

ToRs For Component 1

Title: Diagnosis on Hydro Resources Available in Northern Haiti

1. Background

The Haitian agricultural sector is characterized by the small size of farms of 0.9 ha on average (RGA/MARNDR, 2009). This sector displays the lowest level of performance in the region with a land productivity of 563 US/ha (Geert Van Vliet, 2016) and an annual remuneration of 200 US per employee (RGA/MARNDR, 2009). A reduction in productivity is estimated between 0.5 and 1.2% and distribution areas of important crops such as beans, bananas, coffee, rice, and corn are anticipated for future horizons. However, these changes could be more favorable for cocoa trees in coffee-growing areas. Access to water could more severely affect the Nord and Artibonite departments (PNA, HAITI, 2022-2030). Impacts, vulnerabilities, and risks in the agriculture sector are and will be due to increased temperatures, intense rains, floods, droughts, hurricanes, and rising sea levels.

Regarding water resources, which is the sector that has been the subject of more evaluations after the agricultural sector, the situation is also critical. A decrease in annual rainfall of 6 to 20% is expected, with a shift in the seasonality of rains. Intense rains, abnormally elevated temperatures, unprecedented changes in rain patterns combined, among other things, with continued population growth pose serious problems, including water deficits, trends towards desertification of certain areas and risks of significant erosion. Given the cross-cutting nature of these resources, other sectors such as energy will also be negatively impacted by water-related issues. The area's most at risk would be the metropolitan region of Port-au-Prince, the coastal regions of the Artibonite department, notably the city of Gonaïves and the southern portion of the North-West department (MDE, MPCE, UNDP, 2021).

Moreover, water management is key to both facing climate change and rising productivity level. The irrigation sector is characterized in Haiti by an agricultural area of 870,000 ha of which the irrigable area is oscillating between 135,000 and 150,000 ha. However, only 90,000 ha would be developed, of which 80,000 are irrigated, benefiting from 250 irrigated systems. The irrigated area represents approximately 50% of plain land. Many irrigated systems in Haiti are gravity systems, supplied with water from springs and rivers (diversion capture). They are small on average, particularly in the South-East (less than 500 hectares), and medium-sized (between 500 and 2,000 hectares). However, there are also some large systems in the country (the largest - 32,000 ha - is in the Artibonite department).

On the other hand, the maintenance of these systems is expensive (deterioration of infrastructure by cyclones, degradation of watersheds causing frequent silting of irrigation infrastructures, etc.) and good management is necessary to be able to make them work. Indeed, even where irrigation systems are present, an estimated 25% of irrigated land is unused, due to factors such as lack of maintenance, unsustainable technologies and poor crop selection, among others ([IFM, 2023](#)). The experience of solar pumping systems in the Plaine des Gonaïves is an innovative approach to reduce the cost of water, to facilitate access from boreholes and to optimize its use in the plots. However, following the fall of the Duvalier regime, a period during which water management was taken over by the State in an authoritarian manner through irrigation trustees, irrigators were left to their own devices to take charge of the entire management of irrigated areas. Due to the lack of resources available to the State today, very little

support is provided to. One of the biggest governance weaknesses in the irrigation sector is the difficulty in managing reliable hydrological data by adopting modern tools like HydroBID and HydroFlow for all hydrographic systems in the country.

One of the greatest weaknesses of national policies and programs on water management is no considering irrigated areas and watersheds that supply irrigation as a unique system. This approach hampers the sustainability of investments. These interventions are even less effective when there is no normative framework that regulates water management. More than 90% of investments targeting irrigation are made in infrastructure and governance of irrigated areas without considering the degradation of the biophysical environment. Environmental indicators have not seen any real improvement in recent years. Indeed, the national forest cover is among the lowest in the region (between 4% and 32% depending on the calculation method; Churches et al., 2014) and the deforestation process is only accelerating.

Indeed, of the country's 33 major watersheds, more than 25 are in an alarming state of degradation (Swartley and Toussaint, 2006; MARNDR, 2016). Biological diversity and water resources are negatively impacted by soil and forest degradation. According to a case study carried out in the West Department in 2013, out of 46 existing rivers, 5 have disappeared, have become temporary only with torrential floods and the rest, around twenty, have permanent flows with low flow rates and whose beds are filled with sediment (Severin A, DDAO/MARNDR, 2013). A reform is needed at national level (MARDNR, MED, DINEPA, DONATOR, Universities...) to restructure this obsolete management and prioritize the training of executives to develop more integrated policies starting from the watershed to the irrigated area

This study is part of this broader effort to develop a comprehensive strategy for agricultural water management, focusing on Northern Haiti. The region includes the Artibonite, Northwest, North, and Northeast departments (excluding the Artibonite watershed). The study will generate updated insights into water availability, uses, irrigation systems, and governance, with attention to gender gaps and climate resilience. It will support the elaboration of guidelines for a new irrigation strategy for Haiti and the identification and further design of investments in watershed management and irrigation.

2. Objectives

The objective is to update the status of hydro resources in the main watersheds of the Northern Haiti (except the Artibonite watershed) and to establish a foundational understanding for future investments and strategy design.

Specific objectives include:

1. Assessing water availability and variability in the main watersheds
2. Identifying current water uses and associated constraints.
3. Inventorying irrigation systems and related projects.
4. Analyzing the social organization of water resource use, including gender aspects.

3. Scope of Work

The consultant will undertake the following tasks:

A. Task 1: Data Collection and Processing

- Inventory the main watersheds of the northern region
- Map the current uses of water resources (agriculture, domestic, industrial) in these watersheds.

- Identify, collect and process existing hydrological data from public institutions, NGOs, and other stakeholders.

The expected output 1 is a comprehensive map of the region associated to a descriptive matrix based on key indicators such as surface, ecosystem description (including climate regime), main uses, population, ...

B. Task 2: Assessment of Water Use and Constraints

- Where data collection allows it, run hydrological models such as Hidroflow to establish current and future hydrological water resources balances
- Identify constraints linked to access, management, and climatic factors.
- Analyze the impact of climate change on water availability, focusing on variability, seasonal trends and long terms trends in availability of the resource.

The expected output 2 is an analytic report on water use and constraints for the main identified watersheds.

C. Task 3: Inventory of Irrigation Systems

- Develop a detailed inventory and description of the existing irrigation systems, including their operational status, technological setup, coverage and social organization.
- Review historical and ongoing investment projects related to irrigation in the region.

The expected output 3 is an updated table on existing and projected irrigation systems in the Northern region.

D. Task 4: Social Organization and Gender Analysis

- Characterize social organization for agriculture water resource governance in the identified irrigation systems, including formal and informal mechanisms.
- Assess gender gaps in water access, decision-making, and management roles.

The expected output 4 is an analytic report on social organization and gender gaps in access to and governance of irrigation water resources in the northern region.

4. Expected Deliverables and payment scheduling

- Inception Report:** A detailed work plan and methodology within two weeks after contract signing.
- Mid-Term Progress Report** that will include outputs 1 and 2 (water availability, uses and constraints).
- Preliminary Final Report**, that will include the revised version of outputs 1 and 2 plus outputs 3 and 4 (Inventory of irrigation systems and projects; analysis of existing governance models and gender gaps).
- Final report**, that will include the revised version of outputs 1, 2, 3 and 4, plus recommendations on Policy and design of operational investments in irrigation.

Each deliverable will be presented to and discussed with the IDB team and the designated focal point in the Haitian Ministry of Agriculture before approval by the contact's IDB supervisor.

Once approved, each deliverable will receive a corresponding payment, as established in the following table.

DELIVERABLE	DATE	% CONTRACT AMOUNT
1. Inception	May, 2025	20%
2. Mid-Term	September, 2025	40%
3. Preliminary	December, 2025	30%
4. Final	February, 2025	10%

5. Qualifications and Expertise Required

The consultant that will be selected will be a firm with at least 3 references of similar studies, previous work experience in Haiti, and able to present a team of two key experts in the following domains:

- (i) hydrology, water resources management, or a related field, with a minimum of 10 years of experience in water resource assessment
- (ii) agronomist, geographer, watershed management specialist or a related field, with a minimum of 10 years of experience in watershed management, preferably in Haiti or in tropical context.
- (iii) irrigation management specialist, preferably in fragile contexts, with a minimum of 10 years of general experience and demonstrated experience with gender and social inclusion analyses.

Familiarity of key experts with Haitian context or similar settings is highly desirable. Proficiency in French is required; Haitian Creole is an asset.

6. Duration and Location

- **Duration:** 10 months, starting no later than January 15, 2025.
- **Location:** Primarily desk-based with potential field visits in Northern Haiti, contingent on security conditions.

7. Reporting and Coordination

The consultant will report to the IDB team and the designated focal point in the Haitian Ministry of Agriculture. Regular updates and monthly coordination meetings are expected.

8. Budget

The total allocated budget for this component is USD 130,000, covering consultancy fees, data processing, and operational expenses.

ToRs for Component 2

Individual Consultant on Lessons learned from previous investments in irrigation and watershed management strategies in Haiti

Post of Duty: Remote

The IDB Group is a community of diverse, versatile, and passionate people who come together on a journey to improve lives in Latin America and the Caribbean. Our people find purpose and do what they love in an inclusive, collaborative, agile, and rewarding environment.

About this position

We are looking for an exceptional individual consultant on lessons learned from previous investments in irrigation and watershed management strategies in Haiti. As a consultant for this position, you will conduct a comparative analysis of past and current irrigation and watershed management strategies deployed by institutional actors and farmers in Haiti.

You will work in RND Haiti, part of CHA department. This team is responsible for Environment, Rural Development and Disaster Risk Management.

What you'll do:

(main accountabilities that contribute to the team's objectives - don't go into the details)

- Review existing literature;
- Conduct interviews;
- Establish a comparison between types in terms, at least, of sustainability, costs and benefits and efficiency in water use
- Produce a report that establishes a representative typology of existing irrigation systems and projects that have promoted irrigation and watershed management in the last decades, both from institutional actors and farmers, at national level.

Deliverables and Payments Timeline:

<u>Deliverable #</u>	<u>Percentage</u>	<u>Planned Date to Submit</u>
Methodology note	20%	2 weeks after the beginning of the contract
Intermediary report	30%	5 months after the beginning of the contract
Final report	50%	6 months after the beginning of the contract

What you'll need

- **Education:** Ph.D./ Master/Bachelor's degree (or equivalent advanced degree) in Agronomy, Economics, or other fields relevant to the responsibilities of the role.
- **Experience:** At least/ Between 5 and 10 years of progressive experience in project management and/or evaluation
- **Languages:** Proficiency in English and one of the other Bank official languages (Spanish, French or Portuguese) is required. French and Haitian creole required.

Key skills:

- Learn continuously.
- Collaborate and share knowledge.

- Focus on clients.
- Communicate and influence.
- Innovate and try new things.

Requirements:

- **Citizenship:** You are a citizen of one of our 48-member countries.
- **Consanguinity:** You have no family members (up to the fourth degree of consanguinity and second degree of affinity, including spouse) working at the IDB, IDB Invest, or IDB Lab.

Type of contract and duration:

- **Type of contract:** Products and External Services Consultant (PEC), Lump Sum
- **Length of contract:** 6 months
- **Work Location:** Remote

Our culture

At the IDB Group we work so everyone brings their best and authentic selves to work, willing to try new approaches without fear, and where they are accountable and rewarded for their actions.

Diversity, Equity, Inclusion and Belonging (DEIB) are at the center of our organization. We celebrate all dimensions of diversity and encourage women, LGBTQ+ people, persons with disabilities, Afro-descendants, and Indigenous people to apply.

We will ensure that individuals with disabilities are provided reasonable accommodation to participate in the job interview process. If you are a qualified candidate with a disability, please e-mail us at diversity@iadb.org to request reasonable accommodation to complete this application.

Our Human Resources Team reviews carefully every application.

About the IDB Group

The IDB Group, composed of the Inter-American Development Bank (IDB), IDB Invest, and the IDB Lab offers flexible financing solutions to its member countries to finance economic and social development through lending and grants to public and private entities in Latin America and the Caribbean.

About IDB

We work to improve lives in Latin America and the Caribbean. Through financial and technical support for countries working to reduce poverty and inequality, we help improve health and education and advance infrastructure. Our aim is to achieve development in a sustainable, climate-friendly way. With a history dating back to 1959, today we are the leading source of development financing for Latin America and the Caribbean. We provide loans, grants, and technical assistance; and we conduct extensive research. We maintain a strong commitment to achieving measurable results and the highest standards of integrity, transparency, and accountability.

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About IDB Lab

Is the innovation laboratory of the IDB Group. We mobilize financing, knowledge, and connections to drive innovation for inclusion in Latin America and the Caribbean. We believe innovation is a powerful tool that can transform our region, providing today unprecedented opportunities to populations that are vulnerable due to economic, social, or environmental factors. IDB Lab has a commitment to gender quality and diversity as part of its development mandate. The Strategy and Impact unit supports IDB Lab in the development of strategy, connections and knowledge, and impact measurement and reporting.

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About IDB Invest

IDB Invest, a member of the IDB Group, is a multilateral development bank committed to promoting the economic development of its member countries in Latin America and the Caribbean through the private sector. IDB Invest finances sustainable companies and projects to achieve financial results and maximize economic, social, and environmental development in the region. With a portfolio of \$14.1 billion in asset management and 325 clients in 25 countries, IDB Invest provides innovative financial solutions and advisory services that meet the needs of its clients in a variety of industries.

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ToRs for Component 3**Individual Consultant on identification of opportunities and constraints for new investments in irrigation and water resources management in a climate change context in Haiti****Post of Duty: RND/CHA, Remote**

The IDB Group is a community of diverse, versatile, and passionate people who come together on a journey to improve lives in Latin America and the Caribbean. Our people find purpose and do what they love in an inclusive, collaborative, agile, and rewarding environment.

About this position

To identify the opportunities and constraints related to new investments in irrigated areas and water management of the watersheds in the Grand North of Haiti, the bank is recruiting a consultant. The consultant will be required to follow a structured approach combining technical, economic, social, and environmental analyses, both systemic and integrated, to adequately account for the interactions between watersheds (WS) and irrigated areas (IA). The consultant must ensure the engagement of all key stakeholders from the beginning of the study, including the DDA/MARNDR, water users associations, watershed committees, etc., within a framework of territorial governance.

You will work in RND Haiti, part of CID/CHA department. This team is responsible for Environment, Rural Development and Disaster Risk Management

What you'll do:

- Review the existing literature, particularly the outputs of components 1 and 2 of the TC (HA-T1327).
- Mobilize stakeholders through team-building activities (focus groups) and conduct interviews with key stakeholders.
- Propose an adequate scheme for the promotion of irrigation in Haiti, based on the products of components 1 and 2 of the technical cooperation.
- Identify new irrigation investments to enhance the growth potential of agricultural production, as well as new investments to ensure sustainable water management in the watersheds, considering climate change (drought seasons, etc.).
- Produce a technical and financial identification report for these new investments. And develop a social and environmental governance mechanism with key stakeholders, in compliance with Haitian legal frameworks.

Deliverables and Payments Timeline:

Deliverable #	Percentage	Planned Date to Submit
Methodology notes	20%	2 weeks after the beginning of the contract
Intermediary report	40%	5 months after the beginning of the contract
Final report	40%	6 months after the beginning of the contract

- **What Education:** Ph.D./ Master/Bachelor's degree (or equivalent advanced degree) in Agronomy, Civil Genius, Rural genius, or other fields relevant to the responsibilities of the role.
- **Experience:** At least/ Between 5 and 10 years of progressive experience in project management and / or evaluation
- **Languages:** Proficiency in English and one of the other Bank official languages (Spanish, French or Portuguese) is required. French and Haitian creole require

Key skills:

- Learn continuously.
- Collaborate and share knowledge.
- Focus on clients.
- Communicate and influence.

- Innovate and try new things.

Requirements:

- **Citizenship:** You are a citizen of one of our 48-member countries.
- **Consanguinity:** You have no family members (up to the fourth degree of consanguinity and second degree of affinity, including spouse) working at the IDB, IDB Invest, or IDB Lab.

Type of contract and duration:

- **Type of contract:** Products and External Services Consultant (PEC), Lump Sum
- **Length of contract:** 6 months
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About IDB Invest

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