

CONTENTS

Introduction4
5 thematic aspects:
Governance
Conclusion23



INTRODUCTION

The 'Ansanm Ann Chanje Lavil' initiative – LAVIL' for short – of the United States Agency for International Development (USAID) supports the improvement of municipal service delivery in selected municipalities with a view to obtaining long-term, sustainable local economic development in Haiti.

In its initial phase, LAVIL focuses on public markets – multifunctional spaces that play a vital role in the local economy and promote social cohesion, but that local governments find difficult to manage effectively. LAVIL promotes sustainable management of public markets by stimulating local solutions for basic services, with an emphasis on solid waste management, co-creating spaces for multistakeholder dialogue and capacity-building within municipal governments.

LAVIL is being implemented by Cities Alliance in partnership with the municipalities of Cap-Haïtien and Les Cayes, the Associazione Volontari per il Servizio Internazionale (AVSI - Association for Volunteers in International Service) foundation, Habitat for Humanity Haiti, the Institute for Housing and Urban Development Studies (IHS) and the

Institut de Formation et de Services (IFOS - Institute of training and services).

In Cap-Haïtien, the Marché Pont Neuf (Pont Neuf Market) was chosen to take part in the pilot phase of the project. Diagnostic studies were conducted to provide an overall understanding of the market and the capacity of local government to fulfil its role in managing the space. This publication reports on the results of these studies.

A key priority of the LAVIL project is **to improve public markets** with a view to boosting employment and municipal revenues, and enhance **solid waste management** for the protection of public health and the environment, especially marine areas.

Using the findings of the diagnostic study as a basis, spatial and capacity-building interventions will be proposed for managing the market and solid waste. This process will ensure that LAVIL's interventions are well coordinated, that they respond effectively to the identified challenges and that they are in line with local development objectives.

BOX 1 – METHODOLOGY AND SYSTEMIC APPROACH

The diagnostic work involved **collecting primary and secondary data**. Several methodologies were used: document review, observations, surveys and meetings with various stakeholders (in particular traders), focus groups, questionnaires, and interviews with key informants. The survey of the traders is based on representative sampling.

In order to best present the results of the studies, a systemic approach focusing on **five interdependent themes** was adopted. These themes are:



Figure 1 – 5 thematic aspects

Governance - An effective, efficient and accountable system of governance.

Environment - An environmental system that ensures sustenance and protection against risks.

Citizenship - A system for citizen participation that builds strong human and social capital.

Services - A system of services that guarantees human dignity and public and environmental health.

Economy - An economic system that provides jobs and income.

GOVERNANCE

The first element focuses on findings related to the management of the Pont Neuf Market in Cap-Haïtien and its solid waste management, as well as its spatial layout and methods of payment for its traders using the market.

The market is located in the center of the municipality on a peninsula between the coast and the Mapou River (Figure 2). In addition to the official structure of the market, there is a space commonly known as 'Care,', an area with uncertain ownership and usage rights but which, by custom, has become part of the market.



Figure 2 - Site of the Pont Neuf Market (AVSI 2024)

The market has a total of 799 stalls, 75 of which are unoccupied. The majority are either wooden stalls (46 per cent) or tarpaulins laid on the ground (36 per cent).

799 stands

identifiés au total dans le Marché Pont Neuf

The management of the Pont Neuf Market involves a complex regulatory framework – there is no single regulation and it is governed by numerous internal and external parties. Furthermore, critical problems affect the supply chain, while recurring challenges relating to safety, racketeering, hygiene, sanitation and solid waste management persist.

The capacities and knowledge of municipal officials in these areas are poor (see Figure 3).¹

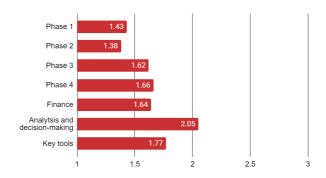


Figure 3 - Self-assessment of market management capacitiy (1-3, 3 being the highest)

With regard to solid waste management in the municipality, the national regulatory framework is not aligned with municipal efforts and local regulation is often poorly implemented. Furthermore, funding is limited and unpredictable, making it difficult to establish reliable and sustainable collection services. It is also important to note that there are no effective landfill sites that comply with environmental standards, and therefore no structured methods for disposing of solid waste. Self-assessment of skills by local authorities' staff indicates that the skills and knowledge of municipal officials need to be improved (Figure 4).²

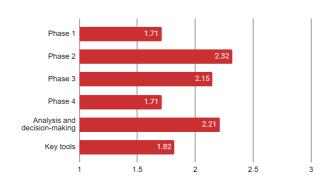


Figure 4 – Self-assessment of solid waste management capacity (1-3, 3 being the highest)

Governance of the market is the responsibility of the municipality and of the Director of Public Works and Equipment and Coordinator of Public Markets in Cap-Haïtien, who appoints a team – which consisted of seven people during the diagnostic exercise – for the management and security of the market. The research indicates that there is no clear procedure for managing market spaces. To obtain a space, a trader must contact the director and pay a fee

Yet 71 per cent of traders say they pay for their space at the market. Payments are made not only to municipal staff – a total of 55 per cent of payments – but also to other players such as racketeers, space owners and market security.

45 per cent

of fee payments are made to actors other than the municipality.

Moreover, with both formal and informal authorities operating in the space, traders can end up paying more than once for using the market.

As discussed in the next sections, traders pay additional fees for the use of services such as storage of goods, the collection of solid waste and the use of toilets.

The perception of security at the market is weaker near the main entrance and near the Shada 1 neighborhood and the Care space – areas where racketeering activities appear to be more widespread (Figure 5).

In summary, management of the Pont Neuf Market in Cap-Haïtien is complicated by a fragmented regulatory framework and persistent problems with security, hygiene and solid waste management. A sense of insecurity is heightened because of frequent racketeering in some areas, while payment systems are inconsistent and informal, leading to low compliance by traders in paying market fees.



Figure 5 - Perception of safety at the Pont Neuf Market (AVSI 2024)

² Idem but without finances

6

ranging from 3,500 to 15,000 HTG, depending on the length of time the trader spends at the market. In addition, there is a weekly fee of 50 HTG per trader to be collected. However, on average, the municipality only collects 2,000 HTG per week, which represents the fees for only 40 traders.

¹The assessment is based on 7 different criteria relating to the four stages of the market management cycle (Phase 1 'Where are we?', Phase 2 'Where do we want to go?', Phase 2 'Where do we want to go?', Phase 3 'How do we want to get there?', Phase 4 'How do we implement and know we are on track?') as well as finance, analytical/decision-making skills and familiarity with key tools. The graph above shows the average for each category of questioning.

CITI7FNSHIP

In this section, the theme of citizenship is explored through a demographic analysis of the market's users, as well as an analysis of the various social associations.

The Pont Neuf Market is a crucial socio-economic and cultural center that is rooted in the history and identity of the community. However, the traders have very little say in its management and do not have faith in the authorities. Therefore, the Market Director has an important role as the link between the community and municipality. Local civil organizations support the traders despite financial constraints and the absence of a formal traders' association. In addition, despite a perceived lack of security, the market is also characterized by strong community cohesion among traders, which is reinforced by cultural practices such as voodoo.



The Pont Neuf Market is a crucial socioeconomic and cultural center that is rooted in the history and identity of the local community.

The market traders are predominantly women between 36 and 50 years old who are heading singleparent households (Figures 6, 7 and 10). Their level of education is low, particularly among women, with 54 per cent having completed primary education and 18 per cent having no education at all (Figure 8). Furthermore, although most traders live in Cap-Haïtien, 80 per cent of them are not originally from the town, indicating a migratory trend.

With regard to the market's customers, most – a total of 79 per cent – are from the North department (Figure 9). The customer base consists mostly of members of the general public, but other traders also visit the market (Figure 11).

In the economic sphere in Haiti, women face a number of complex obstacles that perpetuate gender inequality. These obstacles include limited access to formal employment, wage inequality, and difficulties in accessing credit. In addition, female entrepreneurship, although widespread, is often hampered by a lack of access to financial resources, entrepreneurial training and support networks. Despite the key role they play in the economic dynamic, female entrepreneurs can thus face significant challenges in consolidating and growing their businesses.

BOX 2 - THE MADAN SARA

In Haiti, the Madan Sara are female traders who play a crucial role in the country's informal economy. They buy agricultural produce wholesale in rural areas, transport it to urban markets and resell it there.

At the Pont Neuf Market, they are mainly women between 30 and 60 years old from the Saint Raphaël region. They travel on Mondays and Thursdays, spending the night onsite to be ready at dawn. With no fixed timetable, their arrival depends on their financial means and they return to the rural areas of Saint Raphaël once their stocks are exhausted. Without adequate protection such as locks or doors, the Madan Sara lack security when they spend nights at the market, particularly in the Care area.

The Madan Sara pay a fee of 50 HTG for the space they use and sometimes an additional 50 to 100 HTG to racketeers. They occupy stalls randomly and their customers are mainly women. There is no unified organization for the Madan Sara at the Pont Neuf Market.

Furthermore, the Madan Sara are dependent on the harvests and on purchasing produce from farmers in Saint Raphaël on credit or with money borrowed from various sources. They are therefore particularly exposed to economic losses if they do not sell their produce before it expires.

PROFILES OF TRADERS AND CUSTOMERS





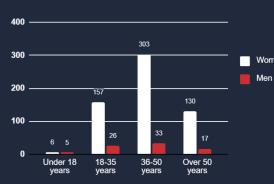


Figure 7 – Age by gender of traders

same department (North)

from elsewhere

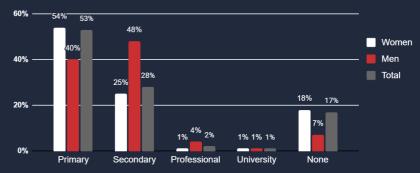


Figure 8 – Level of education of traders

CUSTOMERS 88% of traders live in Cap-Haïtien 71% of customers come from the 80% of traders are not from the town 27% of customers come from the and of those, a third come from the North-West department and 2% come same department (North)

Figure 9 - Origins and place of residence of traders and customers

of traders are heads of their households, which are 90% composed of 1 to 3 people, which is below the national average.

of households have only one adult, the majority a single woman.

of households have children: on average 2.4 per household; some traders (10%) bring their children to the market.

Figure 10 - Composition of trader households

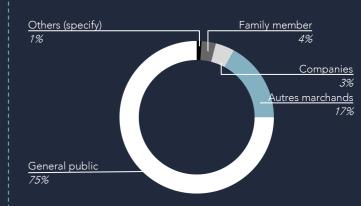


Figure 11 - Main customer groups

Community focus groups in Haiti's Pont Neuf Market revealed important perceptions of **gender roles** and market dynamics:

- Women are seen as essential 'pillars' of Haitian society and vital to its proper functioning..
- In the family setting, women are seen as responsible for care and household tasks.
- With regard to economic opportunities, inequalities between men and women were highlighted.
- Market management is perceived to be equally distributed between the genders.
- However, there are perceptions of inequalities in market-related decisionmaking processes: According to the menonly focus group, women have an active role in decision-making. Conversely, the women's group felt that men were the primary decision-makers.

This study also identified 9 grassroots community organizations that are active in the area around the Pont Neuf Market. Four are women's organizations, four are mixed and one is a youth organization (Figure 12).

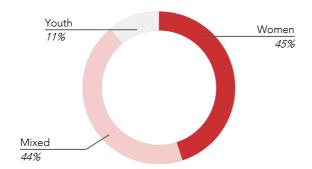


Figure 12 – Types of organisatons

These organizations are active in several areas but mainly in the environmental and educational sectors (see Figure 13).

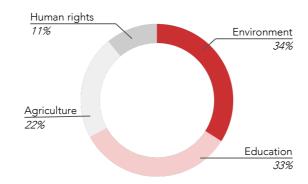


Figure 13 – Primary areas of intervention of the organizations

BOX 3 – STREET CHILDREN

Street children are a regular feature at the Pont-Neuf market and the nearby area. Most come from the surrounding neighborhoods, often from single-parent families where the mothers are left to manage family responsibilities alone. These children represent a vulnerable population, exposed to many challenges and deprived of fundamental rights such as access to education and food.

The challenges these children face are exacerbated by The destruction of certain spaces in the surrounding areas and the interruption of the activities of local youth organizations.

Moreover, market users view the street children as delinquents – a reportedly new phenomenon stemming from Haiti's economic difficulties. The market could be a source of income for some of these young people, who profit by collecting fees from traders and stealing goods.



ECONOMY

The Pont Neuf Market plays a crucial role not only for traders and other stakeholders but also in stimulating the local economy. It helps to circulate financial resources, helps small businesses grow and creates new employment opportunities. The market is also vital to the livelihoods of families, helping them meet basic needs such as rent, education and food.

However, the market still faces challenges – particularly around the payment of fees for the use of space. In addition, there is no structured support system for traders who are in financial difficulty. Resolving these issues, for example through a more equitable and sustainable financial management system and improved access to financial resources, would help cultivate the trust and active participation of traders and ensure the viability and growth of their businesses.

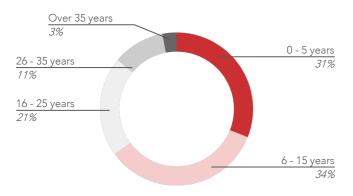


Figure 14 – Years of activity on the market

The market operates seven days a week and almost all traders (96 per cent) occupy their space at least five days a week, with activity peaking on Tuesdays and Saturdays. The turnover rate among traders remains stable, with more than two-thirds of them having been on the market for more than six years (Figure 14).

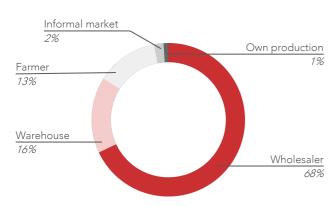


Figure 15 - Origin of products sold on the market

A wide variety of products are sold at the Pont Neuf Market. The most popular categories are fresh agricultural produce and dry food products (Table 1). Traders highlight that most of the products are local (89 per cent come from Haiti) and are often transported without plastic, which helps reduce waste. Goods are often bought from a wholesaler before arriving at the market (Figure 15).

Knowing how difficult it is to obtain precise and reliable data on the traders' incomes or profits, researchers simply asked traders about the value of their sales for the day preceding the interview and their idea of good and bad sales days. Most of the traders said that they had had sales of up to 1,500 HTG on the day before the survey, which qualified as a bad day for them. When asked what turnover constituted a good day, most of them said between 3,000 HTG and 10,000 HTG.

Access to credit makes it possible for traders to increase their purchasing power and expand their business. Fifty-five per cent of traders have access to credit, most of which comes from wholesalers (Figure 16). However, 69 per cent of traders are also in debt, demonstrating the need to introduce a more sustainable financial management system.

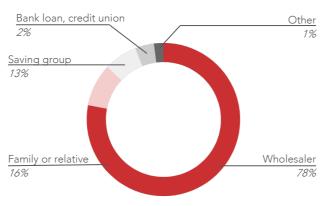
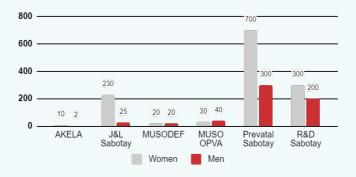


Figure 16 - Source of credits

BOX 4 - SAVINGS GROUPS

Savings groups are a form of community collaboration where members support each other in the purchase of goods and with personal and economic goals. A total of six savings groups were surveyed as part of the LAVIL project in Cap-Haïtien. Their members were mainly women (Figure 17) and the groups had share capital of between 500,000 and 1,000,000 HTG. The largest of these groups had 3,000,000 HTG (Figure 18).



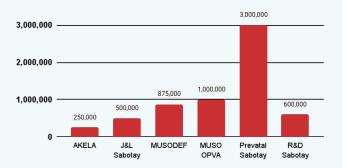


Figure 17 – Gender composition of saving groups

Figure 18 – Social capital of saving groups in HTG

CATEGORY	EXAMPLES OF PRODUCTS	% OF PRODUCTS
Fresh agricultural produce	Mainly local produce, in particular fresh seasonal vegetables, tubers, sometimes fruit	32%
Dry food products	Oil, pasta, beans, dried fish, cereals (millet, rice, maize, wheat), coffee, sugar, bread	19%
Local meat + frozen meat	Local beef, pork, goat. Imported frozen meat in pieces – chicken, turkey, pork and hot dog	8%
Spices	Ready-to-use mix for marinating food (meat, fish, vegetables), the main ingredients being: leeks or chives, garlic, green peppers, onions, thyme, parsley, chilli, lemon, pepper, cloves, oil, salt	7%
Aleken (take- aways)	Take-away dishes cooked on site, usually a single dish of rice with beans, meat or fish and a variety of vegetables	7%
Other	Medicinal plants, clairin (traditional sugar cane distillate), handicrafts, cigarettes, medicine, shoes, tires	5%
Seafood/fish	Local fresh fish, shellfish and seafood	4%
Beverages	Local beer (Prestige), local and imported soft drinks	3%
Cosmetics	Cosmetics for skin and hair, make-up, hygiene products	2%
Hardware and products for magic	Household products, kitchen and bathroom items, hardware (sheet metal, paint, iron, etc.) Perfumes, candles in various colors, jugs, twine and laces, colored chalk powder, ceremonial kit (consisting of a beaker, bucket and white enamel basin), bottles with glitter, pestle, drums, rag dolls, straw hats, ceremonial robes and satin handkerchiefs, straw bags (djakout), clairin, etc.	2%
Live chickens + abattoir	Local chickens and a small quantity of guinea fowl, turkey and duck	1%
New and second- hand clothing	Imported new and second-hand clothing	1%
Electronic products	Mobile phones, battery chargers, headphones, SIM cards, phone chargers, radios, etc.	1%

Table 1 - Categories of products sold in the market

12

SERVICES

The delivery of services is essential to the proper functioning of the town and markets. This section reports on the findings in this area, in particular on solid waste management, which is a key objective of the LAVIL project due to its implications for public health and the environment, particularly marine areas.

The accumulation of solid waste, or 'fatras' as it is known locally, poses a risk to public health and the physical environment. A lack of financial resources and adequate facilities hamper authorities' efforts to address the issue. Moreover, a fragmented approach resulting from the absence of official service providers leads to traders managing solid waste themselves.

An estimated 185,000 tons of solid waste was generated in Cap-Haïtien in 2015, a figure that is increasing sharply with the town's strong population growth. The solid waste that is generated varies according to the socio-economic level of the population (Table 2).

We live, walk and eat on the fatras. What bothers us is that we breathe in bad smells, especially when it rains. Rotten garbage makes the situation worse. Cardboard, garbage and bad smells produce mosquitoes.

The town and the market generate different types of solid waste, especially with regard to the proportion of plastic waste, which comes from the packaging and containers of the products sold. In both cases, the proportion of putrescible and biodegradable waste is similar and accounts for the largest part of solid waste (Figure 19 and 20).

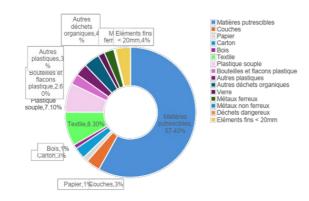


Figure 19 - Average omposition of waste at Cap-Haitien (Naquin 2016)³

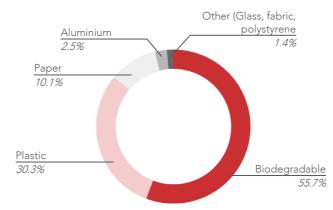


Figure 20 - Types of waste produced at Pont Neuf Market

Other solid waste consists mainly of water bags, cardboard boxes and plastic containers used for soft drinks. In the surrounding neighborhood, solid waste consists mainly of plastic (45 per cent) and biodegradable waste (45 per cent) (Figure 21).

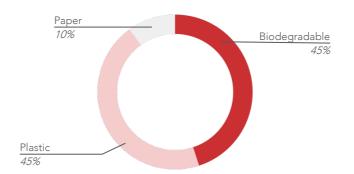


Figure 21 - Types de fatras in the surroundings of the Pont Neuf Maket

The surveys reveal that solid waste around the Pont Neuf Market comes mainly from traders (96 per cent), in particular the Madan Sara. They buy large quantities of agricultural produce for resale and throw away the waste that comes with it. Furthermore, they leave unsold or expired foodstuffs behind at the market to avoid the costs associated with processing these.

Households, street restaurants and soft drink vendors also produce large quantities of waste due to their use of plastic bottles and plates.

During the course of their commercial activities, 40 per cent of traders throw their waste on the ground near their stall, 31 per cent throw it in buckets and the remainder use bags (29 per cent) (Figure 22).

Secondly, 80 per cent of traders say they dispose of their waste once a day, mostly by doing it themselves (47 per cent) or by using the wheelbarrow service (41 per cent) (Figure 23). An almost absolute majority (98 per cent) of this solid waste ends up on existing piles of garbage, while 2 per cent is burnt.

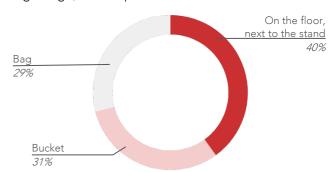


Figure 22 - Where is the waste put when traders are working?

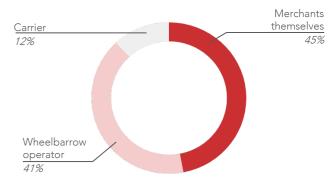


Figure 23 - Responsible for waste disposal at the merchant's stand

Moreover, 9 per cent of the traders who were interviewed at the Pont Neuf Market pay a service fee for solid waste collection. Private companies are virtually non-existent and only the wheelbarrow operators, in a resourceful enterprise, make

Socio-economic level of the neighborhood	Average number of residents per household (without taking into account the actual proportion of residents in each neighborhood)	Average quantity of waste per resident per day (kg/res/day)
Average level	4.74	0.52
Precarious level	5.09	0.32
Mixed level (high, average, precarious)	5.47	0.38

Table 2 - Categories of products sold on the market (Naquin 2016)²

² Naquin, P. (2016). Conception et Réalisation d'une Campagne de Quantification et de Caractérisation de Déchets Menagers sur le Territoire de l'AITOM le Marien (Cap-Haitien - Limonade Quartier Morin). Institut National des Sciences Appliquées (INSA) de Lyon, CEFREPADE. Lyon: Banque Interaméricaine de Développement (BID).

³ idem



¹ Burgeap, 2015, cité dans BRL Ingénierie. (2020). Etude d'impact environnemental et social (EIES) ; Projet de Développement Municipal et de Resilience Urbaine au Cap-Haitien (MDUR) ; Version Finale. Cap Haitien: République d'Haiti - Ministère des Travaux Publics Transports et Communications.

arrangements with certain traders and residents to collect and dispose of their waste for a small fee.

Most Pont Neuf traders consider cleanliness to be a very important asset in their workplace (Figure 24).

On the other hand, their expectations are not being met, since a large majority of traders are **not satisfied** or **not very satisfied** with solid waste management at the Pont Neuf Market (Figure 25).

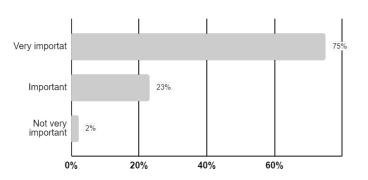


Figure 24 - Importance attached to cleanliness in the Pont Neuf Market area

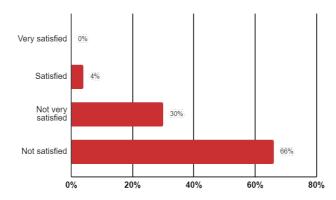


Figure 25 - Level of satisfaction with solid waste management in the Pont Neuf Market

BOX 4 – SOLID WASTE AT THE PONT NEUF MARKET

The solid waste that is generated at the Pont Neuf Market follows a predetermined route. It is first accumulated in small batches by local households and traders in their immediate environment. These small batches are then grouped together in large piles in various corners of the market, mainly transported there by wheelbarrow operators. However, the people who were interviewed believe that only 10 per cent of solid waste is removed to informal dumping sites in surrounding neighborhoods by the municipality or by private individuals.

Adopting a more comprehensive approach to solid waste management would make it possible to analyze all the stages of a more sustainable solid waste management system and to identify any planned or ongoing actions that could improve its development. These various findings are presented in the table below:

STAGE	FINDINGS		
Pre-collection	 Informal involvement of traders evacuating solid waste to outside the Pont Neuf Market Lack of public rubbish bins 		
Gathering	 Solid waste from traders and other people generated outside the Pont Neuf Market Waste scattered in front of the market and on the coastline 		
Collection	 Irregular and insufficient collection by the municipality throughout the town and the Pont Neuf Market area 		
	 Entrepreneurs have started testing the use of skips in the town of Cap-Haïtien, allowing them to test operational and financial models. 		
Treatment and landfill	 Mainly burnt on site at Pont Neuf Inappropriate dumping in mangrove areas 		
	Entrepreneurs have started testing the use of skips in the town of Cap-Haitien, allowing them to test operational and financial models		
Resource management	A few traders and SMEs are sorting solid waste for animal feed or composting.		

	 The majority of solid waste is piled without sorting or recovery. There are informal collectors of plastic and metal materials in the town, but the demand and market for recyclable materials has decreased because the industries are based in Portau-Prince. There is one company with more than 2,000 customers that collects excreta from residences and a market for the purpose of making compost by mixing it with sugarcane bagasse. Some organic materials such as coconut, bark and banana bunches are less valued than others.
Inclusiveness	 There is good experience and regular practice of the solid waste water and sanitation sectoral table. There is a risk of social tensions / violence / bad feeling when traders are evicted from the coastline without offering both traders and the population viable alternatives.
Financial viability	 Lack of clarity on what services are covered at the market by the fees that are collected Wheelbarrow operators do not know what they will have to pay to authorized transporters to Mouchinette. There are no details of the prices for using the landfill in Mouchinette. The impact of fuel price increases is also not known. A large proportion of the population is experiencing a food crisis. Inflation is happening at a rate of more than 22%.
Treatment and landfill	 The municipality of Cap-Haïtien encourages the participation of the private sector in offering innovative solutions. Several structuring projects are underway or will soon be implemented: Implementation of the waste management and treatment project (Mouchinette) by Propublic SAM

Table 3 – Findings related to solid waste management at the Pont Neuf Market

BOX 5 - THOUGHTS ON SOLID WASTE MANAGEMENT AT THE PONT NEUF MARKET

- Biodegradable materials and plastics can be recovered to reduce the volumes of municipal solid waste that has to be transported to landfills.
- Each kilogram that is 'treated' by making use of biodegradable materials or recycling plastic reduces the remaining solid waste that has to be disposed of in the landfill.
- Sorting solid waste is necessary to facilitate the recovery process.



In addition to solid waste management, the Pont Neuf Market also faces serious challenges related to access to water, sanitation and electricity. The market has access to an artesian well and a water point, but the quality of the water is undetermined and it needs to be checked to ensure that it is usable (Figure 27).

With regard to sanitation, existing facilities are dysfunctional and insufficient, with only two toilet blocks, which are in poor condition. Informal toilets near water bodies in the surrounding area aggravate the poor sanitation situation (Figure 28).

The absence of electricity affects market activity and the provision of basic services. The market also suffers from a serious lack of health services, highlighting a need for public health organizations to address the environmental conditions that affect traders and customers.

Regarding transportation, the majority of traders walk to the market, while the rest mainly use public transportation, tap-taps (shared taxis) or municipal vehicles (Figure 30). About 30 per cent of respondents combine two or more of Regarding of transportation.

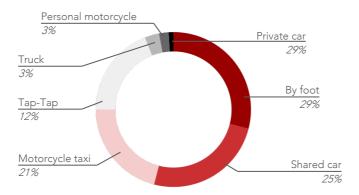


Figure 30 - Most popular means of transport to reach the Pont Neuf Market



Figure 26 – Water point



Figure 28 – Structural damage to the roof



Figure 27 – Informal toilets on the Mapou River

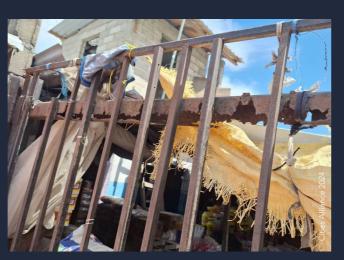


Figure 29 – Damages to commercial infrastructure



ENVIRONMENT

The Pont Neuf Market faces significant challenges with regard to public health and the environment, stemming from inadequate infrastructure, poor solid waste management and unsatisfactory sanitation facilities. In this last section, the environmental conditions of the market are analyzed, focusing on adverse effects on those using the market.

For example, dampness resulting from structural and drainage problems threatens the durability of structures and creates an unsanitary and uncomfortable environment. The presence of wastewater aggravates this situation, as it releases unpleasant odors and poses additional health risks.

The air quality at the market is negatively impacted by multiple factors, such as uncontrolled incineration of waste in the neighborhood that releases toxic substances, road congestion and cooking fires. Furthermore, contamination of ground and surface water, exacerbated by flooding and plastic waste, poses serious health risks, especially for vulnerable populations. In fact, the market is located close to the coastline and the Mapou River (Figure 30).

Figure 31 - Shoreline near the market

20

The market is also vulnerable to earthquakes and floods, due to its proximity to the sea (Figure 31).

The drainage channel is vulnerable to pollution and obstruction by solid waste, which can lead to additional flooding (Figure 32 and 33). It is crucial to take these factors into account to improve risk management, particularly with regard to planning of emergency exits, waste collection points and drainage infrastructure.

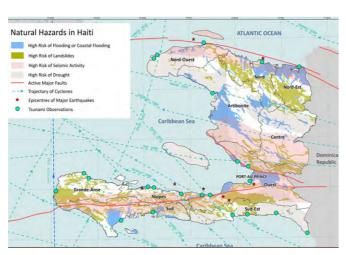


Figure 32 - Natural threats in Haiti (Atlas des menaces naturelles en Haïti, 2015)





Figure 33 et 34 - Blocked drainage and risk of flooding

21



Cities Alliance Cities Without Slums