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HAITI

TECHNOLOGY TRANSFER PROGRAM TO SMALL FARMERS

(HA-L1107)

PROJECT PROFILE

The project team consisting of prepared this document: Carmine Paolo De Salvo (INE/RND), Team Leader; Bruno Jacquet (RND/CHA), Alternate Team Leader; Sébastien Gachot (RND/CHA); Lina Salazar (INE/RND); Gonzalo Munoz (RND/CDR); Romina Kirkagacli, Marise Etienne Salnave (FMP/CHA); Monica Centeno Lappas (LEG/SGO); Régine Lafontant (CDH/CHA); and Lisa Restrepo (INE/RND).

PROJECT PROFILE (PP)
HAITI

I. BASIC DATA

Project name:	Technology Transfer Program for Small Farmers II	
Project number:	HA-L1107	
Project team:	This document was prepared by the project team consisting of: Carmine Paolo De Salvo (INE/RND), Team Leader; Bruno Jacquet (RND/CHA), Alternate Team Leader, Sébastien Gachot (RND/CHA); Lina Salazar (INE/RND); Gonzalo Munoz (RND/CDR); Romina Kirkagacli, Marise Etienne Salnave (FMP/CHA); Monica Centeno Lappas (LEG/SGO); Régine Lafontant (CDH/CHA); and Lisa Restrepo (INE/RND).	
Borrower:	Republic of Haiti	
Executing agency:	Ministry of Agriculture, Natural Resources and Rural Development	
Financial Plan:	IDB Grant Facility: Local: Total:	US$ 40,000,000 US$ 1,000,000 US$ 41,000,000
Safeguards:	Policies triggered: Classification:	B.01 (OP-703, OP-704, OP-102, OP-761), B.02, B.03, B.04, B.10, B.12, and B.17. B

II. GENERAL JUSTIFICATION AND OBJECTIVES

A. Background and Justification of the Program

2.1 Agriculture plays a major role in the Haitian economy by contributing 25% of GDP and 71% of employment in rural areas. However, it suffers from a very low level of productivity, even when compared to other countries in the region (as shown in Table 1, for the main crops grown in Haiti).

Table 1. Yields for main Haitian crops compared to yields of other countries in the region[1]

Product	Leader	Haiti's yield as % of leader's yield
Banana	Nicaragua	11%
Cassava	Jamaica	14%
Coffee Green	Honduras	24%
Maize	Nicaragua	52%

[1] Countries considered for this comparison are: Dominican Republic, Guyana, Honduras, Jamaica, and Nicaragua.

2.2 Labor and land productivity have even been declining in the last two decades,[2] with total factor productivity declining at an annual average -0.5% in the period 2001-2012 (compared with a 1.7% simple average growth for the Latin America and Caribbean region).[3]

2.3 Some of the many factors contributing to exacerbate this low productivity are:

(i) The low level of farmers' investment. The lack of investment is explained not only by the significant financial constraints faced by farmers, due notably to the lack of agricultural credit, but also by a strong asymmetry of information about existing technologies, farming techniques, access to markets and climate risks;

(ii) The lack of financial and human resources to develop agricultural innovation. Agricultural research has been virtually non-existent in Haiti for nearly three decades,[4] as stated during the series of conferences[5] on the modernization of the agricultural research system supported by the Bank since 2012 (particularly through the creation of the research fund FONRED). Aggregate numbers show that over the last three decades technical efficiency in the Haitian agricultural sector has fallen drastically, at a -1.8% average yearly rate (Nin-Pratt, A. et al. 2015). This may be a reflection of an outdated institutional framework for the research, technology transfer and extension systems. The lack of local expertise in applied and adaptive agricultural research and technology transfer is in turn partially explained by the lack of training and educational opportunities in these areas.

2.4 Given the circumstances described above, the majority of producers in Haiti are still using basic techniques. The sector is characterized by the use of uncertified, low quality seeds, the lack of appropriate soil conservation, a very limited and often inappropriate use of pesticides and fertilizers, the use of rudimentary tools and equipment, an underdeveloped market for agricultural goods and services, and an extremely weak agricultural extension services and technical assistance. The 2009 General Agricultural Census (RGA) shows that only 2.6% of farmers received some type of technical assistance, 7% used mechanical equipment and 43% identified weak agricultural research and extension as a constraint for the development of the sector. A constrained access to factors of production (capital, land, labor, water),[6] the risks (market, climate) that farmers are facing, and the replacement of perennial crops by annual crops (which are more profitable in the short term) also limit the long-term growth of the productivity of the agricultural sector in Haiti.

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2 Cirad, 2015.

3 Nin-Pratt, A. et al., 2015.

4 Cirad, 2015.

5 Assises de la recherche agricole en Haiti, 2013.

6 Only 13% of agricultural land has access to water, according to the 2009 General Agricultural Census.

2.5 The consequences of low agricultural productivity in Haiti are numerous. First of all, per capita income in the Haitian agricultural sector has stagnated in recent years. Given that GDP per hectare per year is approaching US$800 at present and farmers work on average on 0.5 hectares per person, the annual agricultural GDP per capita is currently estimated at US $ 400 per year.[7]

2.6 As a result, in 2010 for example, about 88% of individuals in rural areas were living below the poverty line and 59% of them earned less than US$1 a day. In addition, the vulnerability of farmers to various risks such as climate change, erosion, drought and pests remain substantial, threatening at the same time any productivity improvement. The pressure on the natural resources of the country is also increasing and is illustrated in particular by the high levels of deforestation and erosion: most studies estimate indeed that no more than 5% of Haitian surface is currently covered by forests.[8] Finally, faced with the inability of the Haitian agriculture to meet the local demand, the country is dependent on imports of food products such as rice, sugar and poultry.

2.7 Consistency with National priorities. The proposed program is consistent with the 2010-2025 Agriculture Policy Document, the 2010-2016 National Agriculture Investment Plan (NAIP) and the 2011-2016 Agricultural Extension Plan[9]. These documents envision to build-up and strengthen a modern agricultural sector based on the efficiency and effectiveness of family agriculture and agribusiness.

2.8 Consistency with the Country Strategy, Sector Strategy and GCI-9. The program is a second phase of the PTTA operation (2562/GR-HA) and is aligned with the Bank's Country Strategy for Haiti 2011-2015[10] (GN-2646), which sets agriculture as a priority sector of intervention. The program is also included in the 2016 Country Program Document (RG-1633). The program contributes to the Corporate Results Framework (CRF) 2016, by promoting: (i) social inclusion and equality; and (ii) productivity and innovation. Also, it contributes to the cross-cutting theme of climate change and environmental sustainability as well as to the country development indicator "beneficiaries of improved management and sustainable use of natural capital". The operation is also consistent with the "Agriculture and Natural Resources Management Sector Framework Document" (GN-2709-1) and the "Food Security Sector Framework" (GN-2825-3), as it will increase agricultural productivity and therefore contribute to food security.

B. Program Objectives and Expected Results

2.9 The general objective of the program will be to increase agricultural productivity for small farmers in selected areas of the North, Northeast, Artibonite and South departments.

2.10 The targeted beneficiaries will be smallholder farmers living in selected areas of the North, Northeast, South and Artibonite Departments, in order to maximize synergies with other IDB programs in Haiti. A geographic prioritization is

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7 Cirad, 2015.

8 Cirad, 2015.

9 http://agriculture.gouv.ht/view/01/IMG/pdf/Plan_directeur_de_vulgarisation_agricole_en_Hait-Version_finale_Mars_2011.pdf

10 Currently in effect.

necessary, not only because the program resources are limited, but also in order to take into consideration the coordination with other MARNDR initiatives (such as RESEPAG II), which also provide agricultural incentives for technological innovation.

2.11 The program will be structured in two components:

2.12 Component 1: Applied research and training for the development and adaptation of sustainable agricultural technologies. This component will finance the following activities: (i) applied and adaptive agricultural research projects developed and implemented by national and/or international institutions, in order to create, improve and/or adapt innovative, profitable, and sustainable agricultural technologies that will enhance the supply of technological options available to farmers; and (ii) strengthening of the higher education curriculum to improve applied and adaptive research and technology transfer capabilities. In this context, specific attention will be given to the FAMV. The results of Component 1 will progressively provide input for the technology menu promoted by Component 2.

2.13 Component 2: Promotion of sustainable agricultural technologies. This component will finance the adoption of innovative, profitable and sustainable agricultural technologies that will improve long term farm profitability and generate positive environmental externalities. The component will be implemented through the agricultural incentives program conducted by the MARNDR and the technologies will be adapted to the different agro-ecological environments, local context and climate change perspectives. The technology menu may include: small irrigation equipment, harvest and post-harvest equipment as well as the application of sustainable agricultural practices (agro-forestry systems, sustainable soil and water management techniques).

2.14 Justification for public intervention. Component 1 will stimulate the application of agricultural scientific knowledge, which is recognized by economic theory as an exemplary public good (it is non-rival and non-excludable). Component 2 will mitigate the lack of access to credit and liquidity constraints faced by smallholders in Haiti, and compensate for the missing market for agricultural inputs. It will also generate positive environmental externalities. Through these two components, the proposed operation will counter existing market failures and public intervention is therefore justified.

2.15 Program costs are expected to be the following, but they will be further defined during project design: Component 1: US$8 million; Component 2: US$29 million; Administration/Audit/Evaluation: US$4 million.

III. TECHNICAL ISSUES AND SECTOR KNOWLEDGE

3.1 Lessons Learned. A series of lessons could be drawn from the design and implementation of PTTA I and the other initiatives incentivizing the use of agricultural technologies in Haiti. The main lessons to be considered in this second phase are:

(i) The design of new technological packages must be directly related to the results of applied agricultural research, while considering the diversity of climates and social contexts in which they will be implemented;

(ii) Prospective beneficiaries should be involved in the choice of the technology menus, in order to assess their interest for these technologies;

(iii) It is necessary to provide technical assistance to cover at least one agricultural cycle in order to provide information about the proper use and implementation of the new technologies as well as to accompany farmers during the production process. At present, the approved suppliers of the PTTA I have very little capacity and skills to provide this type of service;

(iv) The menu of technologies should be designed as to enhance agricultural productivity while contributing to climate change adaptation and without damaging the environment. Also, the promotion of technologies and practices should be avoided if certain conditions related to access to factors of production (especially water) are not met;

(v) The technological packages for agroforestry should be encouraged, as they offer an opportunity to combine perennial crops such as coffee, cocoa and fruit trees with shorter cycle crops such as beans and malanga. These systems contribute to sustainably reforest some mountainous areas of the country, reduce erosion, and have strong positive externalities on the environment, while allowing farmers to make short and long term benefits of these plots;

(vi) The implementation of quality standards for agricultural inputs, as defined by the MARNDR, is crucial during implementation. The dissemination of the manual defining these standards and the organization of short courses for providers should be continued in order to keep authorized PTTA suppliers updated; and

(vii) It is necessary to develop synergies and complementarities among projects at local level (i.e. watershed protection through the combination of infrastructure, adoption of sustainable cropping practices and land tenure security; value chain development through support to agribusiness and SMEs and adoption of sustainable cropping practices) in order to maximize impacts.

3.2 Impact evaluation. A rigorous impact evaluation will be conducted by the program and the results of the evaluation of the first phase are being taken into consideration, as they are generated, for the design of the second phase.

3.3 Gender mainstreaming. A study on the mainstreaming of a gender approach was conducted by PTTA 1. The implementation recommendations provided in the study will be applied to the second phase of PTTA.

3.4 Synergies with other initiatives. Several national and international institutions are involved with the MARNDR incentive program and with applied agricultural research and training in Haiti: i) the World Bank, USAID and the French Development Agency (AFD) for the agricultural incentives program; and ii) FAO,

the Embassy of France in Haiti, United States Agency for International Development (USAID), Inter-American Institute for Cooperation on Agriculture (IICA), the University of Quisqueya, the Faculty of Agronomy and Veterinary Medicine (FAMV), and Non-Governmental Organizations (NGOs) for applied agricultural research and training.

3.5 On the IDB side, the second phase of the Natural Disaster Mitigation Program (PMDN II - 3622/GR-HA; GRT/SX-15417-HA), implemented by the MARNDR (the implementation of which is scheduled to start in 2016), also offers possible synergies, notably related to watershed protection (combination of infrastructure provided by PMDN and sustainable farming practices promoted by PTTA) and to the strengthening of the FAMV curriculum. Other synergies are envisaged with the Land Administration Project (2720/GR-HA), PROGEBA (3089/GR-HA), the Anchors Project (2416/GR-HA), and MIF interventions in all suitable intervention areas.

3.6 In order to maximize synergies, avoid duplication and adequately define the activities of PTTA II, the various initiatives of the institutions listed above will be inventoried during the formulation of this program.

3.7 Institutional framework. The executing agency will be the MARNDR, which has been in charge of the execution of most Bank's-financed operations in the sector for the past thirty years, and currently manages an active portfolio totaling approximately US$140 million. Given that this will be a second phase of the PTTA, the program will be executed through the PTTA/RESEPAG executing unit, and the Ministry Procurement Unit (UPMP) for procurement. The merging of PTTA/RESEPAG financial and administrative team within the single administrative unit for three IDB operations (3089/GR-HA, 3492/GR-HA and 2416/GR-HA) is envisaged.

IV. ENVIRONMENTAL SAFEGUARDS AND FIDUCIARY SCREENING

4.1 A "B" classification is proposed, in accordance with the Environmental and Social Safeguards Compliance Policy (OP-703). The operation is expected to have positive social impacts in terms of improved farmers' incomes due to increased yields and reduced losses. Positive environmental benefits are also expected as a result of improved environmental practices, linked to the use of new technologies. Specific arrangements will be prepared to monitor the overall environmental and socio-economic benefits of this operation. The complete Environmental and Social Strategy is presented in Annex III. A fiduciary risk assessment will also be undertaken before POD approval in order to determine the fiduciary risk level and define the corresponding modalities for the fiduciary management of the project.

V. RESOURCES AND TIMETABLE

5.1 Annex V of this document details costs and timeline for this program preparation. The distribution of the Proposal for the Operation Development to the Quality and Risk Review Committee is expected on September 1, 2016; the approval of the Draft Loan Proposal by the Operations Policy Committee on October 25, 2016; and the approval by the Board of Executive Directors on November 30, 2016.

The Project Team has estimated the need for US$171,390 from the Bank's administrative budget in order to accomplish the preparation of this operation.

CONFIDENTIAL

[1] The information contained in this Annex is confidential and will not be disclosed. This is in accordance with the "Deliberative Information" exception referred to in paragraph 4.1 (g) of the Access to Information Policy (GN-1831-28) at the Inter-American Development Bank.

SAFEGUARD POLICY FILTER REPORT

PROJECT DETAILS	
IDB Sector	AGRICULTURE AND RURAL DEVELOPMENT-AGRICULTURAL TECHNOLOGY ADOPTION
Type of Operation	Other Lending or Financing Instrument
Additional Operation Details	
Investment Checklist	Generic Checklist
Team Leader	De Salvo, Carmine Paolo (desalvo@IADB.ORG)
Project Title	Technology Transfer to Small Farmers II
Project Number	HA-L1107
Safeguard Screening Assessor(s)	Jacquet, Bruno (BRUNOJ@iadb.org)
Assessment Date	2016-02-10

SAFEGUARD POLICY FILTER RESULTS		
Type of Operation	Loan Operation	
Safeguard Policy Items Identified (Yes)	The operation is in a geographical area exposed to natural hazards (Type 1 Disaster Risk Scenario). Climate change may increase the frequency and/or intensity of some hazards.	B.01 (Disaster Risk Management Policy – OP-704)
	The operation includes activities related to climate change adaptation, but these are not the primary objective of the operation.	B.01 (Disaster Risk Management Policy – OP-704)
	The Bank will make the relevant project documents available to the public.	B.01 (Access to Information Policy– OP-102)
	The operation offers opportunities to promote gender equality or women's empowerment.	B.01 (Gender Equality Policy– OP-761)
	The operation is in compliance with laws and regulations of the country regarding specific women's rights, the environment, gender and indigenous peoples (including national obligations established under ratified multilateral environmental agreements).	B.02
	The operation (including associated facilities) is screened and classified according to its potential environmental impacts.	B.03
	The operation includes activities to close current "adaptation deficits" or to increase the ability of society and ecological systems to adapt to a changing climate.	B.04

	The operation has the potential to impact the environment and occupational health and safety due to the production, procurement, use, and/or disposal of hazardous material, including organic and inorganic toxic substances, pesticides and persistent organic pollutants (POPs).	B.10
	The operation is already under construction by the executing agency or borrower.	B.12
	Suitable safeguard provisions for the procurement of goods and services in Bank financed operation will be incorporated into project-specific loan agreements, operating regulations and bidding documents, as appropriate, to ensure environmentally responsible procurement.	B.17
Potential Safeguard Policy Items(?)	No potential issues identified	
Recommended Action:	Operation has triggered 1 or more Policy Directives; please refer to appropriate Directive(s). Complete Project Classification Tool. Submit Safeguard Policy Filter Report, PP (or equivalent) and Safeguard Screening Form to ESR. The project triggered the Disaster Risk Management policy (OP-704) and this should be reflected in the Project Environmental and Social Strategy. A Disaster Risk Assessment (DRA) may be required (see Directive A-2 of the DRM Policy OP-704). Next, please complete a Disaster Risk Classification along with Impact Classification. The project triggered the Other Risks policy (B.04): climate risk.Please include sections on how climate risk will be dealt with in the ESS as well as client documents (EIA, EA, etc);Recommend addressing risks from gradual changes in climate for the project in cost/benefit and credit risk analyses as well as TORs for engineering studies.	
Additional Comments:		

ASSESSOR DETAILS

Name of person who completed screening:	Jacquet, Bruno (BRUNOJ@iadb.org)
Title:	
Date:	2016-02-10

SAFEGUARD SCREENING FORM

PROJECT DETAILS

IDB Sector	AGRICULTURE AND RURAL DEVELOPMENT-AGRICULTURAL TECHNOLOGY ADOPTION
Type of Operation	Other Lending or Financing Instrument
Additional Operation Details	
Country	HAITI
Project Status	
Investment Checklist	Generic Checklist
Team Leader	De Salvo, Carmine Paolo (desalvo@IADB.ORG)
Project Title	Technology Transfer to Small Farmers II
Project Number	HA-L1107
Safeguard Screening Assessor(s)	Jacquet, Bruno (BRUNOJ@iadb.org)
Assessment Date	2016-02-10

PROJECT CLASSIFICATION SUMMARY

Project Category:	**Override Rating:**	**Override Justification:**
		Comments:
Conditions/ Recommendations	ı Category "B" operations require an environmental analysis (see Environment Policy Guideline: Directive B.5 for Environmental Analysis requirements). ı The Project Team must send to ESR the PP (or equivalent) containing the Environmental and Social Strategy (the requirements for an ESS are described in the Environment Policy Guideline: Directive B.3) as well as the Safeguard Policy Filter and Safeguard Screening Form Reports. ı These operations will normally require an environmental and/or social impact analysis, according to, and focusing on, the specific issues identified in the screening process, and an environmental and social management plan (ESMP). However, these operations should also establish safeguard, or monitoring requirements to address environmental and other risks (social, disaster, cultural, health and safety etc.) where necessary.	

SUMMARY OF IMPACTS/RISKS AND POTENTIAL SOLUTIONS

Identified Impacts/Risks	Potential Solutions
The negative impacts from production, procurement and disposal of hazardous materials (excluding POPs unacceptable under the Stockholm Convention or toxic	**Monitor hazardous materials use:** The borrower should document risks relating to use of hazardous materials and prepare a hazardous material management plan that indicates how

pesticides) are minor and will comply with relevant national legislation, IDB requirements on hazardous material and all applicable International Standards.	hazardous materials will be managed (and community risks mitigated). This plan could be part of the ESMP.
Generation of solid waste is moderate in volume, does not include hazardous materials and follows standards recognized by multilateral development banks.	**Solid Waste Management:** The borrower should monitor and report on waste reduction, management and disposal and may also need to develop a Waste Management Plan (which could be included in the ESMP). Effort should be placed on reducing and re-cycling solid wastes. Specifically (if applicable) in the case that national legislations have no provisions for the disposal and destruction of hazardous materials, the applicable procedures established within the Rotterdam Convention, the Stockholm Convention, the Basel Convention, the WHO List on Banned Pesticides, and the Pollution Prevention and Abatement Handbook (PPAH), should be taken into consideration.
Project activities will moderately impact water quality, water quantity and/or water availability.	**Water Resources:**A targeted Water Resources Assessment should be undertaken, which in addition to undertaking the relevant analyses, must include justification for assigning a moderate risk classification. Project activities (and any associated facilities) will be required to be constructed and operated so as to avoid impacts to water quality, water quantity and/or water availability. Evidence of appropriate stakeholder consultation should also be provided. Monitoring requirements should be included in relevant legal documentation.

DISASTER RISK SUMMARY

Disaster Risk Category: Moderate

Disaster/ Recommendations	- The reports of the Safeguard Screening Form (i.e., of the Safeguards Policy Filter and the Safeguard Classification) constitute the Disaster Risk Profile to be included in the Environmental and Social Strategy (ESS). The Project Team must send the PP (or equivalent) containing the ESS to the ESR. - The Borrower prepares a Disaster Risk Management Summary, based on pertinent information, focusing on the specific moderate disaster and climate risks associated with the project and the proposed risk management measures. Operations classified to involve moderate disaster risk do not require a full Disaster Risk Assessment (see Directive A-2 of the DRM Policy OP-704). - The Project Team examines and adopts the DRM summary. The team remits the project risk reduction proposals from the DRMP to the engineering review by the sector expert or the independent engineer during project analysis or due diligence, and the financial protection proposals to the insurance review (if this is performed). The potential exacerbation of risks for the environment and population and the proposed risk preparedness or mitigation measures are included in the Environmental and Social Management Report (ESMR), and are reviewed by the ESG expert or environmental consultant. The results of these analyses are reflected in the general risk analysis for the project. Regarding the project implementation, monitoring and evaluation phases, the project team identifies and supervises the DRM approaches being applied by the project executing agency. - Climate change adaptation specialists in INE/CCS may be consulted for information regarding the influence of climate change on existing and new natural hazard risks. If the project requires modification or adjustments to increase its resilience to climate change, consider (i) the possibility of classification as an adaptation project and (ii) additional financing options. Please consult the INE/CCS adaptation group for guidance.

SUMMARY OF DISASTER IMPACTS/RISKS AND POTENTIAL SOLUTIONS

Identified Impacts/Risks	Potential Solutions
The project is located in an area prone to earthquakes and the likely severity of impacts to the project is moderate.	A Disaster Risk Assessment, that includes a Disaster Risk Management Plan (DRMP), may be necessary, depending on the complexity of the project and in cases where the vulnerability of a specific project component may compromise the whole operation. The DRMP should propose measures to manage or mitigate these risks to an acceptable level. The measures should consider both the risks to the project, and the potential for the project itself to exacerbate risks to people and the environment during construction and operation. The measures should include risk reduction (siting and engineering options), disaster risk preparedness and response (contingency planning, etc.), as well as financial protection (risk transfer, retention) for the project. They should also take into account the country's disaster alert and prevention system, general seismic design standards and other related regulations.
The project is located in an area prone to inland flooding and the likely severity of the impacts to the project is moderate.	A Disaster Risk Assessment, that includes a Disaster Risk Management Plan (DRMP), may be necessary, depending on the complexity of the project and in cases where the vulnerability of a specific project component may compromise the whole operation. The DRMP should propose measures to manage or mitigate these risks to an acceptable level. This must take into consideration changes in the frequency and intensity of intensive rainfall and in the patterns of snowmelt that could occur with climate change. The DRMP includes risk reduction measures (siting and engineering options), disaster risk preparedness and response (contingency planning, etc.), as well as the financial protection (risk transfer, retention) of the project. The DRM Plan takes into account existing vulnerability levels and coping capacities, the area's disaster alert and prevention system, general design standards, land use regulations and civil defense recommendations in flood prone areas. However, the options and solutions are sector- and even case-specific and are selected based on a cost analysis of equivalent alternatives.
The project is located in an area prone to hurricanes or other tropical storms and the likely severity of the impacts to the project is moderate.	A Disaster Risk Assessment, that includes a Disaster Risk Management Plan (DRMP), may be necessary, depending on the complexity of the project and in cases where the vulnerability of a specific project component may compromise the whole operation. The DRMP should propose measures to manage or mitigate these risks to an acceptable level. The measures should consider both the risks to the project, and the potential for the project itself to exacerbate risks to people and the environment during construction and operation. The measures should include risk reduction (siting and engineering options), disaster risk preparedness and response (contingency planning, etc.), as well as financial protection (risk transfer, retention) for the project. They should also take into account the country's disaster alert and prevention system, general design standards and other related regulations.
The project is located in an area prone to landslides and the likely severity of the impacts to the project is moderate.	A Disaster Risk Assessment, that includes a Disaster Risk Management Plan (DRMP), may be necessary, depending on the complexity of the project and in cases where the vulnerability of a specific project component may compromise the whole operation. The DRMP should propose measures to manage or mitigate these risks to an acceptable level. The measures should consider both the risks to the project, and the potential for the project itself to exacerbate risks to people and the environment during construction and operation. The measures should include risk reduction (siting and engineering options), disaster risk preparedness and response (contingency planning, etc.), as well as financial protection (risk transfer, retention) for the project. They should also take into account the country's disaster alert and prevention system, general design standards and other related regulations.
The project is located in an	A Disaster Risk Assessment, that includes a Disaster Risk Management Plan (DRMP) may be necessary, depending on the complexity of the project and in cases where the vulnerability of a specific project component may compromise the whole operation. The DRMP should propose measures to manage or mitigate these risks to an acceptable level. The measures

area prone to droughts and the likely severity of the impacts to the project is moderate.	should consider both the risks to the project, and the potential for the project itself to exacerbate risks to people and the environment during construction and operation. The measures should include risk reduction (siting and engineering options), disaster risk preparedness and response (contingency planning, etc.), as well as financial protection (risk transfer, retention) for the project. They should also take into account the country's disaster alert and prevention system, general design standards and other related regulations.
A natural hazard is likely to occur or be exacerbated due to climate-related changes and the likely severity of the impacts to the project is moderate.	A Disaster Risk Assessment, that includes a Disaster Risk Management Plan (DRMP) may be necessary, depending on the complexity of the project and in cases where the vulnerability of a specific project component may compromise the whole operation. The DRMP should propose measures to manage or mitigate these risks to an acceptable level. The measures should consider both the risks to the project, and the potential for the project itself to exacerbate risks to people and the environment during construction and operation. The measures should include risk reduction (siting and engineering options), disaster risk preparedness and response (contingency planning, etc.), as well as financial protection (risk transfer, retention) for the project. They should also take into account the country's disaster alert and prevention system, general design standards and other related regulations. For details see the DRM policy guidelines.

DISASTER SUMMARY

Details	Actions
The Project should include the necessary measures to reduce disaster risk to acceptable levels as determined by the Bank on the basis of generally accepted standards and practices. Alternative prevention and mitigation measures that decrease vulnerability must be analyzed and included in project design and implementation as applicable. These measures should include safety and contingency planning to protect human health and economic assets. Expert opinion and adherence to international standards should be sought, where reasonably necessary.	The project triggered the Other Risks policy (B.04): climate risk.Please include sections on how climate risk will be dealt with in the ESS as well as client documents (EIA, EA, etc);Recommend addressing risks from gradual changes in climate for the project in cost/benefit and credit risk analyses as well as TORs for engineering studies.

ASSESSOR DETAILS

Name of person who completed screening:	Jacquet, Bruno (BRUNOJ@iadb.org)
Title:	
Date:	2016-02-10

COMMENTS

No Comments

ENVIRONMENTAL AND SOCIAL SAFEGUARD STRATEGY

- Project description

The Agricultural Technology Transfer Program 2 aims at increasing agricultural productivity for small farmers in selected areas of the North, Northeast, Artibonite and South departments. It will be implemented through the following components:

Component 1: Applied research and training for the development and adaptation of sustainable agricultural technologies. This component will finance the following activities: (i) financing of applied agricultural research projects developed and implemented by national and/or international institutions, in order to create, improve and/or adapt innovative, profitable, and sustainable agricultural technologies; and (ii) strengthening the higher education curriculum in agriculture/rural development and the vocational training for agricultural technicians in rural areas.

Component 2: Promotion of sustainable agricultural technologies. This component will finance the promotion by small famers of innovative, profitable and sustainable agricultural technologies that will improve long term farm profitability and environmental externalities. This component will be implemented through the agricultural incentives program conducted by the Ministry of Agriculture (MARNDR) and the technologies will be adapted to the different agro-ecological environments, local context and climate change perspectives. As example, the technologies may include:

- Small-scale irrigation equipment: pumps, micro-irrigation equipment, wells, boreholes, water-tanks, rainwater catchments, etc. ;
- Agricultural equipment: animal and motorized traction, agricultural tools for pruning, weeding, plowing, harvesting, etc.;
- Farm-level post-harvest equipment: storage, drying tools, processing tools, cane mill, grain mill, etc.
- Sustainable agricultural practices: agro-forestry systems, silvopastoral systems, sustainable soil and water management techniques (water retention, erosion control practices, fertility restoration, etc.)

The program will partially or totally subsidy farmers' access to agricultural inputs, equipment and services linked to these technologies, to be delivered by a network of local suppliers (agro-dealers, cooperatives, individuals, among others). The list of technologies, inputs, equipment and services eligible for payment will be defined by the MARNDR on the basis of existing and well known improved techniques as well as those emerging from the applied research activities. Eligibility criteria will be defined, including with regards to environmental and social safeguads.

Beneficiaries will be small farmers of selected areas of the North, Northeast, Artibonite and South departments, in synergies with other operations financed by the Bank:

- The Natural Disaster Mitigation Program (PMDN II - HA-L1097/HA-G1031) and PROGEBA (HA-L1087) in order to improve watershed protection (combination of infrastructure and sustainable farming practices) and to strengthen the curricula of the Faculty of Agronomics and Veterinary Medecine.
- The Land Administration Project (HA-L1056), in order to foster long-term investments in farmers' plots (agro-forestry system, among others)

This program is a continuation of the HA-L1059 operation (grant 2562/GR-HA, 40 million US$) which implemented a similar approach, and supported, to date, around 25,000 farmers in the North and Northeast departments for the adoption of new techniques in

rice, horticulture, coffee, cocoa and agro-forestry crop systems. HA-L1059 developed an updated operation manual, which includes and applies a Pest Management Plan (PMP), validated by ESG. The elaboration of the PMP was a condition prior to disbursement, accomplished by the Ministry of Agriculture in November 2012. The program also developed a quality standard manual for agricultural inputs, which defines the roles and responsibilities of the different parties, as well as the norms and rules for the management of pesticides and chemicals.

- Institutional and regulatory context

The national environmental regulatory framework is very weak and basically not applied. The 2006 decree on Environment Management establishes general principles related to: (i) Agricultural inputs use (article 99), (ii) Exploitation of water (aquifers, rivers, etc.), including for agriculture (articles 110 to 125), (iii) Pollution of water (articles 121 to 125), (iv) Disposal of hazardous and toxic materials (articles 143 to 147). However no norm has been defined related to any of these issues. Recently, the Minister of Agriculture expressed that Haiti will remain free of GMO seeds but there is no regulatory framework and no capacity to control seed imports.

The 2006 decree establishes in article 56 that environmental evaluation of projects and programs is mandatory; the Sectorial Environmental Technical Units (UTES) are supposed to be in place in each line ministry to conduct such evaluation processes. However this capacity and processes have not been developed yet, although the Ministry of Environment created in 2015 the National Environmental Evaluation Office (*Bureau National d'Evaluation Environnementale,* BNEE) with the support of the United Nations Development Program (UNDP). The BNEE has very few staff and no financial resources. It is not yet officially recognized as an autonomous body.

The Labor Code (1984 Decree updating the 1961 Code) will be applied. Chapter V of the Code requires that employers take all measures necessary to ensure occupational health and safety in the work place. Specific provisions are provided for waste disposal, air quality, noise and toxic substances.

- Environmental and social context

Agriculture plays a critical role in Haiti's economy and concentrates the risk of losses associated with climate hazards. This sector contributes 25% of Gross Domestic Product (GDP), 5.9% of total exports value (BRH, 2014), 47% of overall employment, 71% of employment in rural areas, and 75% of employment in low income rural households (WB/IHSI, 2012). In addition, 52% of the population lives in rural areas (WB/IHSI, 2012), with an average monthly income of US$49, 69% of this rural population are considered chronically poor, suffering from revenue instability mainly due to climate variability and its impacts on agricultural production (Herrera et al., 2014; WB/IHSI, 2012). Particularly vulnerable are female-headed households which account for 38% of rural households.

The watersheds and rural areas of Haiti, and particularly those targeted by the program, are facing the following challenges: the constrained access to factors of production (capital, land, labor and water) and risks (market, climate) faced by farmers lead to deforestation and unsustainable farming techniques. Farmers upstream are therefore exposed to superficial landslides, loss of soil fertility due to water-driven erosion, and their production is particularly affected during extended and seasonal drought periods because of the loss of water retention capacity of the soils for extended periods of time.

In the same time, farmers are however dealing with such risks and phenomenon for decades, by developing resilient crop systems based on agro-forestry and intercropping practices including wood, fruit, grain, roots and other species, which produce food and income for rural households, but also have positive environmental externalities in terms

of soil and water sustainable management. The capacity to reproduce these systems can however be hindered by the high initial investment cost needed to sow such crop system (i.e. coffee or cocoa-based agroforestry systems require between 2500 to 3500 US$ per hectare of initial investment).

Chemical inputs use is very scarce in Haitian agriculture so farmers and technical staff generally lack of information and training on their use.

- Environmental and social impacts

The operation is expected to have positive environmental and social impacts since it will reduce vulnerability of rural households whom main activity is based on agriculture. It will improve their resilience and preparedness to climate events and variability. The project is expected to improve critical ecosystem services, such as soil and water retention capacities of the watersheds, in order to prevent flooding and losses of soil fertility. It is expected to have positive impacts on rural population income, since it will contribute to improve agricultural productivity. The project will promote reforestation of watersheds, particularly through the development of agroforestry systems. No invasive species will be used.

The following table resumes the potential negative environmental impacts and their mitigation measures:

Potential impacts	Probability	Impact	Classification	Mitigation measures
Mismanagement of pesticides and other chemical inputs related to the agricultural inputs to be financed through the voucher scheme	2	2	4	Promotion of technologies with no or low use of pesticides and chemicals inputs No subsidy to farmers for the use of pesticides and chemicals inputs, these inputs will only be used by agro-suppliers for given seedlings (i.e. treatment of yam, banana and tree seedlings against pests, etc.) Training and information of stakeholders, particularly suppliers of technologies Update and implementation of the PMP and agricultural input quality standards manual.
Introduction without the required control measures of new varieties of existing species or new species	1	2	2	Formulation and implementation of a regulatory framework for seeds and inputs import and use with quality control mechanism
Over-exploitation of water resources (aquifers and rivers) due to the financing of an excessive number of wells and irrigation equipment	2	2	4	Previous environmental impact assessments, including: assessment of water resources and calculation of adequate number of wells and irrigation equipment
Production of waste and extraction of raw materials linked to civil works (building of water-tanks, drilling of wells, etc.)	2	1	2	Preparation of an ESMP for construction will be prepared prior to first disbursement and annexed to project Operation Manuals
Safety risk in construction sites	2	1	2	The ESMPs will include a Health and Safety Plan which will be a requirement for Construction Contractors undertaking works as part of the Program.

- **Environmental strategy for analysis**

The Program has been attributed a 'B' classification in accordance with the Environmental and Social Safeguards Policy (OP-703). Given this attribution, the environmental and social analysis will consist of a Strategic Environmental Assessment and the elaboration of and Environmental and Social Management Report (ESMR). The Environmental Assessment will be disclosed both in Haiti and within the Bank through the corresponding channels (especially the respective websites). The ESMR will include: the procedures for environmental and social and environmental impact evaluation and applicable mitigation measures; and a monitoring plan including environmental indicators. Priority measures in the ESMR will be incorporated in the POD with corresponding contractual conditions, where appropriate.

INDEX FOR COMPLETED AND PROPOSED SECTOR WORK

Topic	Description	Estimated Dates	References and Electronic Links
Technical options and design aspects	Plan National d'Investissement Agricole 2010-2016 (PNIA)	Completed	http://agriculture.gouv.ht/view/01/?Plan-National-d-investissement
	Programme Triennal de Relance Agricole 2013-2016	Completed	http://agriculture.gouv.ht/view/01/?Programme-Triennal-de-Relance
	Politique de Dévelppement Agricole 2010-2025	Completed	http://agriculture.gouv.ht/view/01/?-Document-d-orientation-2010-2025-70-
	Plan Directeur de Vulgarisation Agricole (2011-2016)	Completed	http://www.agriculture.gouv.ht/view/01/IMG/pdf/Plan_directeur_de_vulgarisation_agricole_en_Hait-Version_finale_Mars_2011.pdf
	Inventaire des actions de recherche appliquée en cours en Haïti dans le domaine agricole	Completed	http://www.agriculture.gouv.ht/view/01/IMG/pdf/Inventaires_projet_defi.pdf
	Strategic Program for Climate Resilience for Haiti, 2012	Completed	IDBDOCS # 39244972
	Plan d'Action National d'Adaptation au Changement Climatique	Completed	IDBDOCS# 39245012
	USAID, 2007, Environmental Vulnerability in Haiti, Findings & Recommendations	Completed	37690480
	World Bank LAC, Agricultural Risk Management in the Caribbean, Lessons and Experiences 2009-2012	Completed	IDBDOCS# 39244998
	Grant proposal Rural Supply Chain Development Program HA-L1003	Completed	819148
	Grant proposal Agricultural Technology Transfer HA-L1059	Completed	36063254
	Grant proposal Natural Disaster Mitigation Program HA-L1041	Completed	2063965
	Grant proposal Institutional Strengthening and Reform of the Agriculture Sector II HA-L1082	Completed	37779567
	Grant proposal Natural Disaster Mitigation Program HA-L1097/HA-G1031	Completed	39991906

Topic	Description	Estimated Dates	References and Electronic Links
	Appui à la mise en oeuvre de la politique de consolidation de la dimension Rercherche du systène d'innonvation en agronomie et développement rural (CIRAD)	Completed	40113778
	HA-L1107 – Identification mission (January 21st – 29th)	Completed	
	Impact evaluation report for the North East (Paris School of Economics)	March 2016	
	Rapport d'évaluation du système de subvention de la demande (IRAM)	April 2016	
	Une étude exhaustive et stratégique du secteur agricole/rural haïtien et des investissements publics requis pour son développement (CIRAD)	April 2016	
	Réalisation des études préparatoires pour (1) amender et/ou compléter le menu de technologies agricoles potentiellement finançables dans le cadre du programme d'incitations agricoles du MARNDR (PTTA) et (2) contribuer à la conception de la composante « Recherche appliquée et formation pour le développement et l'adaptation de technologies agricoles durables».	May 2016	
	HA-L1107 Orientation mission (May 2nd – 6th 2016)	May 2016	
	Impact evaluation report for St Raphael (Paris School of Economics)	June 2016	
	HA-L1107 Analysis mission (July 4th – 8th 2016)	July 2016	
Cost analysis and economic viability of the Program	Program cost-benefit analysis	August 2016	
Financial management and fiduciary issues	Annex … of the POD	August 2016	

Topic	Description	Estimated Dates	References and Electronic Links
Data collection and analysis for reporting the results	Monitoring and impact evaluation plan	August 2016	
Environmental and Social Safeguards	Environmental and Social Management Report (ESMR)	August 2016	

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[1] The information contained in this Annex is confidential and will not be disclosed. This is in accordance with the "Deliberative Information" exception referred to in paragraph 4.1 (g) of the Access to Information Policy (GN-1831-28) at the Inter-American Development Bank.