



# Board of Executive Directors

For consideration

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**To:** The Board of Executive Directors  
**From:** The Secretary  
**Subject:** Haiti. Proposal for a loan for the Ennery-Quinte agricultural intensification project

**Basic Information:** Borrower ..... Republic of Haiti  
Amount ..... Up to US\$27,105,000  
Source ..... Fund for Special Operations

**Inquiries to:** Mr. John Horton (extension 1934)

**References:** GN-1838-1(7/94), DR-398-5(5/03)

**Other distribution:** Representative in Haiti

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**HAITI**

**ENNERY-QUINTE AGRICULTURAL INTENSIFICATION PROJECT**

**(HA-L1009)**

**LOAN PROPOSAL**

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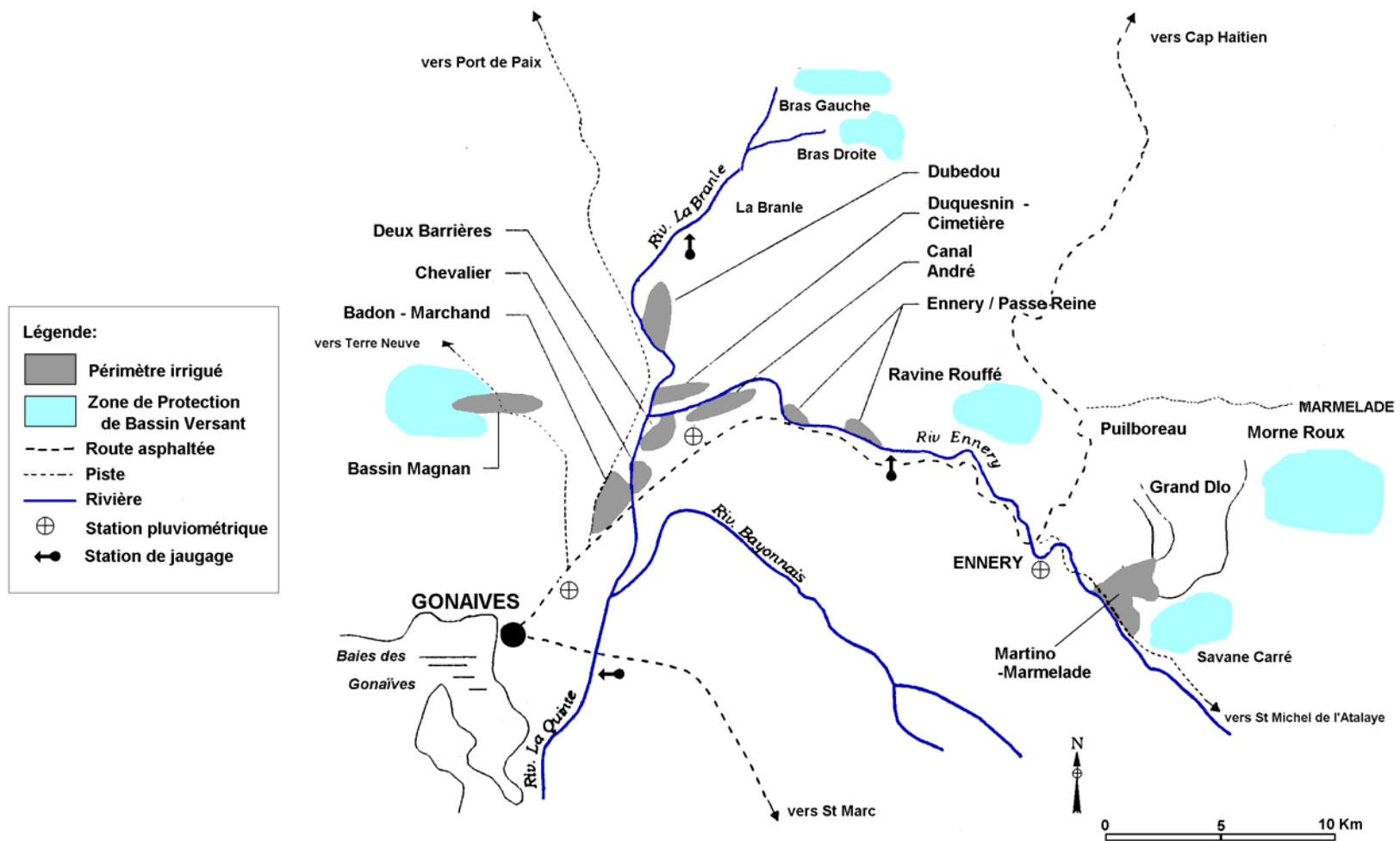
### Proposed Resolution

Electronic Links and References	
Basic Socioeconomic Data	<a href="http://www.iadb.org/RES/index.cfm?fuseaction=externallinks.countrydata">http://www.iadb.org/RES/index.cfm?fuseaction=externallinks.countrydata</a>
Status of Loans in Execution & Loans Approved	<a href="http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=550875">http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=550875</a>
Tentative Lending Program	<a href="http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=550677">http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=550677</a>
Information available in the files of RE2	<a href="http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=539581">http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=539581</a>
Annex II Procurement Table	<a href="http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=539898">http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=539898</a>

## ABBREVIATIONS

BCP	Program Coordination Office
DDAA	<i>Direction Départementale Agricole de l'Artibonite</i>
DRC	Domestic Resource Cost
ECVH	<i>Enquête sur les Conditions de Vie en Haïti</i>
ESMR	Environmental and Social Management Report
GRI	<i>Groupe de Réflexion sur l'Irrigation</i>
ICF	Interim Cooperation Framework
IHSI	<i>Institut Haïtien de Statistique et d'Informatique</i>
IQF	individually quick-frozen
MARNDR	Ministry of Agriculture, Natural Resources and Rural Development
MOE	Ministry of Environment's
ODPG	<i>Organisation pour le Développement de la Plaine de Gonaïves</i>
ODVA	<i>Organisation pour le Développement de la Vallée de l'Artibonite</i>
PIA	Agricultural Intensification Program

## MAP OF ENNERY QUINTE PROJECT AREA



## PROJECT SUMMARY

### Haiti

#### ENNERY-QUINTE AGRICULTURAL INTENSIFICATION PROJECT (HA-L1009)

Financial Terms and Conditions				
Borrower: Republic of Haiti			Amortization Period:	40 years
Executing Agency: Ministry of Agriculture, Natural Resources and Rural Development (MARNDR)			Grace Period:	10 years
			Disbursement Period:	5 years
Source	Amount US\$	%	Interest Rate:	1% first 10 years, 2% thereafter
IDB (FSO)	27,105,000	99	Supervision and Inspection Fee	1%
Local	295,000	1	Credit Fee:	0.5%
Total	27,400,000	100	Currency:	US\$
Project at a Glance				
<p><b>Project objective:</b> The general objective of the operation is to increase the income of households in the Ennery-Quinte project zone, while reducing the risk and severity of further flood and mudslide damage in the Gonaïves area. The operation will permit the beneficiaries to intensify and diversify their agricultural production in a sustainable manner in the Ennery-Quinte watershed.</p> <p><b>Special contractual clauses:</b> Besides those conditions indicated in Article 4.01 of the General Norms, the contractual conditions prior to first disbursement are: (i) establishment of the local Ennery-Quinte branch office of the BCP and selection and contracting of the specialists responsible for each of the four components; (ii) the establishment of the executive committee (<i>Comité de Pilotage</i>) by the MARNDR; and (iii) approval by the MARNDR and entry into force of the Project Operating Manual previously agreed with the Bank. In addition, as a condition of project execution, the procurement process of engineering works by the BCP shall not proceed until the field operators have been contracted (par. 3.15).</p> <p><b>Special Disbursement Before Fulfilling Conditions Prior to First Disbursement:</b> Notwithstanding the special contractual conditions prior to the first disbursement, once the Borrower has complied with the general conditions set forth in Article 4.01 (a) (b) and (e) of the General Norms, the Bank may disburse up to US\$450,000 for expenses incurred in the connection with: (i) the establishment of the BCP Branch Office, and DDAA reinforcement; and (ii) the fulfillment of the condition set forth in Article 4.01 (d) of the General Norms. (par. 3.31).</p> <p><b>Retroactive Financing:</b> The Borrower has requested that up to US\$100,000 of the resources of the financing be used to reimburse expenses incurred on or after June 15, 2005 in connection with the establishment of the local Ennery-Quinte field office of the BCP. The Bank may reimburse these expenses, provided that the Bank procurement procedures have been followed (par. 3.32).</p> <p><b>Exceptions to Bank policies:</b> None</p> <p><b>Project consistent with Country Strategy:</b> YES [ X ] No [ ]</p> <p><b>Project qualifies for:</b> SEQ [ X ] PTI [ X ] Sector [ ] Geographic [ ] Headcount [ X ]</p> <p><b>Verified by CESI on:</b> June 17, 2005. The ESMR includes an Environmental and Social Impact Assessment. (par. 4.13)</p> <p><b>Procurement:</b> The procurement of goods and works will be governed by policies set forth in GN-2349-4. The contracting of consulting services will be governed by the policies set forth in GN-2350-4. A Special Procurement Annex, forming part of the Loan Contract, will describe in detail complementary additional procedures (see paragraphs 3.11 and 3.12).</p>				

## I. FRAME OF REFERENCE

### A. The Haitian agricultural sector within the broader socioeconomic framework

- 1.1 Haiti remains a predominantly rural country with a declining productive capacity to sustain those living in the countryside. Most rural dwellers live in extreme poverty, 59% earning less than US\$1 a day according to the most recent national household survey.<sup>1</sup> Although nearly two out of three Haitians live in rural areas, and most of those consider themselves to be farmers, the majority of their income (60%) now derives from sources other than agriculture. Their survival strategies primarily depend on remittances from family members abroad or in the capital, on the sale of their labor to works projects or seasonal labor opportunities elsewhere in the country, and on petty commerce.
- 1.2 The declining capacity of agriculture to contribute to the national economy both in relative and in absolute terms is the result of a process closely linked to demographic pressures, unsustainable patterns of agricultural production, decapitalization and low levels of human resource investment. The potential for expansion into arable areas has generally been exhausted throughout Haiti. Three-quarters of rural households have access to land, but the average size of holdings is merely 1.8 hectares per household. Stagnant production technologies, and scarcity of alternative employment opportunities for the predominantly unskilled rural labor force, have left little outlet for the demographic growth other than out-migration. These pressures, exacerbated by Haiti's mountainous topography and the movement of small-holders to increasingly fragile upland soils, have set in motion a pattern of deforestation, accelerated erosion, depleted fertility, reduced water retention and widespread silting of waterways. This in turn diminishes the carrying capacity of the land and contributes to the downward economic and environmental spiral.
- 1.3 A series of disasters has aggravated this vulnerable situation over the past two decades, including political upheavals, catastrophic floods and mudslides related to land use practices, destruction of the traditional swine population and the onset of the coffee rust disease, all in addition to the embargo of the 1990s. These hardships have drained producers' meager savings, damaged the agricultural resource endowment and run down the scant infrastructure.
- 1.4 Long-term solutions to this situation must address population issues directly and must include substantially enhanced off-farm employment generation. However, for those who remain on the land, the only option is agricultural intensification and diversification in areas where increases in production and farmer income can be achieved in ways compatible with the preservation of the natural resource base. Haiti's most notable small-holder agricultural intensification success story, the mango industry, demonstrates the compatibility, the necessity, the feasibility and the potential of enhancing the resource base while increasing producer income.

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<sup>1</sup> The “*Enquête sur les Conditions de Vie en Haïti*” (ECVH) began in 2001 and published its findings in 2003 under the auspices of the *Institut Haïtien de Statistique et d'Informatique* (IHSI).



- 1.5 **Lessons Learned.** The Bank has financed a series of agricultural investment projects in Haiti since the mid-1970s, predominantly focused on irrigated plains, particularly the Artibonite Valley (473/SF-HA, 690/SF-HA, 845/SF-HA). Their most consistent flaw in approach derives from the failure to engage the beneficiary groups in setting priorities during design and execution, and failure to mobilize their commitment to participate and to maintain investments. These projects tended to concentrate on irrigation infrastructure execution and paid insufficient attention to demonstrating tangible and sustainable increases in income while achieving a sense of ownership and maintenance of infrastructure works. The most recent operation in that area, the Agricultural Intensification Program (1490/SF-HA) that began implementation in 2004, takes into consideration such lessons and has a far more participatory approach and one more squarely focused on raising household income through intensification.
- 1.6 The Bank has limited direct experience in the country with agricultural investment projects operating in the predominantly upland areas that characterize most of the Haitian territory. Reviewing the successes and failures of projects funded by the Bank and by other donors in Haiti and elsewhere that have attempted agricultural intensification in upland areas has yielded important lessons: (i) farmers must perceive relatively high financial returns to induce them to assume the additional costs and risks of intensification; (ii) intensification programs should not be limited to irrigation investments; (iii) local producer organizations must assume increasing responsibility for management of intensification efforts and infrastructure maintenance; (iv) in erosion-prone environments, upstream protection of watersheds is necessary to justify agricultural investments downstream; (v) various crops, particularly fruit trees, can offer high revenue hillside options compatible with watershed enhancement; and (vi) export-led strategies tend to bring more dynamic change to the sector than do import-substitution strategies.

**B. The country's sector strategy**

- 1.7 The country's current National Agricultural Policy prepared by the MARNDR in 2004 stresses three main thrusts: (i) bolster rural infrastructure; (ii) support development of agribusiness chains (*filières*); and (iii) consolidate the emergence of input and service providers. The proposed project is consistent with Haiti's National Agricultural Policy, taking an integrated approach to irrigation and watershed protection infrastructure investments, support to producer groups in marketing and agricultural intensification services, and consolidation of input markets (water, seeds, fertilizers) as well as soil conservation and financial services.

**C. The Bank's sector strategy in Haiti**

- 1.8 The Bank's 2005-2006 Transition Strategy for Haiti stresses the importance of revitalizing agriculture within the third pillar of the Interim Cooperation Framework (ICF), focusing on promotion of economic recovery (Paragraph 5.12). The Bank, within the framework of the 2005-2006 Transition Strategy and the ICF, is supporting the MARNDR to implement programs that will extend the intensification process initiated through the *Agricultural Intensification Program* (1490/SF) to other geographic areas and to a broader variety of agri-supply chains (*filières*). The proposed operation (HA-L1009)

advances the scope of intensification to a new geographic zone. A second operation in the Bank's 2005 pipeline, Rural Economic Support Program (HA-L1003), aims to bolster the competitiveness of an array of *filieres* nationwide. The Bank's strategy also emphasizes that areas of opportunity will be assessed both from a production and marketing perspective, as well as based on the linkages to expanded value-added employment. The operation being prepared for consideration of the MIF in 2005, "Supporting the Competitive Position of Haitian Coffee" (HA-M1004), exemplifies this approach.

- 1.9 The proposed operation thus fits within the Bank's 2005-2006 Transitional Strategy for Haiti and the ICF, as well as within the framework of agricultural intensification efforts, support to the post-hurricane Jeanne recovery, and the reduction of flood risk in the Gonaïves region. Furthermore, the project complements several other Bank financed operations in execution and preparation. The Basic Infrastructure project (HA-0093) already under execution is designed to attend to the demand for specific complementary infrastructure needs such as those expected to emerge in the course of the project, particularly related to works bearing on the protection of downstream areas. The National Program of Flood Early Warning (HA-L1005), to be presented for approval in mid-2005, will include hydrological monitoring mechanisms for major population centers at risk and is expected to include Gonaïves. In addition to enhancing the safety of the population in the watershed and the city, the hydrological information collected in that project will complement the information in the immediate project area. The Watershed Management project (HA-0033) proposed for 2006 presentation is expected to strengthen institutional arrangements at the national level thus reinforcing efforts such as those of the Ennery-Quinte watershed protection measures. Meanwhile the Institutional Strengthening for Environmental Management (HA-L1006) prepared for 2005 presentation will lay the groundwork for the Ministry of Environment to fulfill its basic normative role with regard to environmental protection and enforcement.
- 1.10 **Coordination with the international community.** The project preparation process has benefited from the active participation of the Bank's technical team in both the ICF-Agriculture thematic group and the ICF-Gonaïves thematic group. The team has collaborated closely with the FAO during the extensive field work their Investment Center undertook at the beginning of 2005 to assess damages in the project zone, updating its original 1997-1998 work in the Ennery-Quinte area. The team also benefited from CEPAL's more general post-Jeanne damage assessment. The key bilateral donors collaborating with the Bank team have been the USAID team focused on hillside stabilization and relief to Gonaïves, and the GTZ financed activities implemented by Agro-Action Allemande in the Martino-Marmelade irrigation area.

#### **D. The project strategy**

- 1.11 **Conditions in the Project Zone.** The Ennery-Quinte region refers historically to an area of 450 km<sup>2</sup> defined by three smaller watersheds, Ennery-Marmelade, La Branle and Bassin Magnan, all of which flow into the Quinte river and drain into the Plain of Gonaïves. The highest point of the watershed lies above 1000 meters near Marmelade. The most critical areas of the Ennery-Quinte watershed to stabilize constitute some

15,000 ha in all three watersheds. The upper reaches situated around 1000 meters near Marmelade receive nearly 2000 mm of rainfall annually while the area near Gonaïves receives an average of 560 mm (see Map in page iv).

- 1.12 Those areas nearest the irrigable lands exhibit very high population densities with average holdings around three quarters of a hectare per household while those higher in the watershed hold an average of 2.5 ha per household. The irrigated areas in the project zone account for roughly 2000 hectares. Levels of poverty commonly observed in rural Haiti typify the entire area with more than half of the beneficiaries living below the poverty line.
- 1.13 The Departmental branch office of the MARNDR, the “*Direction Départementale Agricole de l’Artibonite*” (DDAA), is located near the project zone north of Gonaïves. While their resources have traditionally been limited, they have demonstrated during the current administration good technical expertise and commitment to finding ways to work with the beneficiaries of the Ennery-Quinte area, particularly regarding watershed protection.
- 1.14 Market access from the Ennery-Quinte vicinity is facilitated by the fact that the national highway skirts the entire area from Gonaïves to Ennery and beyond as it climbs north over the mountains toward Cap Haitien. Additional access roads penetrate the project zone, except for the more remote parts of the watershed. The area near the town of Marmelade at the top of the watershed has emerged during the last several years as a dynamic hub of demand, processing coffee, citrus and bamboo for furniture. Furthermore a USDA-certified export packing house opened in the region during the last two years, purchasing its mangoes and ethnic horticulture products from the area and looking to source new expanded volumes. This is in addition to the dozen existing USDA-certified export packinghouses concentrated around the capital and purchasing from suppliers around the country including the northern Arbitonite/Gros Morne area. Collectively they can absorb substantially increased quantities of the products they already ship at current prices, provided quality standards are met. They face neither quantitative nor phyto-sanitary barriers for these products. Unlike export operations elsewhere around the Caribbean Basin, Haiti is the only one based almost exclusively on products from small-holder producers and rural assemblers. They form the backbone of the mango supply system that is the basis for diversified produce processing and export. One of those packing houses is putting into operation this year what will be the single largest individually quick-frozen (IQF) processing plant in Hispaniola and is already looking to expand the range and volume of product it will source from around the country.
- 1.15 A considerable limitation to the profitability of existing rural assemblers of mangoes and other fresh produce are the substantial post-harvest losses associated with poor handling, sorting and transporting techniques. Roughly 30% of mangoes transported to exporters is rejected at the factory gate. Improvements in sorting, handling and transport represent a highly cost-effective opportunity to lower costs and to improve the prospects for expanding marketing of even more perishable high-value produce. Collectively these various production, post-harvest and marketing enhancements can lay the basis for the

emergence of small-scale “truck farm” enterprises able to fulfill the expanding diversity and volume of market opportunities for fresh or semi-processed produce.

- 1.16 Expanding micro-enterprise opportunities in turn will generate greater demand for financial services. Encouraging experiences with savings mobilization schemes have emerged in the region recently, notably in Ennery and in Marmelade. In addition, Haitian commercial banks have demonstrated during the last five years a concrete interest and commitment to expanding micro-financial services in towns outside the capital.
- 1.17 **Project Conceptualization.** The project was originally conceived as part of a broader Agricultural Intensification Program (PIA) to support the MARNDR to identify and intensify agricultural development in areas of the country that demonstrate good sustainable agricultural potential. The PIA design has been guided by the principle that commercial, agronomic, environmental and user-group viability is highly interdependent in the case of intensification in Haiti. Persuading producers to intensify requires demonstrating a commercially viable financial return that more than offsets the increased exposure to risks given greater outlay of capital and labor resources. Commercial and agronomic viability in turn relies on upstream soil and water conservation of Haiti’s unforgiving topography and highly degraded watersheds. Meanwhile effective water resource and irrigation management downstream depends on the solidarity and level of organization of water-user groups convinced that their continued access to irrigation requires maintaining the system for all.
- 1.18 Thus the project design adopts a strategy to enable producers to achieve substantial gains from initial agricultural intensification, while beginning to strengthen existing water-user groups and protect the watershed. The latter entails protecting selected critical areas of the watershed with physical works while accelerating the rate of fruit tree propagation, and other vegetative cover, generating both attractive income and erosion control over the medium term.
- 1.19 The MARNDR’s original geographic priority is referred to as the “Traverse Region”, comprised of three of Haiti’s nine Departments, a broad swath extending from the Northwest and the Artibonite to the Central Plateau. After detailed analysis, the Ennery-Quinte zone was selected as one of the priority first phase areas, given favorable production conditions, a tradition of smallholder collaboration, absence of land tenure conflicts and the presence of a series of nine irrigated perimeters built in the 1940s and maintained until the mid-1980s. Producer groups continue to conduct collective work projects (“*kombit*”), though these groups are organized with varied degrees of formality in different parts of the zone.
- 1.20 The Ennery-Quinte project will engage producers initially by concentrating on their most pressing production needs. Currently producers in the area are largely unfamiliar with improved inputs and optimal application practices. They need basic guidance and access to improved inputs and services, including staple crop seeds and other production and post-harvest inputs. This approach is designed to build trust based on results in their core production, thus expanding the space to venture increasingly into higher value products beyond staple crops. Building on the core of existing high value crop production present

in the vicinity, the project will pursue two mutually reinforcing approaches to increase farmer income from crops more lucrative than their basic grain crops. The first approach depends on expanding the total area which can support multiple cropping in conjunction with irrigation rehabilitation investments, since the relative share of these "garden" crops increases during off-season production periods, namely the second and third crops. The second thrust builds on a series of measures aimed at introducing higher revenue per cultivated area. Market linkage assistance will allow producers to tap into expanded demand or to capture a premium, typically for export markets.

- 1.21 Currently the Ennery-Quinte irrigated system operates at an average of approximately 25% efficiency of water use. Analysis of the agricultural land in the original irrigated areas may be classified between those with the potential for three crops per year (Class A), two crops (Class B) and where only one irrigated crop is assured (Class C). Assuming the irrigated perimeters are rehabilitated, the totals are projected to double the efficiency, shifting 48% of the total to Class A, 20% to Class B and 12% to Class C.
- 1.22 Tree crop intensification offers the dual advantages of high revenue generation with high environmental protection even in critical upper watersheds. The existence of an estimated 10 million mango trees dispersed across Haiti offers an unusual opportunity. Roughly 10% of those trees currently produce commercial varieties of mangoes. Yet a grafting technique referred to as "top-working" or "prune-grafting" enables a field technician to prune limbs or small trunks typically 10 cm in diameter and to graft commercial variety budwood to the trees. This technique enables the conversion of trees otherwise at risk of being cut down for firewood to trees bearing significant quantities of valuable fruit in as little as 18 months. The Ennery-Quinte area has an abundance of mango trees suitable for conversion. Top-work grafting trials have already demonstrated the technical feasibility and the considerable demand on the part of local producers in the area.
- 1.23 Although demand for mangoes will likely predominate, grafting will extend to avocado and citrus, and seedling production will include these as well as upland perennial crops such as coffee and tamarind, all based on their potential as well-adapted erosion stabilizers with robust revenue streams. Furthermore the project will utilize access to these inputs as a form of leverage to engage farmers in awareness sessions (known as "*animation-sensibilisation*" sessions) on intensification, marketing and conservation.
- 1.24 To preserve its productive potential, the Ennery-Quinte area requires significant preventive and remedial measures. The traditionally favorable growing conditions in the Ennery-Quinte irrigated perimeters owe in good measure to the natural upper and lower watershed catchment system, a system that is increasingly eroded and diminishing in usable water supply. The growing areas depend critically on continued adequate water availability. Furthermore the state of erosion has exacerbated increasingly destructive run-off patterns, contributing substantially to the lethal floods of September 2004 in Gonaïves as well as in the immediate vicinity. The floods and massive mudslides in the wake of Jeanne severely damaged much of the catchment and diversion systems.

## II. THE PROJECT

### A. Objectives and description

- 2.1 **Objective.** The general objective of the proposed operation is to increase the income of households in the Ennery-Quinte project zone, while reducing the risk and severity of further flood and mudslide damage downstream in the Gonaïves area. The operation will permit the beneficiaries to intensify and diversify their agricultural production in a sustainable manner in the Ennery-Quinte watershed.
- 2.2 **Description.** The investments foreseen will seek to stabilize critical areas of the watershed, to rehabilitate a series of small-scale irrigation systems, including those damaged by Hurricane Jeanne in 2004, and to intensify agriculture development through improved marketing, production and water-user group management. The area referred to as the Ennery-Quinte lies in the foothills to the north of the Artibonite Valley some twenty kilometers northwest of Gonaïves (see par. 1.11 and Map in page iv).

### B. Structure of the Project

- 2.3 The Ennery-Quinte Agricultural Intensification Project is comprised of four components. The first concentrates on production and marketing services, the second on watershed management and flood protection, and the third on the rehabilitation of existing small-scale irrigation grids. The fourth component cuts across these three technical areas, providing resources for the significant effort to mobilize community and producer participation in all three technical components and to undertake central project implementation and monitoring functions.
- 2.4 **Component 1: Agricultural Intensification and Market Linkage (US\$4.4 million).** The support to agricultural production and marketing services will focus on improving the delivery of agricultural inputs and services, expanding high value annual crops, accelerating perennial crop production and increasing revenues through improved market linkage. This component will provide technical assistance, selected agricultural inputs and minor construction through three sub-components: (i) intensification of annual crops; (ii) intensification of perennial crops; and (iii) improved market identification and product loss-reduction (see paragraphs 3.6 to 3.9 for more details on the executing mechanism).
- 2.5 **Subcomponent 1: Improve input supply and intensify annual crop production (US\$2.6 million).** This subcomponent will finance technical assistance directly to producer beneficiaries. Operators that will be hired for technical assistance activities for this and other components will provide the assistance. The operators, in consultation with the beneficiaries, will determine the appropriate agronomic packages to be disseminated to producers of both staple and high-value annual crops concentrated primarily in lowland areas. That assistance will begin with in-field diagnosis to design improved annual crop mixes and farming practices. This in turn will allow for the design and extension of the technical packages. Finally, agronomic guidance will be provided to farmers to ensure that they adopt the packages.

- 2.6 Once the various feasible technical packages have been determined, additional technical assistance will be provided to assist producer associations, cooperatives and local service providers to establish and manage input systems on a permanent basis, whether through rotating funds or organized contracts for agriculture input purchasing, storage and delivery. The subcomponent will also finance a portion of the purchase of the initial round of improved seeds, fertilizer and crop protection inputs which will be delivered to the groups in charge of managing the input system. Additional technical assistance will then concentrate on producers during the production, post-harvest and shipment or crop storage cycle. This most intensive phase of technical assistance and setting up a local agricultural input supply system will continue to support the producer groups for second, and where feasible, third crop seasons, completing a full annual cycle. Subsequent annual cycles will concentrate on technical assistance for production, post-harvest and input supply management.
- 2.7 **Subcomponent 2: Intensify high-value perennial crop production (US\$1.3 million).** This subcomponent will finance technical assistance to be delivered by the operator, to determine the improved varieties of fruit trees, coffee plants and other perennial crops best suited to upland areas and which producers are ready to adopt. The project will then finance the propagation of commercial varieties, relying both on the financing of local nurseries to be established in producers lands and the training and management of teams of local fruit tree grafters.
- 2.8 The local nurseries will produce the full range of fruit trees, coffee seedlings and perennials most sought after by producers, using nursery grafting and other rapid multiplication techniques. The nurseries will also provide the budwood production required to supply grafting teams with additional cuttings needed to “top-work” existing trees to convert them to commercial varieties, predominantly mangoes, citrus and avocados. This subcomponent will finance training for selected local producers or young rural workers as grafting technicians. The most adept of these trainees may eventually choose to become free-lance grafters who can earn good wages converting farmers’ trees.
- 2.9 The final activity of the perennial crop intensification subcomponent will finance technical assistance to monitor tree survival rates in each outreach area in conjunction with the broader project monitoring and evaluation process (see Section H, par. 3.36). Collecting these results will help introduce adjustments that may be required in propagation and extension efforts and to support extension efforts in on-farm tree crop management.
- 2.10 **Subcomponent 3: Improve market identification and product loss-reduction (US\$0.5 million).** This subcomponent will finance technical assistance in various related areas to be provided by the operators, construction of multi-purpose post-harvest assembly centers and purchase of an initial stock of plastic crates to handle and transport fruit. The initial technical assistance will focus on tracking produce price information, identifying market opportunities through exporters and other fresh and processed produce buyers, and assisting producer groups to negotiate advantageous prices and sales conditions.

- 2.11 The subcomponent will also finance the construction of several multi-purpose assembly centers (“*centres de conditionnement polyvalents*”) close to major production areas. Based on the features of existing simple rural assembly-treatment centers, these shelters will provide a staging area to assemble, sort, prepare and pack fresh product. These centers will also provide the site for training producers and rural assemblers in basic post-harvest handling and storage techniques. In conjunction with the shift to techniques that reduce post-harvest losses and rejections by export packinghouses, the subcomponent will introduce a lug box handling system. An initial stock of plastic crates will be financed, with technical assistance to demonstrate the advantages to producers and to assist them to establish a rental system that will allow for repair, replacement and expansions in subsequent seasons. Technical assistance will also expose producers and family members to the prospects for basic processing or semi-processing techniques to add value and to extend product storage life.
- 2.12 As producers and buyers establish commercial track records over time, technical assistance will expand to assist producers to negotiate longer-term supplier-buyer relationships. The gamut of possibilities ranges from diversification into new products to more formal contract farming mechanisms, including the provision of inputs or supplier credit. While the project does not include a credit component per se, its technical assistance effort will facilitate improved access to micro-financial service providers, including those groups in the geographic area with experience in savings mobilization.
- 2.13 **Component 2: Watershed Management and Flood Protection (US\$6.0 million).** Two subcomponents provide for selected light-engineering works for physical barriers in targeted watersheds, tree, plant or grass inputs for soil stabilization and technical assistance for watershed management (see 3.25 for more details on the executing system).
- 2.14 **Subcomponent 1: Reinforce upland physical barriers to hillside run-off (US\$1.8 million).** This subcomponent will finance targeted upland flood abatement and ravine and other hillside protection works to avert the levels of destruction registered from the 2004 Jeanne storm. These diversion structures will be designed to work in tandem with the longer-range preventive watershed management measures to reduce the destructive force of run-off.
- 2.15 Light engineering measures will include physical barriers such as gabions, contour structures, dry walls, check dams, gully plugs and vegetative barriers. The topographic analysis will be complemented by an inventory and analysis of existing tree and plant cover in order to design the vegetative barriers. Measures will include targeted use of hedges, bamboo and agro-forestry species, vetiver and other grasses to impede run-off in critical areas. In addition to propagation materials from nurseries, direct seeding techniques will utilize the most cost-effective methods determined for specific sites.
- 2.16 **Subcomponent 2: Strengthen watershed management practices (US\$4.2 million).** This subcomponent will combine various methods to combat watershed degradation and begin to restore its absorptive capacity, building upon the stabilizing effect of the physical barriers and ravine rehabilitation that form the immediate line of attack of the previous subcomponent. The watershed management subcomponent will finance



technical assistance and inputs for producers in three subject areas: (i) monitoring and community outreach; (ii) soil conservation extension; and (iii) promotion of market linkage for anti-erosive agro-forestry products.

- 2.17 **Monitoring and community outreach.** The detailed baseline photo-based maps developed in the physical barrier subcomponent will also form the basis for on-going monitoring and community outreach activities. In collaboration with the local authorities and community leaders, this activity will contribute to the formation of watershed management committees, and will finance the development of integrated local watershed plans (“*documents de gestion de terroir*”), which will earmark techniques, types of vegetative cover and areas to be treated. The plan will specify exact beneficiaries and their commitments to maintain the investments. These on-going community consultations will provide the forum to address the need for long-term solutions to curbing open-range grazing, uncontrolled cutting and use of fires (*brûlis*) to prepare land. These consultations will offer the opportunity to consider the prospects for community enforced protected areas. Resources are also provided in each year to demonstrate the advantages of enclosed livestock management techniques.
- 2.18 **Soil conservation extension.** As a complement to the perennial crop intensification component, this activity will finance technical assistance to demonstrate soil conservation techniques and their advantages in conjunction with cropping, such as hedge corridor inter-cropping (*couloirs, haies vives*), leguminous tree varieties, contour planting, and multi-purpose grasses and foliage as forage for enclosed livestock. In higher upland areas, special attention will be given to the intensification of coffee and techniques for integrated pest management of scolyte (*Scolytidae*).
- 2.19 **Promotion of market linkage for anti-erosive agro-forestry products.** The watershed protection subcomponent will also finance the preparation of basic market studies and identify the business prospects for the commercial exploitation of upland anti-erosive agro-forestry crops with potential as semi-industrial products. Three of the products identified as subjects of the marketing research are neem trees, aloe vera succulents and tamarind trees. Others products may be identified in conjunction with the market link activities of Component 1.
- 2.20 **Component 3: Rehabilitation and Management of Small-Scale Irrigation Systems (US\$8.6 million).** This component will finance the repair and rehabilitation of critical portions of the approximately 2000 ha of existing small-scale irrigation systems that make up the Ennery-Quinte network built in the 1940s. This entails both physical works and the accompanying technical assistance to reinforce existing water-user groups, their management of the water resource and maintenance of irrigation networks, in order to expand the reliability and effective area of coverage of the irrigation system. No new perimeters will be constructed in the project zone, hence the ability to proceed more rapidly. The works will require technical support from engineering firms. The water management system will require hydrological and legal-institutional technical studies and technical assistance (see par. 3.27 for more details on the execution mechanisms).

- 2.21 **Subcomponent 1: Strengthen Ennery-Quinte water management framework (US\$0.6 million).** This subcomponent will concentrate on three activities: (i) establishment of hydrological measurement and analysis; (ii) completion of the institutional-legal framework for water-user group management; and (iii) advancement of dialog in the Quinte River Valley concerning water use and water resource protection.
- 2.22 **Hydrology.** This activity will put in place the hydrological measurement and information collection system for the Ennery-Quinte, focused especially on a total of three measurement points (*stations limnimétriques*) along the Ennery and La Branle rivers and 10 rainfall measurement points distributed across the entire project area. This in turn will permit the interpretation of data financed by this subcomponent in subsequent seasons and years based on available and adjusted hydrological models.
- 2.23 **Water User Legal-Institutional Framework.** This activity will finance the institutional-legal expertise required to support the MARNDR in finalizing the irrigation legal framework (*loi cadre*) to guide the formalization of water user group management and transfer of operational and maintenance responsibilities. As that legal work advances, the subcomponent will finance technical seminars with DDAA agents and water user group representatives concerning various aspects of the management of water user associations, including issues related to setting water user fees (*redevances*).
- 2.24 **Quinte River Valley Watershed Dialog.** The objective of this third activity is to lay the groundwork for watershed management mechanisms for the Ennery-Quinte, focused on the downstream areas where the greatest population is concentrated, including key actors from the Gonaives area. It will finance technical assistance in the organization and professional facilitation of dialog between the key interested parties of the lowest reaches of the watershed centered around the Quinte River Valley. This river segment corresponds to the last two irrigated areas (Deux Barrières and Chevalier) and the adjacent communities downstream. The dialog will focus on agricultural vs. non-agricultural water use in the vicinity. The process will include community outreach, formation of preliminary local committees and coordination and facilitation of dialog sessions informed by the most current hydrological analysis and other information on watershed management.
- 2.25 **Subcomponent 2: Rehabilitate selected small-scale irrigated perimeters and management systems (US\$7.4 million).** This subcomponent will concentrate on four major activities: (i) mobilization of producers; (ii) technical support to producer groups; (iii) rehabilitation works; and (iv) protection of irrigation infrastructure.
- 2.26 **Producer mobilization.** This activity will finance mobilization specialists (“*enquêteurs-animateurs*”) that shall confirm producer commitment to engage in the rehabilitation process in each of the six selected irrigated perimeters. This activity will include an initial inventory-evaluation and the continued monitoring and reinforcement of producer participation throughout the rehabilitation process.
- 2.27 **Technical support to water-users.** This activity will finance engineering design and supervision specialists as well as financial expertise to work with user groups in the

detailed design of rehabilitation works, including topographic, geo-technical, hydrological, hydraulic and civil engineering aspects. This includes technical and financial verification that the various interventions in different segments of the irrigated perimeters will link together and function as a sustainable network. This activity will develop the detailed guidance for subsequent operation of the system by water-user groups.

- 2.28 **Rehabilitation works.** This activity will finance implementation of the physical works and supervising engineering. The works include repair or replacement of diversion structures (“*ouvrages de prise*”) and levees, resurfacing of primary and in some case secondary and tertiary canals, repair of segments of rural roads as needed. This activity will also finance small-works rehabilitation, such as repair of tertiary diversion structures.
- 2.29 **Protection of works.** In addition to hillside stabilization in upland areas financed by the watershed protection component, this final activity will provide the resources for targeted ravine of other land rehabilitation with direct impact on the irrigated perimeters. These resources are calculated as a fixed portion (10%) of the rehabilitation works to protect the irrigated areas from landslides, flooding and silting.
- 2.30 **Component 4: Community Mobilization and Implementation Coordination (US\$4.2 million).** This component will provide the technical assistance to mobilize community and producer participation in the implementation of all three technical components, as well as the monitoring and evaluation process and equipment to enable the DDAA to fulfill its coordination function.
- 2.31 **Subcomponent 1: Baseline monitoring and evaluation (US\$0.9 million).** This subcomponent will fund the on-going monitoring and evaluation process, based on analysis and systematization of the existing base line information and subsequent reporting and surveys. It will finance the periodic workshops with producers and the broader Ennery-Quinte community as part of a process of participatory evaluations (“*auto-évaluations*”). This activity is complementary to the overall project baseline and evaluation and will be undertaken by the operators.
- 2.32 **Subcomponent 2: Field operator implementation (US\$2.9 million).** This subcomponent provides the resources for the operators charged with the coordination of field implementation, working on a day-to-day basis with the beneficiaries of the three technical components. Resources of this subcomponent will also finance the specialized expertise required to support the operators during implementation (see par. 3.8).
- 2.33 **Subcomponent 3: Support to community participation and DDAA coordination (US\$0.4 million).** The final subcomponent funds activities in support of dialog and mobilization with community organizations. It also funds various office and field equipment for DDAA in support of its field coordination role (an all-terrain vehicle, several motorcycles, computers, and didactic material and office equipment).

## C. Cost and financing

2.34 The following table presents the distribution of estimated investment and financial costs to implement this agricultural intensification project.

**Table II-1. Costs (in US\$ thousand)**

CATEGORY OR COMPONENT	BID/FSO	LOCAL COUNTER- PART	TOTAL	SHARE
<b>COMPONENTS</b>				
I. Agricultural Intensification and Market Linkage	4,355	0	4,355	15.89%
II. Watershed Management and Flood Protection	6,002	0	6,002	21.90%
III. Rehabilitation of Small-Scale Irrigation Systems	8,559	0	8,559	31.24%
IV. Community Mobilization and Implementation Coordination	4,163	0	4,163	15.19%
<b>Components Subtotal</b>	<b>23,079</b>	<b>0</b>	<b>23,079</b>	<b>84.23%</b>
<b>V. Administration and supervision</b>	<b>2,328</b>	<b>0</b>	<b>2,329</b>	<b>8.50%</b>
<b>VI. Audits</b>	<b>275</b>	<b>0</b>	<b>275</b>	<b>1.00%</b>
<b>VII. Evaluations</b>	<b>369</b>	<b>0</b>	<b>369</b>	<b>1.34%</b>
<b>VIII. Financial Costs</b>	<b>1,055</b>	<b>295</b>	<b>1,350</b>	<b>4.93%</b>
Commitment Fee	0	295	295	1.08%
Inspection and Supervision Fee	274	0	274	1.00%
Interest	781	0	781	2.85%
<b>Total Costs</b>	<b>27,105</b>	<b>295</b>	<b>27,400</b>	<b>100.00%</b>

### III. PROJECT EXECUTION

#### A. The borrower and executing agency

- 3.1 The Borrower will be the Republic of Haiti. The Republic of Haiti will implement the Project and perform its obligations under the loan agreement through the MARNDR.

#### B. Project management and coordination mechanisms

- 3.2 The same Program Coordination Office (BCP) currently implementing the Agricultural Intensification Program (1490/SF-HA) will serve as the project executing unit. The BCP works under the authority of the MARNDR Minister and will report to a *Comité de Pilotage* to be designated to orient and verify project execution activities, including the validation of work plans and amendment to the Operating Manual. **That Comité will be composed of public and private representatives as indicated in the Operating Manual and shall be formally designated by the MARNDR prior to first disbursement.** The BCP central project administration and procurement functions will remain in its Port-au-Prince Office in MARNDR. It will open a new field office on the outskirts of Gonaïves, near the Ennery-Quinte project site in order to carry out the project. (See BCP Organizational Chart in the Technical Annex.)
- 3.3 The resources provided for administration and supervision will finance both the incremental costs for central administration functions in the main BCP office as well as the full costs of operating the new field office. As indicated in the organizational chart, the Ennery-Quinte field office will be organized following the structure of the three technical components of the project. A professional will staff each of those three areas: the agricultural intensification unit requires an agricultural economist; a natural resource specialist will manage the watershed protection and flood abatement activities; and a rural civil engineer will manage the implementation of works. A fourth professional, a rural sociologist, will address the cross-cutting issue of beneficiary mobilization. The establishment of the BCP field office and the selection and hiring of the above mentioned staff will be a condition prior to first disbursement. The field office will also have administrative support staff that will include a computer system's technician, several secretaries and driver-messengers. The additional staff needed in the central BCP office include an accountant, a procurement ("*passation de marché*") specialist, an accounting secretary and an additional driver-messenger.
- 3.4 The regional office of the MARNDR responsible for the Artibonite Department, the DDAA, will serve as the principal coordinating body between the MARNDR and the Ennery-Quinte BCP field office. The capacity of the DDAA to fulfill its role in field implementation will be reinforced with the equipment financed for that purpose in as described in Implementation Coordination Component, Subcomponent 3.
- 3.5 A draft of the Operating Regulations (*Manuel d'Opérations*) (see Technical Annex IX) has been prepared by the Bank and the BCP for the Ennery-Quinte PIA administration to suit the specific needs of the Ennery-Quinte project. **As a condition prior to first**

**disbursement the MARNDR shall approve the Operating Regulations agreed upon with the Bank and such Operating Regulations shall enter into force.**

- 3.6 The direct field coordination of all activities foreseen in the technical components will be executed by private Operators (*Opérateurs*) to be selected by the BCP. Two Operators are foreseen, one centered in the upland areas (in the Passe-Reine and Martino-Marmelade vicinity) and one centered in the downstream areas. These Operators should have demonstrated knowledge of the Ennery-Quinte area and a proven implementation track record. These Operators will coordinate their efforts with the MARNDR and directly with relevant technical services of the DDAA.
- 3.7 **Operator responsibilities.** The Operators' central responsibility will center on the mobilization and full participation of the local beneficiaries in all aspects of the project. The Operators will coordinate all activities foreseen in the technical components, including agricultural intensification, watershed protection and flood abatement and rehabilitation and management and will be charged with the direct implementation of activities within their technical capabilities, supported by short term experts and several specialized firms. This will entail a series of key tasks including the following: (i) mobilization (« *animation-sensibilisation*») of producer groups and water-user committees; (ii) the implementation of agricultural intensification activities from the determination of feasible agronomic technical packages of annual and perennial crops to the post-harvest handling and commercial market-linkage activities; (iii) the implementation of watershed management activities; (iv) implementation of water-user and simple works rehabilitation in collaboration with specialized firms acting as supervising engineers throughout civil engineering firms in the care of more complex works; (v) in-field coordination of all technical service, input and works providers contracted by the BCP; (vi) implementation of all environmental and social impact monitoring; (vii) oversight of the collection of hydrological measurement throughout the project zone; and (viii) the organization of all monitoring and participatory evaluation exercises with user groups and water-user committees, in coordination with the DDAA and the BCP.
- 3.8 **Support from short-term subject matter specialists and specialized firms.** To undertake many specific implementation tasks, the Operators will need to draw upon specialized technical expertise beyond the scope of the Operators' core competence. In order to have access to that expertise, without being able to determine in advance the volume of work that will be required each year, the Operators will pre-identify candidates for short-term tasks corresponding to the five subject matter areas defined during project preparation. The Operators will then program and hire the national and international expertise as needed according to terms of reference drawn up as specific tasks arise. The five areas of short-term subject matter expertise identified are as follows: (i) water user-group management & organization; (ii) fruit tree and perennial crop expertise; (iii) agricultural marketing and semi-industrial processing; (iv) methodological expertise in support of producer group; and (v) engineering studies, hydrology, topography, cartography, monitoring and supervision. (See Annex IV, Institutional Framework and Implementation, color-coded chart matching each of five areas to the corresponding task areas.)

- 3.9 In addition to those tasks for which the Operators will require reinforcement from short-term experts, several task areas will require expertise from specialized firms to be hired by the BCP. Specialized firms are required in the area of supervisory engineering of civil works, principally in the design of irrigation structures as part of the rehabilitation process (Component 3), but also with regard to some of the physical barriers in the watershed protection investments (Component 2). Specialized civil engineering firms are foreseen for the construction of more complex irrigation works, in cooperation with the Operators coordinating the rehabilitation process. The principal specialized firms to be contracted by the MARNDR in the intensification and market linkage activities (Component 1), are expected to be local firms to support the operators in the establishment of nurseries and rapid propagation techniques for planting material. Supervising engineers will also be required in the oversight of the design and construction of the multi-purpose rural assembly centers.
- 3.10 **BCP-Operator procurement coordination.** The MARNDR will procure major goods required by the Operators as technical inputs for implementation. This includes the purchase-improved seeds and other agricultural inputs, the plastic lug-cases needed as part of the post-harvest handling activities, as well as hydrological measuring devices. In the case of BCP procurement of both goods and contracting of specialized firms, the BCP will coordinate closely with the Operators in all aspects of the project based on annual work plans, revising formally as necessary and providing detailed updates in its day-to-day communication with the BCP office (see par. 3.19).

### **C. Procurement of goods and services**

- 3.11 The Procurement of goods and works and the selection and contracting of consultants under this Loan will be governed by Bank's Policies for the Procurement of Goods and Works and for the Selection and Contracting of Consultants, as respectively set forth in Documents GN-2349-4 and GN-2350-4. Additional procedures will be applied in order to remedy some of the insufficiencies of the Decree regulating public procurement in Haiti. These procedures will be described in detail in a special procurement Annex prepared by the Bank. This Annex will form part of the Loan Contract.
- 3.12 The procurement plan has been prepared in collaboration with the BCP and it will be finalized and agreed with the Bank prior to loan negotiation. This Plan will cover the first 18 months of project execution and will be updated as needed, at least once a year, in accordance with the relevant provisions of the Bank's Procurement Policies (Annex II). For consulting services estimated to cost less than the equivalent of US\$100,000, the short list may be comprised entirely of national consultants.

### **D. Execution**

- 3.13 The BCP will request expressions of interest to identify the firms or consortia that will be invited to bid on the contracts to be awarded as Operators, by advertising in the *UN Development Business online (UNDB online)*. The detailed estimated budget, calendar and description of tasks presented in the Institutional Framework and Implementation document (Technical Annex IV) provide the basis for the BCP to draw up terms of

reference for the operators. The terms of reference shall contain explicit criteria regarding the Operators' remuneration scheme designed to ensure that the necessary technical expertise is hired.

- 3.14 The technical design has anticipated that one Operator will be selected for the upland region and another Operator for the downstream areas, given the distinct sets of skills and experience required. However, at the time of final selection and contract award, the BCP will have the flexibility to propose that one group undertake both, or that as many as three different Operators can be selected. A primary consideration in the determination as to the optimal solution will be the likelihood that the local groups will remain active indefinitely as service-providers in the Ennery-Quinte area. In any case, the Operator(s) selected will maintain at least one work base in the upland area and a separate work base in lowland areas. As part of the presentation of technical proposals, prospective Operators will identify the individual short-term specialists they propose to hire. Consultants not included there may be hired with the Bank's prior non-objection.
- 3.15 The BCP will proceed with the set-up of its Ennery-Quinte field office, hiring of personnel and procurement of the office equipment, vehicle and motorcycles to reinforce the capacity of the DDAA office immediately after loan approval. The Operator shall be selected before the procurement of any civil works may commence. However, the procurement of works desing may be undertaken simultaneously with the process to hire the operators, but the contract will not be executed until the operators are hired and their staff deployed.
- 3.16 As project start-up begins, the BCP will organize two workshops once it has key personnel in place. The first start-up workshop will be held in the MARNDR and will involve representatives of various central technical offices relevant to the scope of the project. It should also include representatives from private and public organizations currently or potentially active in the Ennery-Quinte area. A second workshop will then be held at the local level in collaboration with the DDAA, to include some of the same participants from the area plus a cross-section of local groups, both potential beneficiaries and potential service-providers.
- 3.17 Once the Operators have been contracted they will establish their local base near the project area, whether in their own offices in the case of local service-providers that are nearby or through arrangement with other existing or refurbished installations. In either case the proposed location will be confirmed at the time of contract negotiation with the BCP and any changes in location will be subject to BCP approval. The location should, in the judgment of the BCP, be acceptably accessible to the project zone as well as to the DDAA office.
- 3.18 The Operators will initiate their community mobilization work, calling upon short-term specialists in producer-group management and organization as needed. The initial tasks all constitute different forms of awareness sessions (« *animation-sensibilisation* ».) With regard to agricultural intensification, the first task will be to undertake the diagnostic work and determination of an appropriate technical packages for annual crops, as well as the determination of producer preferences for perennial crops suited to upland areas. The



very earliest market-linkage activities amount to making producers aware of products that are in demand and the product requirements to meet market requirements for those products to be sold. With regard to watershed protection and flood abatement, the detailed inventory and prioritization of intervention points will be elaborated with beneficiary participation, taking advantage to raise awareness of how improvements are linked to increased income potential. Similarly, the initial efforts to implant hydrological data collection and the irrigated perimeter survey work led by mobilization specialists (« *enquêteurs-animateurs* ») will provide the first opportunities to engage the beneficiary groups in long-term commitments and the on-going participatory monitoring process.

- 3.19 The Operators will establish the schedule of subsequent activities detailed within each component and subcomponent according to the opportunities to advance determined through the initial mobilization efforts. This schedule will be formalized with the BCP as part of an annual work plan to be prepared and presented to the Bank for approval within the first 60 days of each year. This work plan will prioritize beneficiary groups in zones deemed receptive to advance, utilizing the earlier innovators as examples for other zones. Given the inter-zone lags that may occur, those activities of relevance to the whole zone and that require a certain lead-time will begin following the initial mobilization. Notably the start-up of community nurseries and the set-up of agricultural input rotating funds fall in this category.
- 3.20 **Special aspects of Agricultural Intensification and Market Linkage Execution.** Small nurseries will be established where the technical assistance teams find both strategic locations for intensification and a situation in which the local population is committed to practices compatible with acceptable seedling survival rates, namely management of livestock grazing and the use of fires (“*brûlis*”) to clear land. The precise determination of appropriate fruit tree and perennial varieties will be supported by short-term specialists pre-identified by the Operator dedicated to the topic. This same expertise, largely available elsewhere in Haiti, will assist in the training of local grafting technicians with the anticipation that these private technicians will continue to find remunerative work in the region and other regions. While not charging directly for seedlings or budwood during the initial round of grafting in any particular area, access to these inputs will be linked to the technical assistance activities, demonstrating the advantages of techniques to increase income and protect soil.
- 3.21 The steps entailed in the establishment of the rotating funds for inputs begin with the determination of the input options according to the approximate quantities and types needed. The Operator will determine this based on the appropriate agronomic package established following the diagnosis with producers. Next the Operator will identify associations or cooperatives in the zone that can serve as partners in the storage and logistics of input management, reinforced by training in input supply management provided either directly by the Operator or supported by a short-term subject matter specialist, as necessary. The Operator will then work with individual producers to estimate and place their orders for inputs for more precise quantities and types required, and to consolidate the global order for the entire season. The BCP will then request bids for the supply and delivery of the inputs spread out over the season, as determined at the time of the order.

- 3.22 The project will fund the purchase of the initial round of inputs. The funds will be replenished from the sale of those inputs, although in the case of seeds there will be a recurrent cost on a diminishing scale in subsequent years. Seeds will be sold initially at the current price of grain or field collected seed, which is the current source of seeds for most producers in the zone. Field seed is roughly half the cost of improved seeds. As producers gain experience and trust in the reliability of increased revenue margins with improved input supply, they will be phased into full-cost pricing at prevailing market rates. This declining level of seed subsidy has been incorporated in the budget for subsequent seasons based on the experience of previous successful cooperative input supply systems in Haiti. The seed subsidy drops from half, to a third, to a quarter over four years. All other agricultural inputs (fertilizer, bio-cides, tools) will be sold at the prevailing market price.
- 3.23 While the project design does not include a credit component, the Operators will work with the producer groups to gain access to financial service providers with experience in the geographic area. As part of the development of an input supply system, the Operators will also work with producers to gain experience with commercial input-supplier credit. Furthermore, as part of the market linkage activities, they will also work with producer groups to develop longer term relationship with produce buyers willing to provide buyer credit, whether as part of eventual contract farmer schemes or simply as short-term seasonal credit advances.
- 3.24 Local contractors hired by the BCP will undertake the design and supervision of the construction of the multi-purpose assembly centers (« *centres de conditionnement polyvalent* »), following the examples that already exist in the Artibonite region. The actual construction will be done by local tradesmen (“*tâcherons*”) hired by the Operator. The producer or cooperative groups that will operate the center will be required to commit to the operation and basic maintenance as a prerequisite to its construction. The sites will be selected by the operators and producers in strategic locations near transport and existing assembly areas in collaboration with the group that will operate the centers permanently. It is anticipated that the facilities will be located on private land, including sites already used for assembly. Prior to the commencement of any procurement process for the construction of the nurseries and the assembly centers, the Bank shall have received satisfactory evidence of the agreement of the landowner to have the center constructed in the property for the benefit of the cooperative group.
- 3.25 **Special aspects of Watershed Management and Flood Protection Execution.** The Operator responsible for execution of these activities will work with a specialized firm hired by the BCP qualified in topographic surveys, soil stabilization and light engineering of hillside retainer structures and vegetative barriers. The firm will complete the detailed topographic analysis and design of specific physical barriers, such as gabions, gully plugs, ravine retainers and vegetative barriers, after completion of the mobilization exercise already described, and the operator will implement the construction, utilizing local laborers, hired at the prevailing wage rates. Nonetheless, due to the need to mobilize the communities, the design and execution may be undertaken by the same firm (including the operator). Ravine and hillside protection activities requiring vegetative protection, such as agro-forestry species, bamboo, vetiver and other grasses, will be

coordinated with the project nurseries to the extent possible, and coordination with other nearby projects applying agro-forestry techniques. The precise location of the physical works within the selected priority intervention zones will be determined through detailed cartographic and topographic analysis using aerial photos to be purchased with project resources. These baseline photos will be utilized periodically to monitor progress during subsequent reviews. Construction of these barriers and protective landscaping will be undertaken by the operator that shall hire semi-skilled and manual labor and that shall work under the technical guidance of the specialized firm.

- 3.26 Market studies to determine anti-erosive agro-forestry options for upland areas will be completed by short-term experts on that specific topic. The results of the analysis of the market research will then be fed into the work of the market-link team that will be primarily focused on annual crops initially.
- 3.27 **Special aspects of Irrigated Scale Perimeter Rehabilitation and Management Execution.** The mobilization specialists (“*enquêteurs-animateurs*”) will complete their initial work with the producer and water-user groups in each of the six selected irrigated perimeters to confirm their willingness to engage in the rehabilitation process. Based on the degree of readiness, the Operator will devise a schedule of works to be reviewed quarterly with the BCP and reflected in the annual plan and its updates. The Operator(s) charged with coordinating the rehabilitation of irrigated systems will require support from short-term experts that will provide technical support in two of the five areas of expertise already presented: (i) engineering studies, hydrology, hydraulics, topography, mapping, monitoring and supervision, and (ii) methodological expertise in support of water-user groups, organization and management. The supervision of the works will be the responsibility of specialized supervisor and engineering firms to be contracted by the BCP. In the case of more complex works, separate civil engineering firms will be hired by the BCP to complete the construction.
- 3.28 The technical assistance required in the area of legal-institutional changes to enable the eventual MARNDR transfer of operation and maintenance authority to water user associations will be developed in collaboration with the MARNDR task force working on irrigation issues, the *Groupe de Réflexion sur l'Irrigation* (GRI). Similarly, the technical assistance provided by hydrologists and communications specialists as part of the dialog on watershed protection of the interested parties in the Quinte River valley basin will be conducted in collaboration with the Ministry of Environment particularly related to groundwater pumping operations in the Gonaives area. The DDAA will be a key player in this process. The specialists will take advantage of the water-use impact studies completed in 1999, financed by the Bank utilizing inter-sectoral water data available in the Ministry of Environment.

#### **E. Disbursement schedule**

- 3.29 Project implementation will extend over a five-year period. The estimated schedule of disbursements is as follows: year 1: 10%; year 2: 20%; year 3: 30%; year 4: 25%; and year 5: 15%.

## **F. Accountability and transfer of funds**

- 3.30 The MARNDR, in collaboration with the Ministry of Economy and Finance will open two separate accounts with the Central Bank (one in US\$ and one in Gourdes) to receive and manage the resources of the IDB financing. To ensure that the Borrower has timely access to funds for Project Execution, it is recommended that a revolving fund of up to 5% of the total loan amount be advanced to the BCP for eligible expenses to be paid by it. The BCP, will be responsible for maintaining complete financial information for this set of accounts and support documentation for all expenses in conformity with the standard accounting procedures of the Bank.
- 3.31 **Special Disbursement Before Fulfilling Conditions Prior to First Disbursement.** Notwithstanding the special contractual conditions prior to the first disbursement, once the Borrower has complied with the general conditions set forth in Article 4.01 (a), (b), and (e) of the General Norms, the Bank may disburse up to US\$450,000 for expenses to be incurred in connection with: (i) the establishment of the BCP field office, office equipment, vehicles, and motorcycles for the DDAA, and (ii) the fulfillment of the condition set forth in Article 4.01 (d) of the General Norms.
- 3.32 **Retroactive Financing.** The Borrower has requested that up to US\$100,000 of the resources of the financing be used to reimburse expenses incurred on or after June 15, 2005 in connection with the establishment of the local Ennery-Quinte branch office of the BCP. The Bank may reimburse these expenses, provided that the Bank procurement procedures have been followed.

## **G. Auditing**

- 3.33 Financial statements, audited by a firm of independent public accountants acceptable to the Bank, will be presented during the program execution period. Each year, the audit firm will prepare two reports, which shall be submitted by the Borrower to the Bank as follows: the first, a semi-annual financial and operational audit report, within 60 days of the end of the first semester of each calendar year, and the second, an annual financial and operational audit report, within 120 days of the end of each calendar year. A final audited financial report will be submitted within 120 days after the date of the last disbursement for the project. The cost of the external audits has been included in the cost of the program and will be financed with Bank resources. Audit works will be performed under the terms of reference previously approved by the Bank (Document AF-400).

## **H. Monitoring and evaluation**

- 3.34 The project will utilize a full complement of monitoring and evaluation measures building upon the existing baseline established during project preparation. The system is designed to capture the project's progress toward improvements in five fundamental areas: household income; tree-cover and reduction of soil erosion; water retention and availability; hillside stabilization; and expansion of the effective irrigable acreage and the efficiency of water use managed by producer groups. In addition to those to gauge socio-economic impact at the household level, various techniques will be used to measure the

impact on watershed improvements. Key among the latter are those presented at length in the Environment and Social Management Report (ESMR) and incorporated in the Operating Regulations. These include: (i) continuous hydrological monitoring; (ii) establishment of a watershed model; (iii) establishment of a water and soil quality baseline by the end of the first year; and (iv) completion of a study on tree and other crops that may play an important role in the stabilization of slopes and the control of soil erosion while at the same time affording sufficient commercial opportunity to offer a viable alternative to deforestation.

- 3.35 The renewed collection of hydrological data across the Ennery-Quinte project zone will permit utilization of the water use impact model developed by the Bank for the Ennery-Quinte-Gonaives area in 1998. Given the data gaps in various years of the existing hydrological baseline due to the sporadic nature of surface water data collection, interpolation and physical inspection will complement the monitoring process in order to conduct the best approximations of water balances under the circumstances. Eventually, data series will enable them to calculate rainfall/run-off or rainfall/water flow calculations (*"courbes de tarage"*) important both to irrigation hydraulic engineering and relevant regarding flood predictions.
- 3.36 The BCP monitoring system designed for the PIA-Artibonite (1490/SF-HA) will be adapted during the first year of implementation to incorporate elements of the Ennery-Quinte baseline within that broader framework, thus enabling comparative analysis and exchange of lessons learned. Although some elements are area-specific, the methodology developed will facilitate the development of the Ennery-Quinte monitoring and evaluation function. Meanwhile, mechanisms such as the recently awarded contract under 1490/SF-HA to monitor and evaluate intensification of high-value products can serve both projects with minor adaptations.
- 3.37 The participatory evaluations (*"auto-évaluations"*) financed under the Baseline monitoring and evaluation subcomponent of Component 4 will feature annual review workshops in the first quarter of each year. The Bank will participate in the annual workshops as part of annual Administration Missions recommended for during the life of project. These workshops will provide structured periodic opportunities not only for review of activities in Ennery-Quinte, but also an opportunity for more systematic exchanges between the two PIA projects. As detailed in the ESMP, pro-active measures will be taken to assure broad participation of the beneficiary population with particular regard to the full participation of women.
- 3.38 Given the similarity in scope with the Agricultural Intensification Program (1490/SF-HA) centered in the Artibonite Valley, the mid-term evaluation as well as the final evaluation processes in support of the preparation of the Project Completion Report (PCR), will be coordinated and baseline information shared. This may well provide some cost savings, although the impetus is primarily to exploit synergies between the projects and facilitate the articulation of lessons learned and establishment of best practices. The mid-term review should be undertaken 24 months after the Loan Contract goes into effect or 60% of the resources are disbursed, whichever occurs first. The final evaluation should be completed once the 95% of resources are disbursed.

- 3.39 The BCP shall prepare progress reports for the Bank to be submitted no more than 60 days after the completion of each calendar semester. A standardized basic format acceptable to the Bank should be developed based directly on the basic indicators included in the logical framework that will form part of the Operating Manual.

## **IV. VIABILITY AND RISKS**

### **A. Institutional viability**

- 4.1 At the community or enterprise level, the success of water user groups lies at the heart of the institutional viability of the project regarding lowland intensification and water resource management. These groups already exist and have functioned, effectively in a formal structure until 1986 and then as informal structures since then. Experience from those areas where water-user groups have proven successful in Haiti has demonstrated that community involvement methodologies can create necessary sense of ownership and collective interest in operating and maintaining perimeters. The rural sociological analysis undertaken within the Ennery-Quinte system indicates that levels of social cohesion are favorable, hence the selection of the zone originally from that perspective. Furthermore the methodology involves the user-groups from the earliest planning stages, throughout implementation, monitoring and evaluation.
- 4.2 The institutional viability and management capacity of Executing Unit, the BCP, has been amply demonstrated to date. The institutional analysis of additional needs has centered on those incremental resources required to assure that the unit continues to function smoothly with two field offices instead of one. Furthermore, a non-reimbursable technical cooperation being processed for the preparation of rural economy projects in Haiti (HA-T1026) includes resources to assist in the establishment of the new Ennery-Quinte unit and the start-up of project implementation.
- 4.3 The institutional sustainability of the efforts to intensify agriculture and manage natural resources after the project, will depend on the success of the efforts to establish local capacity, at the user and the service-provider level. For that reason, the design insists on an initial demonstrated local capacity as qualification for the selection of prospective Operators and a methodology that stresses local producer group autonomy and community involvement.
- 4.4 Similarly, at the level of the local agricultural and natural resource sector authorities, the design incorporates involvement of the DDAA from the early stages, building on involvement of DDAA staff in the preparation of the project. The resources provided to support that involvement will permit them to participate fully throughout the project.

### **B. Financial viability**

- 4.5 Intensified production will indeed require farmers to mobilize some additional credit or savings. Financial modeling of farm budgets reveals however that the high returns to farmers generated by the PIA package, particularly starting from the current dismal productivity baseline, means that they will only have to come up with additional resources equivalent to less than 6% of the revenue stream. Thus despite the dearth of decentralized financial institutions, between informal sector resources, as well as the prospects for supplier or buyer credit, the Project has financial viability at the farmer level.

### **C. Socioeconomic viability**

- 4.6 The macro-economic and sector policies in place today in Haiti create an environment relatively free of policy distortions that discourage agricultural growth. The fundamental problem countrywide is rather the lack of attractive income-earning potential for the majority of the population living in rural areas. Significant portions of rural dwellers therefore rely on agriculture in areas and in ways that actually deplete the natural resource base and offer them little outlet from declining income. Meanwhile those farming in areas that do possess potential earn relatively little revenue for lack of investment in agricultural, natural resource and human capital. Moreover the lack of remunerative jobs off-farm and in secondary cities deprives those areas with real production potential of a broader domestic market with ample purchasing power.
- 4.7 The Domestic Resource Cost (DRC) analysis of current production of staple food crops using very low-productivity techniques revealed negative economic profitability (DRC of more than 1) for most of these crops (maize, sorghum and beans). The protection analysis found that producers of staple food crops benefit from protection due to border taxes ranging from 15% to 29%, which permits them to produce these crops in competition with imports. This suggests that the current policy environment skews incentives to farmers in favor of staple crops at the expense of potentially more profitable but unprotected crops. However, the same analysis also shows that utilizing improved seeds, commercial inputs and cultivation practices will allow these crops to become competitive (DRC well below 1) at existing price levels.
- 4.8 The economic and financial analysis performed on detailed budgets of the current and projected situation with the three land categories (A, B and C) in the Ennery-Quinte area offer the most convincing analysis of the proposition that agriculture can be quite profitable in selected areas of the country. (See Technical Annex V, Economic Analysis.) The economic analysis for the field crop sub-component generates a 12% internal rate of return (IRR) and the tree crop investments produce an impressive 31% IRR. This low return is due to the relative large investment costs in the plain (irrigated area) with respect to the aggregate net benefits obtained from the farmers. This is due to the fact that some of the downstream benefits are not captured by the economic analysis (e.g. benefits such as reduced soil erosion, increased water availability and quality, and disaster risk reduction) making the economic rate of return on field crops to be under estimated. The financial return to the farmer is still higher in each case. Taking the entire project into consideration, the global IRR for the Project is a satisfactory 24%. All of these calculations utilized conservative price assumptions, and yield rates already achieved in Haiti under on-farm conditions.
- 4.9 Various sensitivity analyses demonstrate furthermore that the Ennery-Quinte PIA has a robust prospect for success. When subjected to any of the following scenarios the global IRR remains steadily above 22%: (i) 10% crop yield reduction; (ii) 10% project investment cost increase; (iii) 10% increase in any factor cost (land, labor or capital); or (iv) 10% reduction in the area rehabilitated. Even a one-year delay in benefit streams or a 10% price reduction across the board only lowers the IRR into the 20% to 23% range. A two-year delay in generating benefits would lower the IRR to between 16% and 20%.



- 4.10 Some of the significant benefit streams set in motion by the Project are hardest to quantify. These include the value restored to the land and water resource base through the protective effects of planting tree crops in hillside and uplands areas, and through direct investments in ravine stabilization. The analysis estimates that the equivalent of 4,700 additional full-time jobs will be created in the farm sector alone from the project. Moreover, the distribution of labor needs over the year will be improved through the increase in production in off-season periods. Furthermore, the project will create linkages to value-adding business development in input supply, transport, crop handling, packing, processing and marketing.
- 4.11 The most fundamental direct project benefit will be the increase in household income. The PIA will increase household income substantially in the project zone, accounting for approximately 50,000 beneficiaries of which some 10,000 are projected to double their incomes. Revenues from field crops are expected to increase by 140% per unit area, while revenues from tree crops will increase by 180%. This will result not only in direct immediate improvements to family welfare such as improved nutrition and medical care, but also enhance longer-term household well-being through improved basic health and education of children who in turn can engage in a broader and more remunerative range of productive activities.
- 4.12 Through the expected substantial increase in household income, the project seeks to generate a series of benefits for families, the community and their environment, including a substantial increase in employment, a heightened cohesion amongst water-user groups and enhanced protection of the natural resource base. At the same time, the project will contribute directly to the protection of the Ennery-Quinte watershed and of the direct beneficiaries and broader population downstream, lowering the risk and severity of floods and mudslides in the area, including heavily populated areas in the Gonaïves vicinity. As a project linked to the Agricultural Intensification Program (1490/SF-HA), the results of a model of intensification in a zone distinct from the Artibonite Plain are expected to generate lessons learned for a variety of other zones of Haiti, with particular relevance for areas with partially hillside production and small-scale irrigation in a smaller watershed.

#### **D. Environmental impact**

- 4.13 The ESMR thoroughly addresses the baseline situation in the project zone, the environmental and social risks and the monitoring and mitigation measures required to maximize the project's viability. Building upon the Environmental and Social Impact Assessment (ESIA) completed in 1998 (Appendix A of ESMR), the 2005 fieldwork enabled the team to confirm the validity of the ESIA and the strong desire of stakeholders to proceed.
- 4.14 The project design derives in large measure from the conviction that for any agricultural intensification effort to succeed in fulfilling its objective to increase small-farmer income, it must mobilize widespread social participation and link productivity gains to stewardship of the natural resource base. The project design has internalized these fundamental prerequisites throughout. The project's approach to irrigation and

downstream agricultural investments systematically builds on this commitment in the formation of water user committees and links these investments to watershed protection.

- 4.15 The primary environmental risk highlighted in the ESMR relates to the availability of water to allow intensification and the downstream impacts of increased water use. The main social risk concerns whether the project benefits will remain available to all segments of the community, most notably women.
- 4.16 A number of measures have been incorporated into the project to address these risks and to mitigate negative impacts such as use of bio-cides and fertilizers. The manner in which actual investments proceed will be governed by procedures which actively promote social and environmental soundness as embodied in the Environmental and Social Management Plan (ESMP) contained within the ESMR. The MARNDR will formally adopt guidelines consistent with the ESMP as part of its Operating Regulation to be approved as a pre-condition to first disbursement of the loan.
- 4.17 While the MARNDR will bear the responsibility for execution of the project under the terms of the loan contract, the Ministry of Environment's (MOE) mandate does mean that it oversees the promulgation of environmental norms. As a relatively new Ministry with a weak institutional base, it has a limited ability to fulfill its mandate. As the Bank (HA-L1006) and other donors collaborate to strengthen the MOE, the project will actively pursue coordination with it in matters pertaining to environmental guidelines as foreseen in the ESMP.
- 4.18 The environmental and social operational norms to be adopted and followed during project implementation shall apply the principles embodied in the ESMP in the following key areas: (i) community outreach; (ii) extension and training regarding agricultural inputs; (iii) phyto-sanitary controls; (iv) watershed protection; (v) small-scale irrigation environmental and social issues; and (vi) monitoring and evaluation requirements.

## **E. Beneficiaries**

- 4.19 The significant benefit streams set in motion by the proposed project derive from increased household income and the value restored to the land and water resource base through the protective effects of planting trees and other perennial crops in hillside and uplands areas, and through direct investments in ravine stabilization. The project area includes an estimated 18,000 ha of agricultural land (irrigated and non-irrigated) and approximately 10,000 farmer families (1.8 ha/farmer), or approximately 50,000 individual beneficiaries. The economic analysis projects the equivalent of 4,700 additional full-time jobs will be created from field crop intensification activities alone in the project area. Moreover, the distribution of labor needs over the year will be improved through the increase in production in off-season periods. Furthermore, the project will create linkages to value-adding business development in input supply, transport, crop handling, packing, processing and marketing. The project will also produce benefits to the broader population downstream in the Gonaïves area by lowering the risk and severity of floods and mudslides through protection of the Ennery-Quinte watershed.

- 4.20 The most fundamental direct benefit of the project will be the increase in household income. The project will increase household income substantially in the project zone. Revenues from field crops are expected to increase significantly per unit area in the best growing areas, while revenues from tree crops will increase income generation throughout the non-irrigated areas. This will result in direct immediate improvements to family welfare such as improved nutrition and health, as well as enhancing the longer-term household well-being through improved basic health and education of children.

## **F. Risks**

- 4.21 **Community commitment to combating erosion.** Significant improvement of watershed protection within the Ennery-Quinte area will be short-lived if the project does not succeed in reducing three current destructive practices. The current use of fires to clear land, unenclosed or un-tethered livestock grazing and uncontrolled cutting of trees, all undermine efforts to achieve patterns compatible with sustainable increases in income and natural resource management. The entire project design attacks this central dilemma by linking watershed protection to increased income and reduced threat of flooding. A pro-active community outreach campaign (Watershed management subcomponent) addresses the risk head-on, including resources throughout the life of the project for activities dedicated to demonstrating the advantages of enclosed livestock management.
- 4.22 **Civil unrest and commercial and political disruptions.** The current degree of insecurity and civil disturbances prevailing in Haiti has not disrupted activity in the immediate Ennery-Quinte area. Disorder in Port-au-Prince does occasionally limit some commercial activity, mainly through transportation problems. The possibility of heightened future disruptions in Gonaïves or Port-au-Prince poses a risk, including rising to the level of port or airport closures to freight or, in the worst case, an embargo as occurred in the 1990s. Within the project area the greatest security risks include the possibility of increased banditry or the emergence of land conflicts as land values rise as intensification proceeds. At the level of the BCP, the greatest risk would be any major upheaval or political shifts that could undermine the effective management that currently characterizes that unit. The BCP leadership has established its credentials as apolitical technical professionals with strong roots and credibility in the Artibonite region. Any changes in this approach could jeopardize effective project implementation.
- 4.23 **Natural disasters.** The catastrophic damage of Jeanne in September 2004 demonstrates the risk of the most devastating possible event. Even lesser storms can wreak floods and mudslides, given the current fragile state of the surrounding watershed. On the other extreme, the zone is also subject to increased risk of water shortages given the diminishing absorptive capacity of the watershed and impaired replenishment of aquifers and some encroaching desertification. The project design seeks to offset these risks at least in the medium and longer term through its direct watershed stabilization measures, contributing both through enhanced soil absorptive capacity and direct physical barriers to run-off (such as gully plugs) in high-risk areas. Coordination with the National Program of Flood Early Warning (HA-L1005) will help reduce the risks of loss of lives should an event of life-threatening proportions occur. No additional financial contingency is deemed justified within the loan resources to respond to the physical damage that could

occur in such an event. However, the project execution structure would have the capacity to deploy management and technical resources to assess damages and recommend measures should a disaster occur.

- 4.24 The outbreak of significant plant or animal diseases represents a threat, as occurred in the case of African swine fever in the 1980s. Less drastic diseases or infestations represent serious threats to individual crops or classes of crops, as is the case of the mealy bug or white fly infestations. These risks can likely be managed with appropriate attention to animal and plant disease control as part of the technical assistance and with the institutional strengthening of the phyto-zoo-sanitary service foreseen as part of the upcoming Rural Economy Support Program (HA-L1003).
- 4.25 **Economic instability.** The greatest current economic risk to project feasibility comes from the high levels of inflation over the last two years. This could constrain investment, particularly given the relatively long turn-over in cash-flow involved in intensification efforts requiring financial services across a crop season. Additional risks include failures in input markets or abrupt changes in output markets. Disruptions or a lack of willingness on the part of micro-financial services to expand coverage in the area would constrain expansion. The technical services activities will address these eventualities through risk management techniques, such as supplier-producer or buyer-producer contracts as part of market linkage.

## ENNERY-QUINTE AGRICULTURAL INTENSIFICATION PROJECT (HA-L1009)

### LOGICAL FRAMEWORK

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS/RISKS
<b>GOAL</b>			
The income of the households in the Ennery Quinte project area is increased.	<ul style="list-style-type: none"> <li>• Increase in average annual household income in real terms in the project zone by 80% by the end of the project.</li> </ul>	<ul style="list-style-type: none"> <li>• Project's socio-economic baseline survey and monitoring records.</li> </ul>	
<b>PURPOSE</b>			
The yields, profits and post-harvest losses in the project area are improved in an environmentally sustainable manner.	<ul style="list-style-type: none"> <li>• Crop yields in the project zone increase by at least 30% by the end of the project according to the baseline data for crops listed in Technical Annex IV.</li> <li>• Class A<sup>1</sup> area in the project zone increases by 100 hectares by the end of the project.</li> <li>• Decrease of post-harvest losses on fruit products between farm gate and market from 30% to 10% by the end of the project.</li> <li>• Improvement in water and soil quality in the project area measured by total suspended solids (water quality only), pH, total Kjeldahl nitrogen, ammonia, nitrate, electrical conductivity, sodium absorption ratio, selenium, boron, and total heavy metals, by the end of the project.</li> </ul>	<ul style="list-style-type: none"> <li>• Project's socio-economic baseline survey and monitoring records.</li> <li>• BCP's records.</li> <li>• Hydrological monitoring reports</li> <li>• Records of the private traders of fresh or processed product from the area.</li> </ul>	<ul style="list-style-type: none"> <li>• Commercial buyers continue to exhibit a strong demand for high-value agricultural products. Exporters continue to maintain their pre-clearance program for fresh produce.</li> <li>• No food aid programs in the project area significantly undermine the market for agricultural products.</li> <li>• Lack of security problems that can constrain access to production zones or affect production activities.</li> <li>• Lack of political shifts that can undermine the effective project management that characterizes the BCP.</li> </ul>
<b>COMPONENTS –</b>			
1.1. Improved and higher value added field crop varieties	<ul style="list-style-type: none"> <li>• 140 MT of improved seeds of staple crops (corn, sorghum and beans)</li> </ul>	<ul style="list-style-type: none"> <li>• Germination tests and in-field monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of natural disaster or plant disease that can impact the agriculture and tree</li> </ul>

<sup>1</sup> See Technical Annex VI for a description of land types.

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS/RISKS
<p>are introduced in the project zone.</p> <p>1.2. Improved tree crop varieties are introduced in the project zone.</p> <p>1.3. Post-harvest handling practices improved.</p>	<p>distributed to producers in the project area by the end of the third year.</p> <ul style="list-style-type: none"> <li>15 hectares of seed trials after the third year.</li> <li>150 producers trained in new agricultural intensification and storage technological package after the third year.</li> <li>2 million improved trees planted or grafted by the end of the project.</li> <li>150 people trained in grafting techniques by the end of the project</li> <li>2 conditioning centres are built and equipped in the project area by the end of the project.</li> <li>5'000 non-stacking plastic cases and 2'000 stacking cases are provided in the project area by the end of the project.</li> <li>30 inter-regional visits between farmers and exporters done by the end of the project.</li> <li>5 purchase deals achieved between producers and buyers (exporters) for product from the project area by the end of the project.</li> </ul>	<ul style="list-style-type: none"> <li>Records of the private traders of fresh or processed product from the area.</li> <li>Census and inspection of trees.</li> <li>Reports of origin of product from shippers/processors/exporters.</li> </ul>	<p>production activities in the project area.</p> <ul style="list-style-type: none"> <li>Neither labor-intensive works projects in the vicinity nor food aid programs significantly undermine the supply of labor nor the market for agricultural products.</li> </ul>
<p>2. Soil erosion, flooding and land slides are reduced in the watershed.</p>	<ul style="list-style-type: none"> <li>The hillside area in the project area under tree cover increases by 2,000 hectares by the end of the project.</li> <li>A surveillance unit for the watershed is created and operating by the end of the project</li> <li>300km of ravines is rehabilitated in the project area by the end of the project.</li> <li>500 has of enclosures for raising</li> </ul>	<ul style="list-style-type: none"> <li>Watershed model monitoring reports.</li> <li>BCP's records.</li> </ul>	<ul style="list-style-type: none"> <li>Expected increased income from planted and grafted fruit trees upstream is sufficient to induce the population to protect them as well as anti-erosive physical works.</li> <li>No labor-intensive works projects in the vicinity significantly undermine the supply of labor.</li> <li>Lack of natural disaster or plant disease</li> </ul>

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS/RISKS
	livestock in the project area are implemented by the end of the project.		that can impact the watershed stabilization works and the agriculture and tree production activities in the project area.
3. Small scale irrigation systems rehabilitated and managed sustainably	<ul style="list-style-type: none"> <li>900 hectares rehabilitated and 30% increase in the efficiency of water use in the perimeters by the end of the second year.</li> <li>60% of the water user groups of the project area are organized and with formal agreements on a cost recovery system and scope of local management responsibility by the end of the third year.</li> </ul>	<ul style="list-style-type: none"> <li>Hydrological and siltation monitoring reports</li> <li>Measurement of siltation levels as part of watershed model monitoring.</li> <li>User group records and observed levels of organization.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of natural disaster or plant disease that can impact the watershed stabilization works and the agriculture and tree production activities in the project area.</li> <li>No labor-intensive works projects in the vicinity significantly undermine the supply of labor.</li> </ul>
COMPONENTS	BUDGET	BCP's records.	<ol style="list-style-type: none"> <li>Lack of security problems that can constrain access to production zones or affect project activities</li> <li>Lack of natural disaster or plant disease that can impact the watershed stabilization works and the agriculture and tree production activities in the project area.</li> <li>There is a sufficient quantity of consultant firms, ONGs or companies qualified to submit offers for the project activities.</li> <li>The BCP continues to operate after the elections.</li> <li>No labor-intensive works projects in the vicinity significantly undermine the supply of labor.</li> </ol>
1. Agricultural Intensification and Market Linkage	US\$ 4.4 million		<ol style="list-style-type: none"> <li>Current seed suppliers are able to fill the orders in a timely fashion.</li> <li>Seed availability will remain stable during the agricultural campaign.</li> <li>There exists a sufficient number of</li> </ol>

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS/RISKS
2. Watershed Management and Flood Protection	US\$ 6.0 million		<p>producer groups/cooperatives/suppliers that can organize the supply of seeds and inputs in the project area</p> <p>9. Producers progressively convinced of the value of improved seeds, grafting and grafted seedlings.</p> <p>10. Producers have some access to rural finance sources to purchase and invest in their production.</p> <p>11. Major land conflicts do not arise in the selected project zone.</p> <p>12. Producers are open to change their cultivation and livestock practices in the project area</p>
3. Rehabilitation of Small-Scale Irrigation Systems	US\$ 8.6 million		<p>13. Adequate supply of water confirmed by hydrological studies to proceed with substantial portion of projected area of perimeters.</p> <p>14. The cost recovery principle is accepted by water users.</p> <p>15. Local population demonstrates commitment to increased degree of management of the small-scale irrigation works.</p>
4. Community Mobilization and Implementation Coordination	US\$ 4.2 million		



DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-\_\_/\_

Haiti. Loan \_\_\_\_/SF-HA to the Republic of Haiti  
Ennery-Quinte Agricultural Intensification Project

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Republic of Haiti, as Borrower, for the purpose of granting it a financing to cooperate in the execution of an agricultural intensification project in Ennery-Quinte. Such financing will be for the amount of up to US\$27,105,000 or its equivalent in other currencies, except that of Haiti, which are part of the Bank's Fund for Special Operations, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on \_\_ \_\_\_\_\_ 200\_)