



**BNCFF**

Blue Natural Capital Financing Facility

**PROJECT SUBMISSION FORM**

SECTION 4 – SHORT PROJECT DESCRIPTION -

**Control of plastic marine pollution and mangrove recovery in Gonaives, Haiti**



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## 1.Context

The project is taking place in the Gonaïves area in the Artibonite region in Haiti, known for its rice fields. Gonaïves, a city of 450 000 people, is located right next to Haiti's largest mangrove, La Grande Saline, covering an estimated surface of 8,160 hectares. The Grande Saline mangrove, even though it has been largely affected by anthropogenic activities, is crucial for the whole region because of its extent, its essential flood protection potential and its unique flatland ecology. Among nine proposed marine protected areas in the country, in terms of ranking for mangrove linked ecosystem services, the Caracol area (good condition) with 5,260 ha provides an estimated US\$ 3,156,000,000 /yr of services with Gonaïves/Grande Saline (poor condition) in second place at 8,162 ha and an estimated mangrove ecosystem value of US\$ 1,632,000,000 /yr. (2)



Gonaïves and its mangrove is located in a low flatland surrounded by mountains, hence prone to floods, during the hurricane season, from rainwater rushing down the surrounding bare mountains and from the ocean.



Currently, nearly all of the municipal and industrial waste and sewage flow directly or indirectly into the ocean. Organic and municipal solid waste, plastic waste in particular, when they enter into the marine ecosystem, can cover and suffocate marine biomes, affect breeding grounds, introduce toxic components into the food chain and affect human health and the economy.



Littered waterfront of Gonaives and affected mangrove in the background. Credit: Augustin Dieuseul

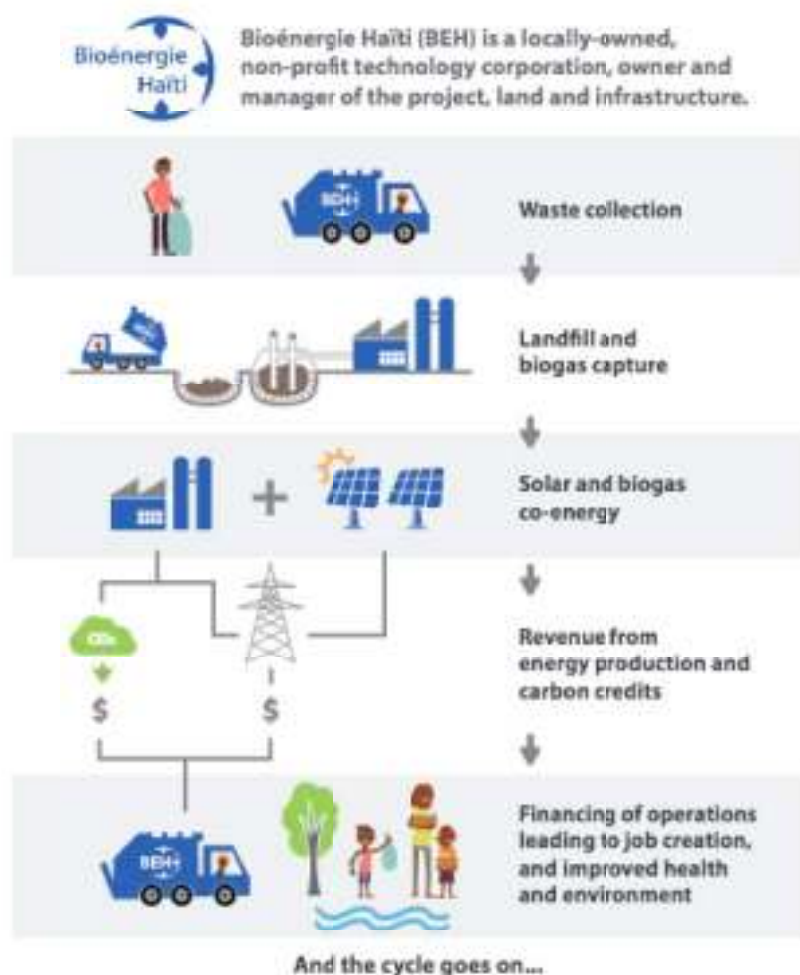
A mangrove environment littered with plastic is not a productive healthy one and is not sustainable for local populations (fishing, salt marshes, tourism, health, etc.). Hence, mangrove protection should be integrated into a sound conservation/rehabilitation strategy including an effective waste management plan.

Our global strategy comes in a two step approach :

- Reduce marine pollution through solid waste management and clean energy production in the Gonaives region. Financed by the production and sale of clean energy and carbon credits,
- Apply a mangrove assessment and recovery program including community organizing, training and awareness financed by the solid waste activities and blue carbon credits sale.

## 2. Project

### 2.1 Reduce marine pollution through solid waste management and clean energy production



Bioenergie Haiti's model. Credit: Bioenergie Haiti.

The current project is part of the larger Bioenergie Haiti (BEH) project, an innovative energy production project, and a Haitian NGO-private partnership. [Biothermica Technology Inc.](#), an energy and carbon expert from Canada founded in 1987, and [Terre des jeunes](#), an environmental organization active since 1998 in Haiti are the founding members of the non-profit organization Bioenergie Haiti (BEH). Please see the Bioenergie Haiti presentation brochure :

<http://bioenergiehaiti.org/sites/bioenergiehaiti.org/files/brochure-v2018-06-21-en-print.compressed.pdf>

BEH is on its way to build a modern technical landfill with a biogas collection system in the city of Gonaives. The biogas collected will be converted into electricity and/or cooking gas thanks to a power plant built directly on site. A 4 Megawatt solar power plant is also planned.

It is revolutionary both in the concept of landfill self management (auto-financed by the selling of energy and carbon credits) and for its strong ties with the local community, thanks to our founding member and local partner Terre des jeunes Gonaives.

The project received a CAN\$1M three year grant from the Quebec government to implement the project and kickstart waste collection (2017-2020). The overall BEH project will create 600 jobs, self-finance waste collection (through the sale of energy and carbon credits) and provide clean energy and clean cooking gas to the Gonaives region.

Core to the mangrove recovery, the waste management part :

- Dramatically reduces plastic and organic marine pollution and promotes awareness toward waste management and climate change,
- Produces clean cooking gas and promotes its use among Gonaives households (preventing tree cutting for charcoal),
- Ensures the long term financing of the chain of activities for conservation and protection of the mangrove.

## 2.2 Mangrove recovery and protection

The BEH statutes stipulate that all profits be reinvested in social and environmental causes. Bioénergie Haiti (BEH) wishes to make the Gonaives mangrove recovery its main cause.

Why then choose the mangrove? Because, for all the partners, the experience in Haiti with waste management and long term experience with environmental awareness and protection has showed us the very poor state of the coastal environment due to plastic/organic pollution and overexploitation. We also have been working with local rice farmers regarding organic waste and witnessed how the mangrove was gravely affected by anthropogenic activities.



Affected mangrove near in the Bay of Grammont, Gonaives. Credit: Google earth.



The ultimate goal, in line with the objectives of the Caribbean Challenge Initiative (CCI), which is the first conservation initiative embraced by governments across the region, is to make the Saline mangrove of Gonaïves a protected marine area (PMA).

The plan is as follow :

*Step 1 – Assessment of the state and ecological value of the Grande Saline mangrove in Gonaïves*

There are few research-analysis of the Grande Saline mangrove. The Fondation pour la Protection de la Biodiversité Marine (FoProBim), Haiti's most renown coastal and marine environmental organization, have conducted a thorough investigation of 9 potential marine protection areas in Haiti, including the Grande Saline (2)(3). Joint expertise and technology will be needed in this phase to conduct more in-depth field and satellite surveys as well a legal and socio-economic analysis.

*Step 2 - Define a viable financial model integrated with the waste management and energy project*

There are significant revenues projected from the sale of energy (electricity and biogas) with Bioénergie Haiti. On the other hand, infrastructure costs and debt equity payments will require most of the financial resources in the first years. Mobilizing international donors and development banks and carbon credit facilities to sketch a strong financial model is crucial to ensure the long term viability of both the waste management/energy project and the protection of the mangrove.

*Step 3 – Recovery and protection plan for the mangrove, community awareness and empowerment*

Restoring the mangrove goes hand in hand with the communities around it. It goes without saying that the challenge is huge, considering their heavy reliance on wood and charcoal extracted from the mangrove. An employment program, numerous awareness campaigns, training, micro-credit, community reach-out and civil society mobilization are crucial for both parts of the project. Up to now, the Bioenergie Haiti community reach-out is relentless and participation exceeds expectations.

## 2.3 Partners

1. **Biothermica** : Engineering expertise, energy and carbon market expert, funding strategy, main project developer. <http://www.biothermica.com/>
2. **Terre des jeunes Gonaïves** : Main local partner. Tree planting and social engineering. Pool of volunteers. <http://terredesjeunes.org/gonaives>
3. **Terre des jeunes Transnational** : Liaison officer and coordinator. <http://terredesjeunes.org/>
4. **Bioénergie Haïti (BEH)** : In charge of waste management. <http://bioenergiehaiti.org/>

**5. Fondation pour la Protection de la Biodiversité Marine (FoProBiM)** : Haiti's largest coastal and marine environmental organization will conduct field studies and surveys and participate to the recovery program. <http://foprobim.org/index.html>

**6. Fonkoze** : Chemen Lavi Miyò (CLM) or "The Pathway to a Better Life" program empowers Haiti's poorest women to lift themselves out of ultra-poverty, with hope and vision for their futures. They can offer training to rural workers to find other revenue sources and offer access to microcredit. <https://fonkoze.org/index.html>

**7. Centre d'innovation technologique d'Haïti pour le développement durable (CITHADD)**: Haitian technological firm et web platform developer to process survey data. <https://www.facebook.com/cithadd/>

**8. Alliance des femmes des Gonaïves** : Employees and local experts on effective farming. <http://www.femmesgonaives.org/>

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