrain the adoption of technologies: i) restrictions on access to credit, ii) problems of access to information and iii) risk aversion.

This support has been provided mainly through the Program for the Mitigation of Natural Disasters (PMDN, $5 million) and the Agricultural Technology Transfer Program (PTTA $33 million) since 2013. To date, nearly 17,000 producers have benefited from these incentives in the departments of the North, Northeast and South, mainly in agroforestry systems (coffee, cocoa, cashew nuts, fruit and forest species, yams, and bananas), rice and vegetables. The promoted technical packages vary depending on the areas. Conceptually these programs are based on the RESEPAG Project, although the PTTA is operationally more based on the experience of the PMDN.

There is no rigorous evaluation yet, but the following was observed:

<u>Strengths:</u>

- Increased income and/or yields, which, however, vary depending on cropping systems.
- Development of a single, transparent and innovative incentive mechanism with the development of a single registry.
- Progressive development of the supply of agricultural goods and services.

Weaknesses:

- Provision of technical packages (agricultural goods and services) is very low, mainly due to the lack of agricultural research for over 20 years, the low purchasing power of producers and low agricultural technical training.
- Absence of other factors promoting the adoption of farming techniques, especially irrigation for lowland crops.
- Potential fraud if control mechanism is insufficient.
- Insufficient harmonization of access to inputs policies (offer versus demand driven), and initiatives are still rather perceived as IADB / WB programs rather than MARNDR activities.

Perspectives

- Strengthening of the control and supervision system of the incentive mechanism, including the use and improvement of the Incentives Management System (ICMS), the combined systematic use of GIS tools (Geographic Information System) and the continuous updating of a single incentives manual.
- Consolidation of a single incentive management team within the RESEPAG / PTTA unit, which may eventually be incorporated in the future into the value chain or innovation department.
- Strengthening the supply of agricultural technical packages, including: i) the development of agricultural research programs, ii) strengthening suppliers of agricultural goods and services (training, credit, technical assistance, environmental standards / good agricultural practices, etc.), iii) strengthening the national seed service.
- Orientation of incentives rather to long-term investments (perennial crops, irrigation equipment such as single pump, well, landscaping, etc.) rather than intermediate consumption (inputs).
- Reconciliation with agricultural credit programs (SYFAAH) to combine grant and credits that can lead to an exit strategy.
- Potential investment in irrigation and other structural factors favoring the adoption of technical packages (in the context of other complementary programs.
- If the rigorous assessment developed with the support of DIME provides satisfactory results, the IADB will eventually continue this support.

Annex 9. List of Supporting Documents

Project Appraisal Document, report No: 4775-HT

Development Finance Agreement – H509-0-HT

Haiti Interim Country strategy, report No: 71885-HT

Aide Memoires

Implementation Status & Results Reports

Project Restructuring Papers, reports # 53366-HT, RES-14139, June 23, 2014 & August 20, 2014

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Note sur l'analyse financiere economique de RESEPAG 1

Rapport Annuel du MARNDR de l'exercise 2012-13, 2013-14

MARNDR, Manuel d'incitations, Mai 2009.

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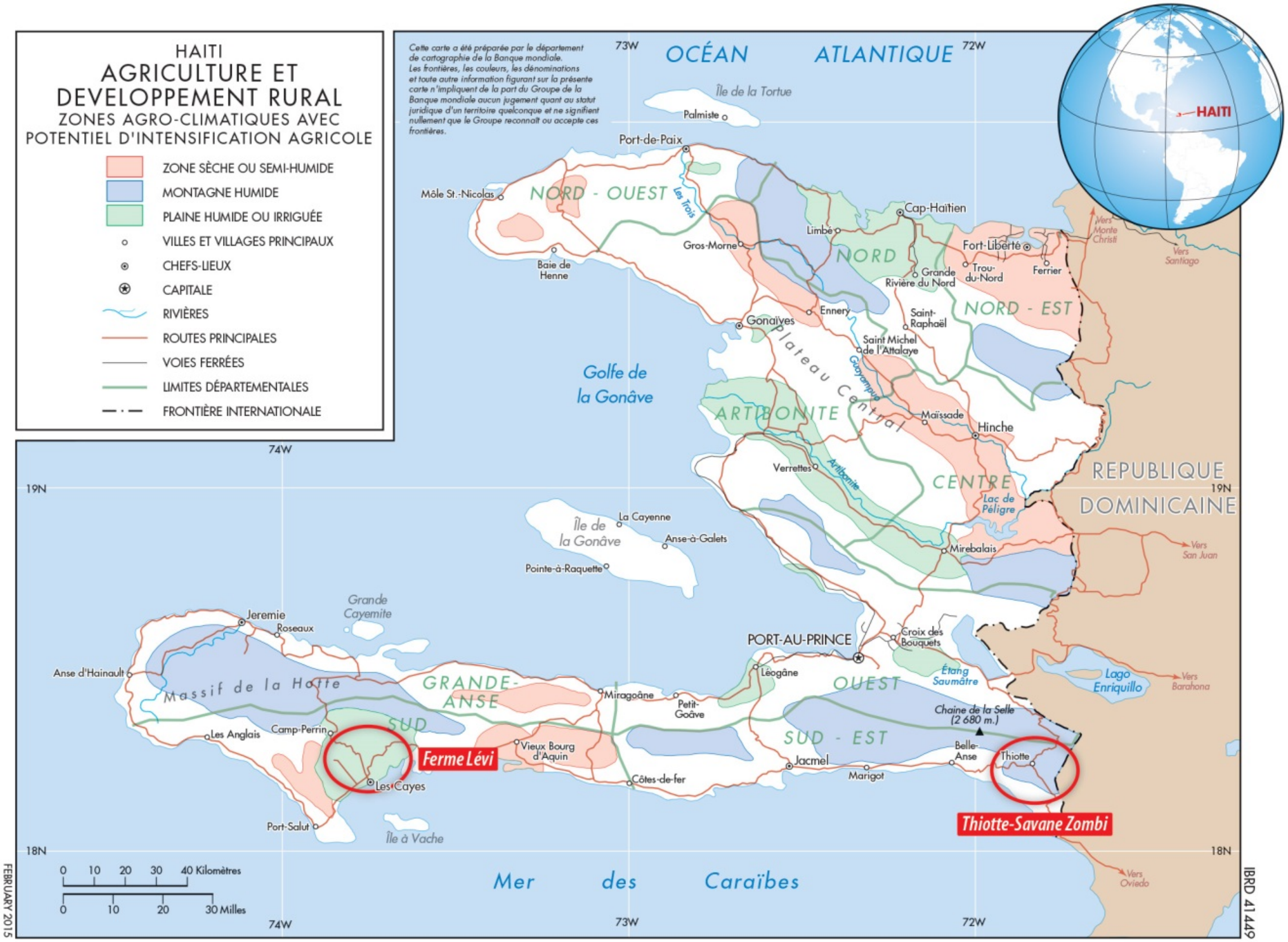
MAP


HAITI
AGRICULTURE ET DEVELOPPEMENT RURAL
ZONES AGRO-CLIMATIQUES AVEC POTENTIEL D'INTENSIFICATION AGRICOLE
ZONE SÈCHE OU SEMI-HUMIDE
MONTAGNE HUMIDE
PLAINE HUMIDE OU IRRIGUÉE
VILLES ET VILLAGES PRINCIPAUX
CHEFS-LIEUX
CAPITALE
RIVIÈRES
ROUTES PRINCIPALES
VOIES FERRÉES
LIMITES DÉPARTEMENTALES
FRONTIÈRE INTERNATIONALE
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Île de la Tortue
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Môle St.-Nicolas
NORD - OUEST
Les Trois
Baie de Henne
Gros-Morne
Limbé
Cap-Haïtien
NORD
Fort-Liberté
Grande Rivière du Nord
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Ferrier
Ennery
Saint-Raphaël
NORD - EST
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Hinche
Verrettes
Artibonite
CENTRE
Lac de Péligre
REPUBLIQUE DOMINICAINE
Île de la Gonâve
La Cayenne
Anse-à-Galets
Pointe-à-Raquette
Mirebalais
Jeremie
Roseaux
Grande Cayemite
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Massif de la Hotte
GRANDE-ANSE
SUD
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Les Anglais
Camp-Perrin
Ferme Lévi
Les Cayes
Vieux Bourg d'Aquin
Côtes-de-fer
Jacmel
SUD - EST
Chaîne de la Selle (2 680 m.)
Belle-Anse
Thiotte
Marigot
Thiotte-Savane Zombi
Port-Salut
Île à Vache
Mer des Caraïbes
Vers Monte Christi
Vers Santiago
Vers San Juan
Vers Barahona
Vers Oviedo
HAITI
0 10 20 30 40 Kilomètres
0 10 20 30 Milles
74W
73W
72W
19N
18N
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