

WATER SUPPLY PROBLEM FOR COMMERCIAL ACTIVITIES ON THE FORMER ABIDJAN-GRAND-BASSAM ROUTE (SOUTH-EAST URBANIZATION FRONT OF ABIDJAN)

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ABSTRACT

The city of Abidjan, the administrative and economic capital of Côte d'Ivoire, is undergoing accelerated urbanization. These peripheries have become new spaces for conquest and urban growth. This is the case of the South-East Urbanization Front (former Abidjan-Grand-Bassam route). This front is experiencing a surge of very attractive tourist activities, due to its sandy beaches lined with coconut trees and the freshness of the seaside. However, these activities, which welcome a multitude of tourists and visitors from all walks of life, face many difficulties, including water supply. The objective of this study is to describe the water supply mode of the seaside activities of the South-East Urbanization Front of Abidjan. To achieve this, a methodology based on a literature search and supplemented by field surveys was adopted. The results of the study show that bathing activities are supplied with water by an informal system of diversified distribution from private castles and wells. To remove the area from bathing activities from the informal supply system, an extension project is being studied to connect its public water service network.

KEYWORDS: Former Abidjan-Grand-Bassam route, bathing activities, equipment, water supply.

1 INTRODUCTION

The economic capital of Côte d'Ivoire, Abidjan is currently the most populous city with 4,707,000 inhabitants, or 21% of the Ivorian population (INS, 2014). It extends from north to south with a distance of about 40 km and from west to east 26 km (Ministry of Planning, 2007). From a spatial point of view, the urban area of Abidjan increased to nearly 16,000 ha in 1980 and reached 442 km² or 44,200 ha currently (MCLAU, 2013). This spatial

growth is a process of periurbanisation which takes into account the gradual integration of rural areas which had hitherto remained outside the city. This is the case of the South-East Urbanization Front (former Abidjan-Grand-Bassam route). This front is experiencing a rapid integration into the city towards Grand-Bassam, through an outbreak of very attractive tourist activities, because of its sandy beaches lined with coconut trees and the freshness of the seaside. These seaside activities welcome a multitude of tourists and visitors from all walks of life. These seaside areas, which some authors consider to be real «cities in reduction» (Knafou 1992, p.858) require water networks to supply both resident populations and tourists present for limited periods of time. Our study space, 8 km long, located on the former Abidjan-Grand-Bassam route, bordering the Atlantic Ocean (Figure 1), is facing many challenges, including water supply.



Figure #1: Study area location

The seaside activities located on this stretch do not escape the problem of water supply. They need water. To meet the demand of tourists for their hydration, hygiene, leisure and

sports activities. For the proper functioning of restaurants-hotels, restaurants-maquis, kitchens and laundry rooms, bathrooms, air conditioning and swimming pools, not to mention the maintenance of green spaces and buildings. In our study area, the seaside activities, very attractive, because of its sandy beaches lined with coconut trees and the freshness of the seaside, are here major assets for tourism. And yet, this space is not covered by the drinking water supply network of the public service. Hence our objective is to describe the mode of supply of the seaside activities on the former route Abidjan-Grand-Bassam. The following subsidiary questions arise from this objective:

- What types of economic activities are observed on the Abidjan-Grand-Bassam section?
- How do economic activities source water?
- What are the prospects for providing this area with sustainable water infrastructure?

We start from the hypothesis that the conditions of access to water in the peripheral area of the Abidjan-Grand-Bassam section are worrying and this situation determines the quantity of water used in the bathing activities. From this main hypothesis three specific hypotheses emerge:

- The economic activities observed on the Abidjan-Grand-Bassam section are construction and restoration activities.
- Economic activities source water through informal means.
- The prospects for sustainable service are the connection of the study area to the drinking water utility.

2 METHODOLOGY

The methodological approach used in this study consists of three phases: data collection, processing and analysis of results using the appropriate techniques, tools and methods. In addition to documentation, field data collection was conducted using tools such as the questionnaire, maintenance guide and observation grid. We began our investigations by identifying bathing activities on the former Abidjan-Grand-Bassam route. This survey identified 38 activities along the coast. Sampling was done in a stratified manner, using two criteria such as the types of activities and the mode of water supply. The first criterion gave three strata: restaurant-hotels, restaurant-maquis and bungalows. The second criterion gave two strata which are the public and private water supply facilities of the bathing activities. We used the route-by-route survey. On the 8 km section, we have defined 4 equidistant stations of 2 km, resulting from the division of the distance by the number of stations. To define the 4 stations, we used a multiple of 4 on the 8 km stretch from the limit of Abidjan (roundabout Anani) to Grand-Bassam (handicraft village). At each

resort, we investigated the bathing activities found with their typology and mode of water supply. As a result of this methodological approach, we have achieved the following results.

3 RESULTS

3.1. Identification of bathing activities

On the former Abidjan-Grand-Bassam route, there are several types of seaside activities including restaurant-hotels, maquis-restaurant and bungalows. These sites are an undeniable tourist attraction for many tourists who come to discover the beaches and culinary habits of Côte d'Ivoire. In total, there are 38 bathing activities (Table #1).

Table #1: Types of bathing activities

N°	Types	Number
1	Hotel-Restaurant	4
2	Maquis-Restaurant	11
3	Bungalows	23
Total		38

Source : our 2020 surveys

3.1.1. Hotel Restaurant

The hotel-restaurants are sites equipped with a certain standard of comfort and equipped with security personnel to accommodate customers with high purchasing power. These restaurants-hotels have a modern setting, are built in hard and operate permanently. They offer services such as accommodation, restaurants, bars, recreational areas, swimming pool, swimming in the sea etc. (Photo #1).

Photo #1 and 2: a restaurant-hotel on the Abidjan-Grand-Bassam coastline



Shot 2020, Adou, kouamé, Diabagaté

Umbrellas with sun loungers are arranged on the beach for guests to relax (Photo # 3). This site remains sufficiently selective for most clients because the cost of services is relatively high.

Photo #3: Sun loungers on the beach for guests to relax



Shot 2020, Adou, kouamé, Diabagaté

3.1.2. Restaurant-maquis

Maquis-restaurants are spaces that differ from hotel-restaurants in the absence of accommodation and security personnel. These Maquis-restaurants are made up of a main building and baits arranged here and there. They are half hard built with the property's concrete basement surmounted by wooden pillars, all covered with a straw roof. The fences are made of bamboo wood. Under the box-shaped baits are benches and chairs that allow customers to relax or eat (Photo 4 and 5). These Maquis-restaurants only work on weekends and holidays.

Photo #4: A Maquis-restaurant

Photo #5: View from inside a Maquis-restaurant



Shot 2020, Adou, kouamé, Diabagaté

Shot 2020, Adou, kouamé, Diabagaté

3.1.3. Bungalows

The bungalows are relaxation sites only. They are rented individually and can only accommodate a couple, a family or a group of friends. These bungalows are made entirely of bamboo wood and covered by straw (Photo #6).

Photo #6: a bungalow on the Abidjan-Grand-Bassam coast



Shot 2020, Adou, kouamé, Diabagaté

There are no services offered on the site of the bungalows. Customers are required to come either with food, or order food and drink in the other two categories nearby. The bungalows are available daily. They are built in compartments fenced on all three sides by branches of coconut tree; the open part overlooking the sea. These different categories of seaside activities are advertised by billboards along the seaward route (Photo #7 and 8).

Photo #7 and #8 : Différentes pancartes publicitaires



Shot 2020, Adou, kouamé, Diabagaté



Shot 2020, Adou, kouamé, Diabagaté

These various activities, most of which are carried out in makeshift installations, lack a public water supply network.

3.2. Water Supply Mode of Operations

It is noted that the inventory of infrastructures drawn up on the former Abidjan-Grand-Bassam route reveals a number of realities. In fact, the bathing activities, despite their economic influence, lack a public water supply network. In response to this situation, the owners of bathing activities use alternative water supply equipment (Table #2).

Table #2: Types of Water Supply Equipment

Types of bathing activities	Types of equipment		Staff of equipment
	Private Castle	Well	
Hotel-Restaurants	6	9	15
Maquis-restaurants	9	4	13
Total	15	13	28
Percentage	54%	46 %	100

Source : our 2020 surveys

The result of the inventory indicates that two types of bathing activity out of the three types identified use water supply equipment. The two types of storage equipment are private

castles and wells. However, there are more private castles with a total of 15 or 54% against 13 wells or 46%.

3.2.1 Private Castles

According to the surveys, restaurants-hotels and maquis-restaurants all have water storage equipment whose model differs from one establishment to another. This storage equipment, with various capacities, is installed at heights on metal or concrete pillars (Photo #9 and 10). Most often, square or round shapes with capacities ranging from 1,000 to 2,000 liters are used the most. These reservoirs make it possible to store large quantities of water and to supply bathing activities for several days.

Photo #9 and 10: Private Castles



Shot 2020, Adou, kouamé, Diabagaté

The installation and use of suppressors is a recourse widely used by the owners of bathing activities. These suppressors are used to pump water and pump it back from the high-water tanks (Photo #11).

Photo #11: View of a Suppressor



Shot 2020, Adou, kouamé, Diabagaté

3.2.2. Wells

The wells are circular structures ranging in diameter from one (1) to seven (7) metres deep.

Photo #12: A well on the coast



Shot 2020, Adou, kouamé, Diabagaté

They are made manually by sumps. The average cost of a well is about 15,000 CFA francs per m. However, its depth is related to the limit of air penetration into the hole and therefore to the possibility of respiration of the sump. These wells lack a casing system. Only the construction of a 0.5 to 1 m cemented margelle, above the ground, is the most used means to protect the water point. The comprehensive count reveals two (13) shoreline wells (Photo #12). It is also noted that the water provided by these wells is brackish, given the proximity to the sea. Direct observation shows the bathing activities using the number of water storage equipment. This significant amount of storage equipment indicates how often the water issue remains a concern for these activities. It is therefore necessary to consider the solutions envisaged to address the problem.

3.3. Study Area Development Perspectives

The water system is the set of pipe installations that allow the service of drinking water. Our study area is not covered by the drinking water service network. The network that supplies the city of Grand-Bassam comes from the drinking water production plant of Bonoua. This network crosses the city of Grand-Bassam, passing through the French quarter and the Court to end in the communal village called Modeste. It is a 300 cm diameter pipe, which feeds the bathing activities listed on the study site. The diameter of this pipe is modified from the village of Modeste, passing to 200cm in diameter.

Our study area on the Abidjan-Grand-Bassam section is limited to the communal village of Modeste, thus escaping the network coverage area. Public water supply equipment is provided for this part of the coastline, which is our study area. But for the time being, the feasibility studies for the study space equipment have been completed since October 31, 2020. This is an inclusive drinking water project in Greater Abidjan that will take into account the city of Grand-Bassam. Two water towers are planned for the town of Grand-Bassam with a modification of the diameter of the water pipe which will increase from 200 to 900 cm. The 300 cm drive will remain and will take over in case of rupture of the 900 cm one. The tender phase for the contract, which will cover the period from early November to late December 2020, is underway and the project will start in February 2021.

DISCUSSION

The Abidjan-Grand-Bassam route, located on the coast of the South-East of Côte d'Ivoire and 8 km long, begins its development and its economic influence on the basis of numerous seaside activities. In view of the intensity of tourist activities, many tourist establishments including restaurants-hotels, restaurants-maquis and bungalows of all kinds have developed on the coast. For Gnamba (2015, p. 4), these tourist receptives which in the 1970s were a major constraint for tourism in Côte d'Ivoire because of the

shortage of reception receptives are today a factor of development thanks to the enthusiasm of private investors. This is the same observation made by Diecket (2008, p.404) adding that the most visible seaside activities are in the field of restoration. Also, Tapé (2004, p. 39) states that in addition to restoration, there is a proliferation of huts or bungalows along the coastline developed by the riparian population which makes it a major activity after fishing. These seaside activities are very active on weekends and public holidays. They attract a clientele that extends beyond national borders. This predilection for this space is explained by its proximity to the ocean and the city of Grand-Bassam, which is a historic city. For Diecket (2008, p.404), these receptives do not really open until the weekend, tracing their rhythm to that of the clientele which turns out to be 'very seasonal' because the aims of this category of migrants can be summarized in these points: It is for them to join the useful to the pleasant, that is to say, discover, relax, entertain and if possible, swim in the ocean, with the need to eat at the food points, located along the tracks they travel. Despite the development of bathing activities on the Abidjan-Grand-Bassam axis, the major problem remains the lack of infrastructure to supply drinking water. Because of the glaring lack of infrastructure to supply drinking water, almost all of the bathing activities have recourse to other supply: private castles and wells. All this could weaken the development potential of bathing activities. According to Gnamba (2015, p.4), one of the constraints on seaside activities is the lack of will of the State, which favours very little initiative in seaside tourism. To provide a sustainable solution to the problem of drinking water supply in our study area, major projects are announced.

conclusion

The water resources of south-east Abidjan are sufficient to cover all bathing activities. However, the weakness of the investments made, the ageing of the water supply network and the consequences of this state make water supply problematic. Thus, bathing activities are constrained to a temporal management of water. They are subject to other sources such as private storage and wells. This situation is lion to be a sustainable solution. For the final settlement of this problem, the ideal would be an adequate investment in the existing network and the extension of the infrastructures that take the infrastructures of production, storage and distribution. However, the resolution of all these problems requires an effective partnership between

the State, through ONEP and the concessionaire of the public service of drinking water in Côte d'Ivoire that is SODECI.

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