

# STeP

Sanitation Technology  
Platform

## WATER MARKETS IN SENEGAL

Market Study of Drinking Water, Coolant, and Distilled Water in Senegal

OCTOBER 2018

### The Sanitation Technology Platform

Please Note: This report is a good faith effort by RTI International to accurately represent information available via secondary and primary sources at the time of the information capture. Visit the Resource Center at <http://stepsforsanitation.org/> for this and other STeP resources.





## TABLE OF CONTENTS



- I. Overview
- II. Methodology
- III. Market Insights
  - I. Drinking Water
  - II. Coolant
  - III. Distilled Water
- IV. Summarized Recommendations
- V. Next Steps

## In 2017, Afri-Dev conducted a study of water markets in Senegal to support commercial deployment of the Janicki Omni-Processor (J-OP).

### Background on Original Study

The Senegalese government actively seeks to advance goals that address two interconnected challenges—(1) to effectively manage its scarce water resources and provide basic water services to the Senegalese people and (2) to improve sanitation by responsibly managing wastewater and fecal sludge. To achieve these goals, the National Office of Sanitation of Senegal (ONAS) partnered with the Bill & Melinda Gates Foundation to launch "Restructuring the Fecal Sludge Market" to determine how to strengthen a business case for improved sanitation technologies. One objective of this program was to better understand the role that revenue from end products could play in building the business case for pairing a fecal sludge treatment plant (FSTP) with an omni-processor.

Within this program, ONAS introduced a pilot-scale Janicki Omni Processor (J-OP) in 2015. ONAS engaged Delvic Sanitation Initiatives, a private Senegalese company, as a partner to test and run the J-OP. Delvic retained Afri-Dev International Consulting to conduct a market study on water, a J-OP end product, to determine how revenues from water products could contribute to the business case for a commercial-scale unit in Dakar and attract funding to scale the J-OP region-wide.

Afri-Dev conducted its research and analysis from May to August 2017, submitted an interim report in August, and delivered a summary presentation of the report at the "Delvic Sanitation Initiatives (DSI) Interested Investor Meeting," in Dakar, Senegal, on August 9–10, 2017.

### About this Document

This document **summarizes the interim report authored by Afri-Dev** so that it can serve as an actionable guide for a broader audience of commercial and technical partners considering the J-OP in Senegal and other geographies. A subsequent deep dive on high priority markets was planned but has not been undertaken to date.

### Key Takeaway

Water end products processed into coolant may be more likely to contribute to a viable business model for the J-OP than other water products (e.g., drinking water, distilled water). In particular, specialty coolants sold to industrial customers represent the most promising opportunity, due to higher prices and a current unmet need in that segment.

# This document serves as a resource regarding select water markets in Senegal, it does not provide business model advice or profit projections.

The purpose of this report is not to evaluate business models or to make profit projections, but to understand the potential markets for water derivatives that may provide value to J-OP operators. Prices and products referenced in this report refer to bottled, finished, and branded products sold in bulk. Price differences are reported to varying degrees by container size, local production vs. imported products, and retail vs. wholesale prices; however, prices do not distinguish by product quality. Pricing does not consider product sold to a manufacturer or distributor. **One cannot assume that price points referenced in this report could be realized by a J-OP operator.**

## Water Production



Water production from J-OP



Potential actions and cost depending upon product:  
Transport, Storage

## Transformation



Transformation of water into end product, may include treatment, blending, etc.



Potential actions and cost depending upon product:  
Packaging, Filling, Labeling, Storage, Delivery

## Marketing and Sales



Marketing and sales of wholesale or retail products

Prices throughout this report reflect those collected in the marketing and sales phase of the water derivatives' value chain.

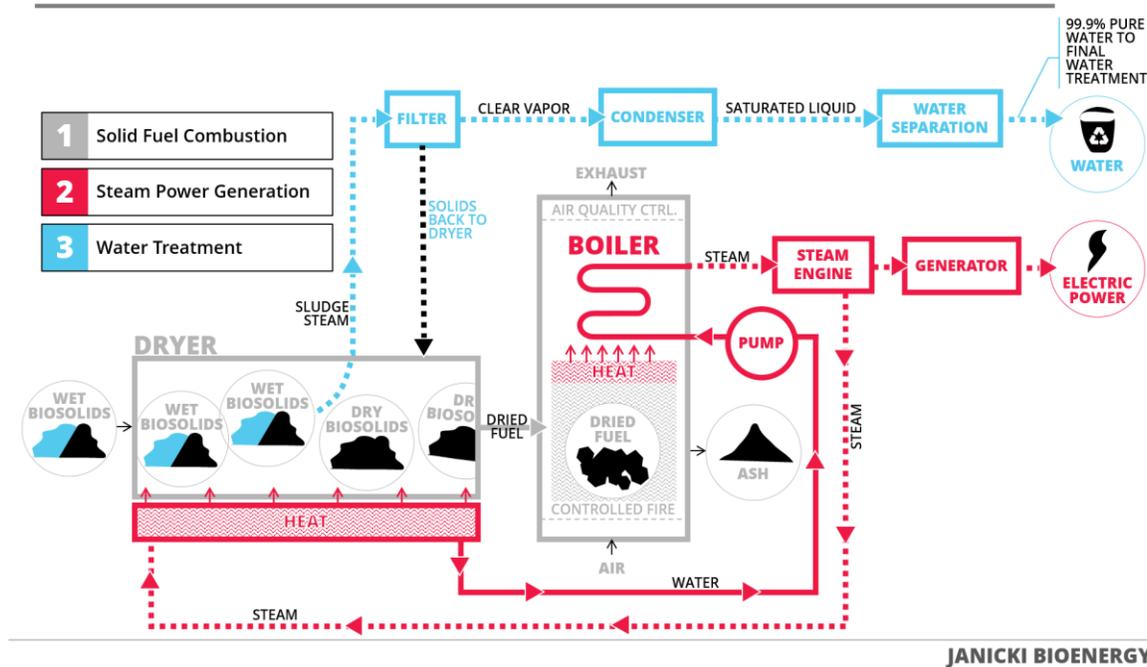
**STeP Note:** *To understand the true impact of water markets on J-OP economics, STeP would advise interested parties to evaluate production costs and profit margin associated with bulk supplied products and the cost implications of distribution and advertising, among other expenses that influence business models.*

# The J-OP is a community-scale fecal sludge treatment system that produces valuable end products, including water and electricity.

## The J-OP

The J-OP combusts dewatered biosolids and fecal sludge solids to produce sellable end products that can offset annual operating expenses. End products include water that meets World Health Organization (WHO) and U.S. Environmental Protection Agency (EPA) drinking water standards, heat, electricity, and ash, all while achieving complete pathogen destruction.

## How the J-OP Works



## System Specifications

Parameter	Water Mode	Power Mode
Footprint	<500 m <sup>2</sup> (excluding dewatering and effluent treatment)	
Labor Required	2–3 people per shift	
Inputs		
Composite Lower Heating Value (LHV) (Moisture Free)	13.7 MJ/kg	
Total Solids Content (entering the dryer)	44%	63%
Feedstock Types Accepted	Biosolids, dewatered fecal sludge, biomass (sawdust, woodchips of uniform size)	
Dry Solids Mass Flow Entering the Dryer	~620 kg /hr.	
Outputs		
Gross Electricity Production	203KW	277 KW
Water Production	335–420 liters/hour	105–145 liters/hour
Ash	Pathogen-free. Quantity dependent on inert material contained in the incoming feedstock	
Heat	Low-grade waste heat available for local use	
Air Emissions	Meets applicable EPA/local air standards	

## Afri-Dev analyzed potentially viable water markets to better understand the role revenue from end products play in the J-OP business case.

Although the J-OP produces multiple end products, water is considered an important value driver given the high quality and quantity produced. In 2017, Delvic engaged Afri-Dev, a consulting organization, to conduct market research around market size, price, customer feedback, and social benefit in three water markets: **drinking water, coolant, and distilled water**. This report provides a summary of that research.



### Drinking Water

Water output of the J-OP would require remineralization to be marketable as drinking water. The market consists of B2C, B2B, and B2G (government) customers.



### Coolant

Coolant is created by adding glycol to distilled water. The market consists of small-scale and industrial-scale B2B customers.



### Distilled Water

The output of the J-OP is distilled water. The market consists of small-scale and industrial-scale B2B customers.



## TABLE OF CONTENTS



I. Overview

**II. Methodology**

III. Market Insights

- I. Drinking Water
- II. Coolant
- III. Distilled Water

IV. Summarized Recommendations

V. Next Steps

# Afri-Dev conducted research in four crossroads regions in Senegal, selected based on size, density, and frequency of large events.

### Dakar

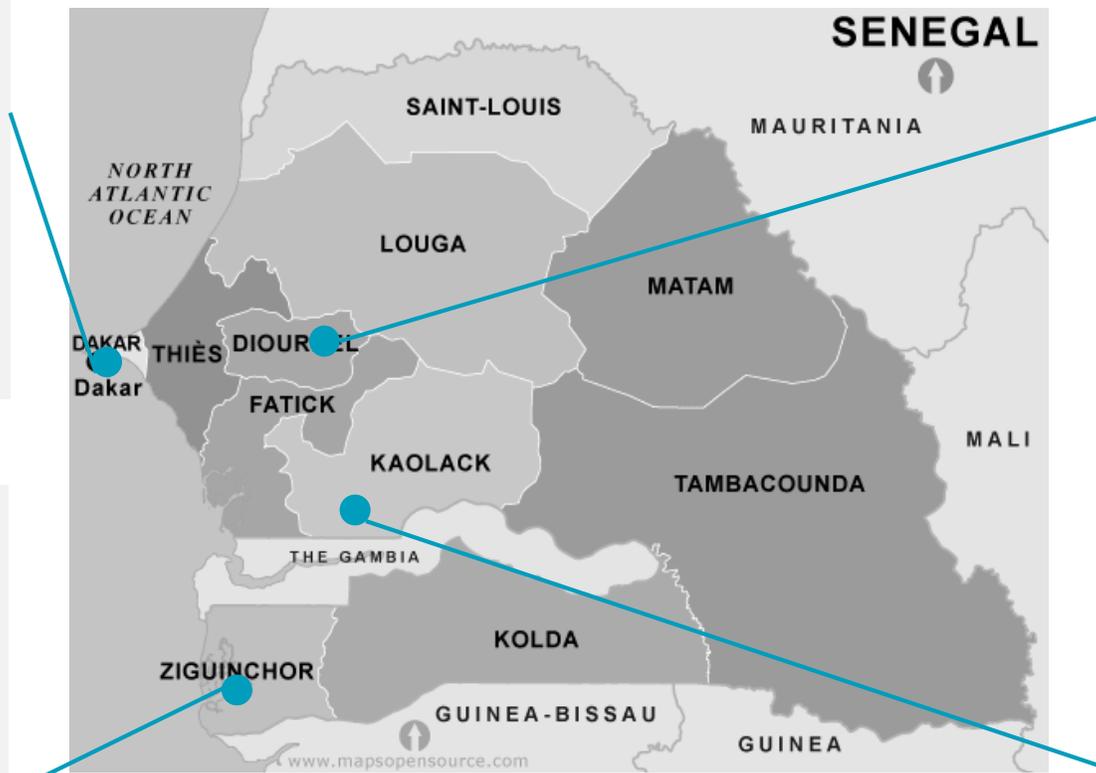
Population (2018)	3,630,324
Area (km <sup>2</sup> )	550
Details	Capital
Economic Viability	High
Drinking Water Access	98%

Smallest geographical area with highest population density, 80% of the market share; high concentration of most industries, salinization of the water table.

### Diourbel

Population (2018)	1,746,496
Area (km <sup>2</sup> )	4,824
Details	Religious region
Economic Viability	Medium
Drinking Water Access	90%

Located east of Dakar, with high population density, a regional hub for religious gatherings, strong economic potential (trade, religious events, etc.)



Source: [Mapopensource.com](http://Mapopensource.com)

### Ziguinchor

Population (2018)	641,254
Area (km <sup>2</sup> )	7,339
Details	Border region
Economic Viability	Low
Drinking Water Access	58%

Scarcity of fresh water and extreme weather could lead to the depletion of the freshwater table. In the near future, Ziguinchor will likely need to rely on reserves of neighboring regions.

### Kaolack

Population (2018)	1,120,404
Area (km <sup>2</sup> )	5,357
Details	Crossroads region
Economic Viability	High
Drinking Water Access	87%

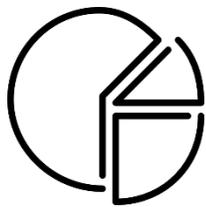
A crossroads town located in the center of Senegal, a rallying point to the regions of Tambacounda, Kedougou, Ziguinchor, Kolda, Sedhiou, and the continental subregion (Mali, Burkina Faso, Guinea).

Afri-Dev used mixed research methods, which included primary and secondary, qualitative and quantitative research.

Research Approach

Literature review	
Focus groups	6 focus groups with taxi drivers and mechanics
Semi-structured interviews	100 semi-structured interviews with water producers, water distributors, consumers, and water and industry experts
Meetings with officials	42 meetings businesses, government officials
Consumer preference survey	232 surveys
Blind taste tests	3 blind taste tests with 30 people total
Field visits	Visited industrial water users and producers, drinking water producers, markets, bus stations, service stations, super markets, factories, Hairdressers, cleaners
“Mystery Shopper” field research	Collected information from gas stations and pharmacies

Afri-Dev analyzed findings and developed insights across a broad range of market characteristics.



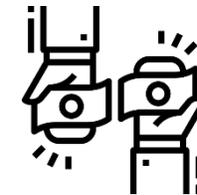
Market Size



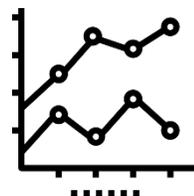
Current Pricing



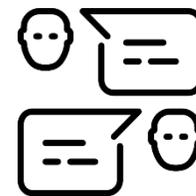
Leading Brands and Providers



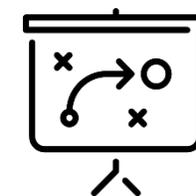
Buyers



Market Trends



Buyer Preferences



Marketing Guidance from Afri-Dev Consulting

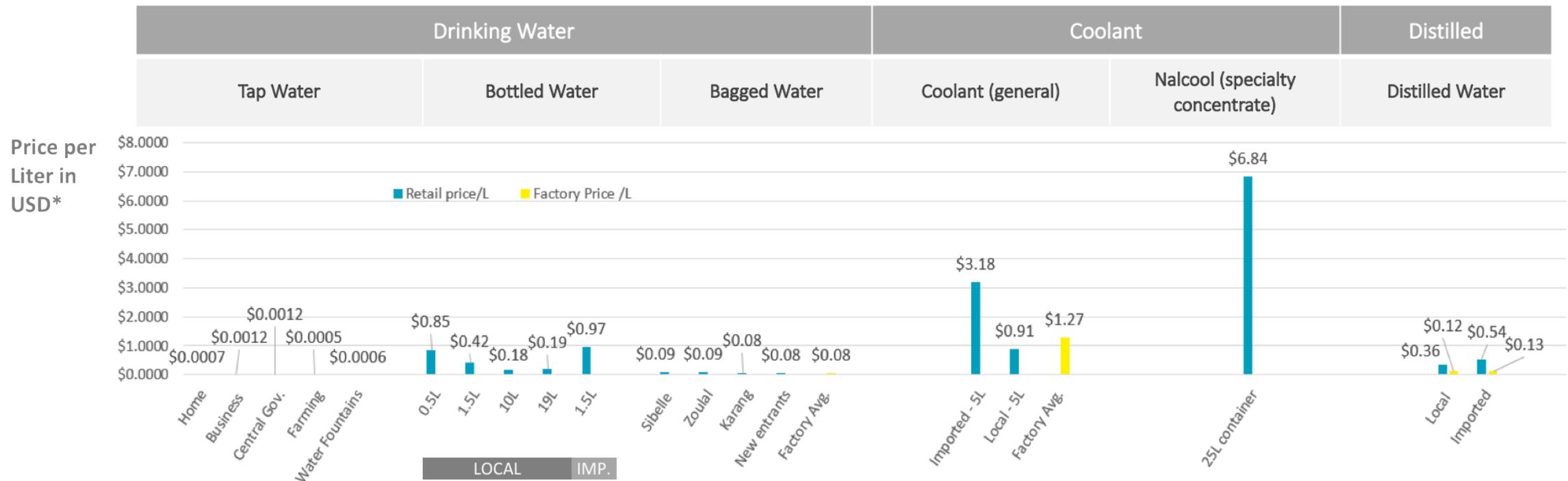


## TABLE OF CONTENTS



- I. Overview
- II. Methodology
- III. Market Insights**
  - I. Drinking Water
  - II. Coolant
  - III. Distilled Water
- IV. Summarized Recommendations
- V. Next Steps

The price per liter for water-derivative products varies by product type, customer, brand, container size, production location, and more.



	LOCAL	IMP.
<b>Est. Market Volume</b>	138,000,000 m <sup>3</sup> /yr.	120,000 m <sup>3</sup> /yr.
<b>Pros</b>	Strong industrial demand; customers dissatisfied with incumbent offerings	Perceived as higher quality water than bagged water
<b>Cons</b>	Input for other water types, not of highest value	Strong competition from incumbent brands; market may be skeptical of drinking water with fecal origin

	LOCAL	IMP.
<b>Pros</b>	Low cost of entry; room for quality upgrades; fastest growing market	B2B and B2G clients have consistent high-volume demand
<b>Cons</b>	Highly fragmented market; may be skeptical of drinking water with fecal origin	Locally produced coolant perceived to be of lower quality; will require outreach and marketing

	LOCAL	IMP.
<b>Pros</b>	Demand in the market; profit potential	Opportunity for industrial and small-scale business customers
<b>Cons</b>	Market is dominated by one player, Froid-Service	Small market; low awareness among small businesses, will require outreach and marketing

\* Value does not project potential profit, actual cost achievable in the market, or processing costs. Prices may reflect one or more products per category and are not standardized.



## TABLE OF CONTENTS



- I. Overview
- II. Methodology
- III. Market Insights**
  - I. Drinking Water
  - II. Coolant
  - III. Distilled Water
- IV. Summarized Recommendations
- V. Next Steps

Tap, bottled, and bagged/sachet water are the primary sources of drinking water in Senegal.



Tap Water

- Drinking water from regional surface and groundwater
- Dominated by Senegalese Water Company (SDE)
- Large home subscriber population



Bottled Water

- Drinking water that is both imported and domestic and is mineral, spring, and carbonated water
- High consumer affinity for market leader, Kirène



Bagged/Sachet Water

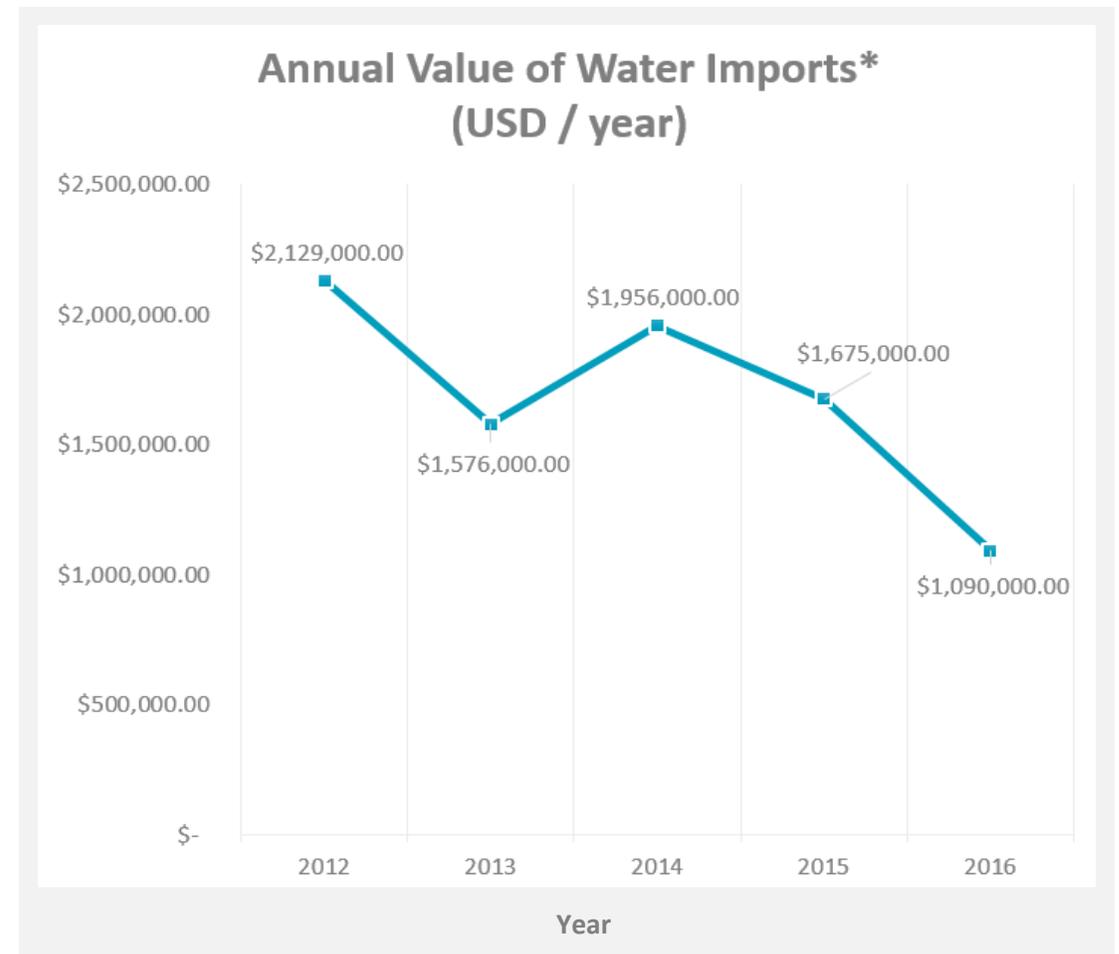
- Water sourced from local taps
- Most common drinking water, strong market growth rate
- Solely domestic production, largely informal

Key Product & Market Features

Safe drinking water for all is a national priority, and as a result, local capacity to produce and distribute drinking water has increased.

### Market Overview

- In 1981, the government of Senegal pledged to make access to safe drinking water for all a national priority.
- Rate of access to water in urban centers was 98% in 2015, up from 80% in 1996.
- Bacteriological compliance rate for water increased from 92% in 1996 to 98.54% in 2015—a rate that exceeds WHO recommendations of 96%.
- The annual value of water imports indicates a downward trend in imports, reflecting a significant rise in local production (see right).



\*Calculated by Paris Chamber of International Commerce (ICC), UN Comtrade, and confirmed by Senegalese Customs and the National Agency of Statistics and Demography.



Tap prices vary based upon customer type, with business and central admin customers paying nearly twice as much as domestic customers.

### Current Market Size

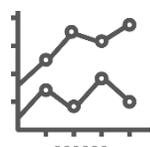


Market Size (USD/yr): Unknown

Market Size (FCFA/yr): Unknown

Market Volume (m<sup>3</sup>/yr): 138,000,000 (2015)

### Market Trends

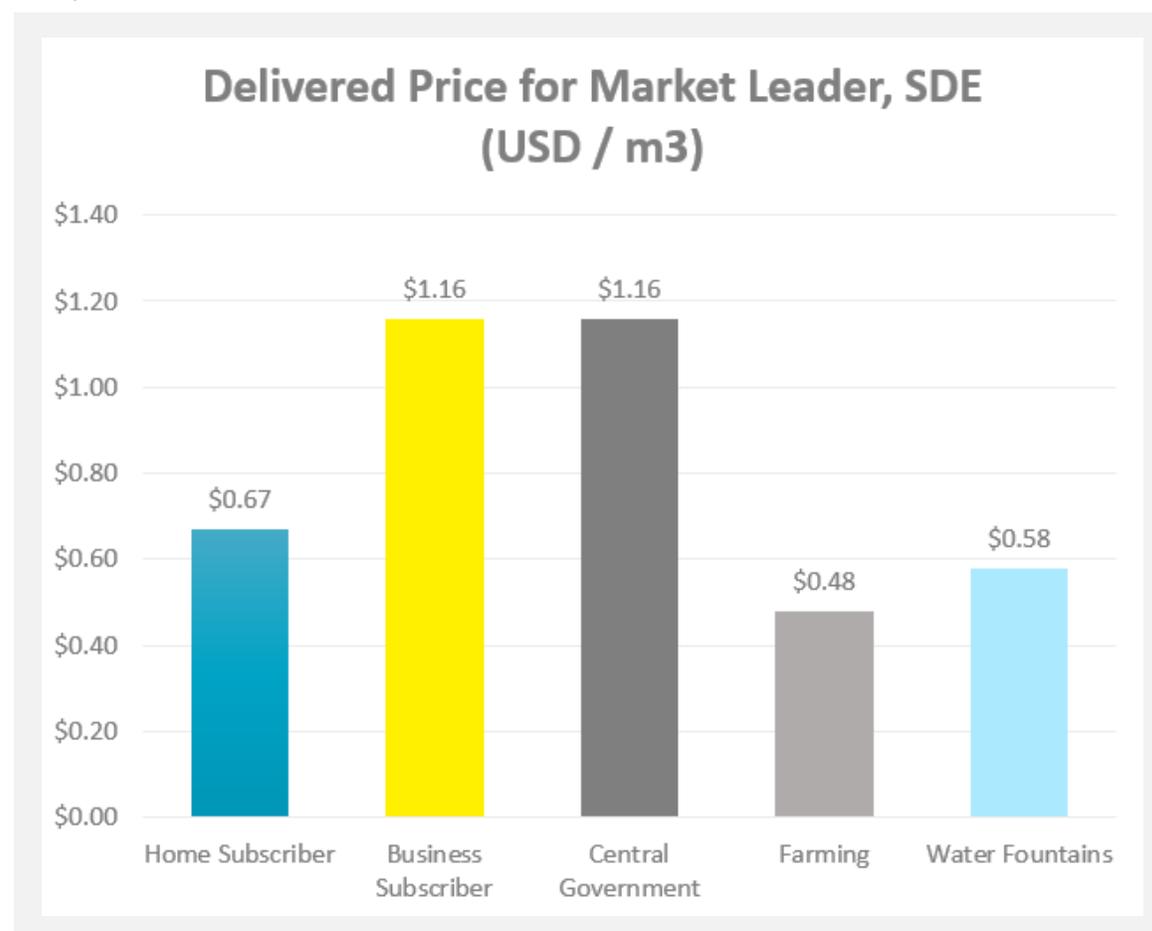


- Access to water is increasing across the country.
- Water companies must actively manage scarce groundwater resources as demand increases.

### Current Price



Range of Current Prices: Unknown (see prices for SDE below)





The tap water market is largely composed of two organizations; both struggle to provide quality water and to preserve scarce groundwater.

### Leading Brands and Providers



Urban Areas: Senegal's National Water Company (SONES) and the Senegalese Water Company (SDE)

Rural Areas: Rural Drilling Office (Ofor)

### Buyer Preferences

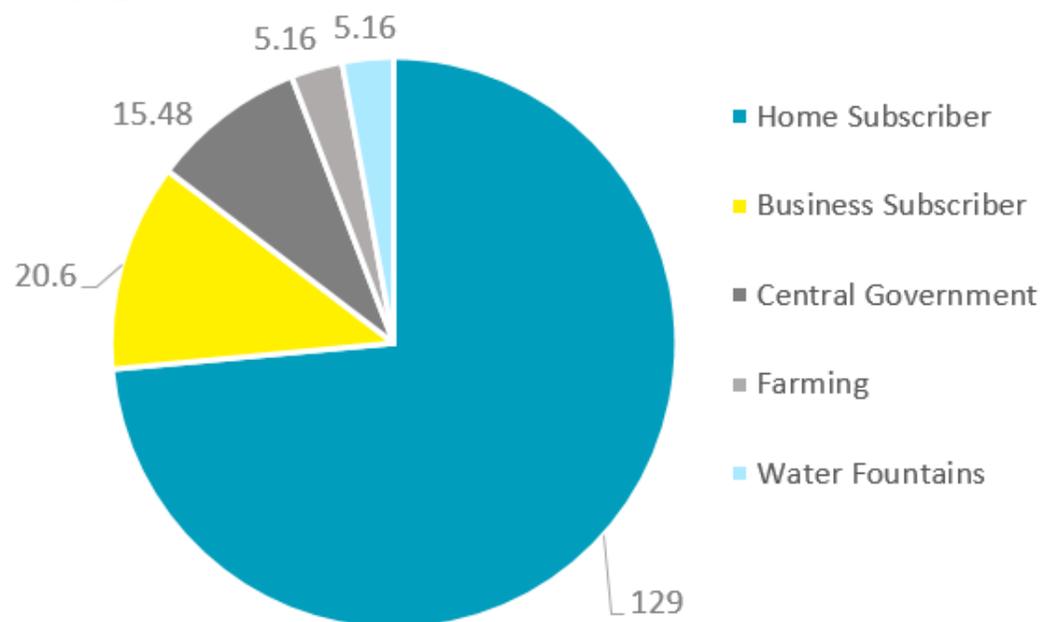


- Business customers require water of higher quality than what is provided through the tap. As a result, businesses purchase separate filtration and storage systems to upgrade purchased water onsite.
- Producers of bagged/sachet water use tap water for production, often filtering water in their homes or small facilities before bagging.

### Buyers



Tap Water Supplied (millions of m<sup>3</sup> / year) (by market segment)



### Spotlight: Industry Partnership & Investment

SONES and SDE work together to address the ever-increasing demand for quality tap water and the need to preserve scarce groundwater resources. SONES has invested 630B FCFA over 10 years to build an additional water treatment plant that will increase capacity by 100,000–200,000 m<sup>3</sup>/day. Additionally, SONES is preparing to develop a seawater desalination plant in Mamelles with a capacity of 50,000–100,000 m<sup>3</sup>/day.



The tap water market is largely composed of two organizations; both struggle to provide quality water and to preserve scarce groundwater.

### Marketing Guidance from Afri-Dev Consulting

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- Target business customers, given the strong industrial demand and current lack of satisfaction with incumbent offerings.
- Focus on technical water specifications and develop a long-term partnership with business customers.



# Local bottled water sales exceed imports due to the introduction of new technology and lower product prices.

## Current Market Size



Market Size (USD/yr): Unknown

Market Size (FCFA/yr): Unknown

Market Volume (m<sup>3</sup>/yr): 120,000

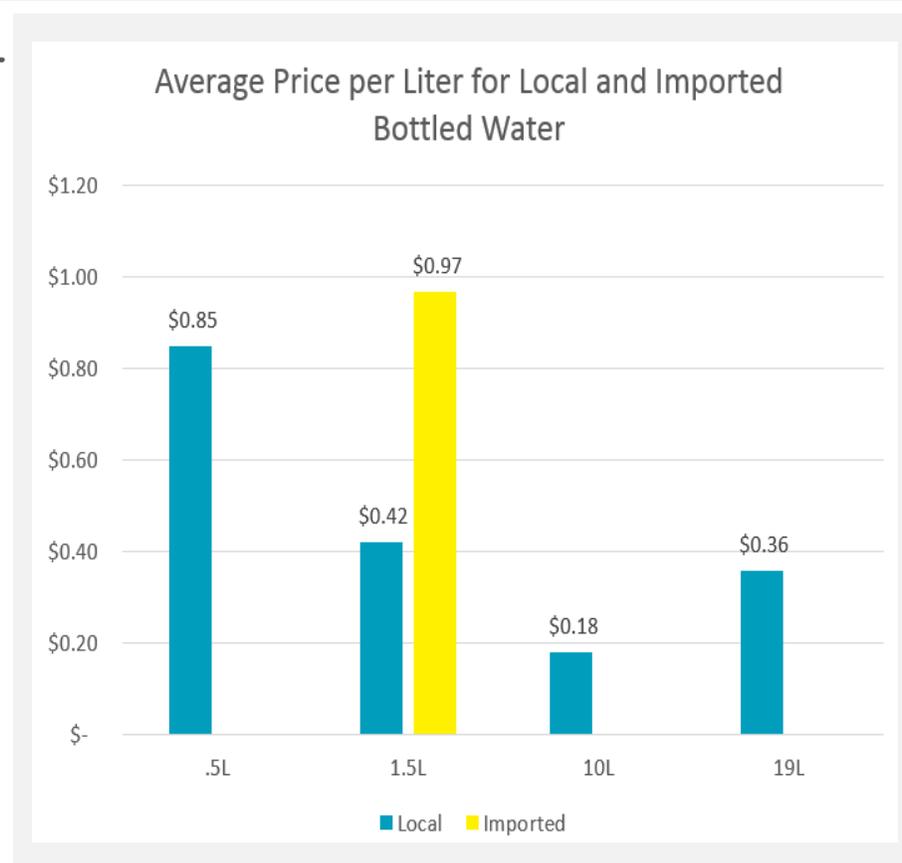
Imported	Local
Volume: 393 m <sup>3</sup> /year	Volume: 119,607 m <sup>3</sup> /year
Market share: 0.3%	Market share: 99.7%
Market size: 371,340 USD/yr	Market size: Unknown USD/yr
Market size: 204,237,240 FCFA/yr	Market size: Unknown FCFA/yr

## Market Trends



Long dominated by imports and considered a luxury, the bottled water market has become a quickly growing opportunity for local producers as new technologies have lowered barriers to domestic production. Local production now exceeds imports. Imported prices have decreased as a result.

## Current Price





The bottled water market is dominated by local producer, Kirène, who benefits from high brand awareness and consumer affinity.

### Leading Brands and Providers



**Imported brands:** Perrier, Evian, Volvic, Pellegrino, Contrex, Vittel, Badont, St. Martin, Quezac, Santa Vittoria, others

**Local brands:** Kirène (represents 67% of market), Baeaubab, Aquatera, Casamance

### Buyers



Bottled water is sold in stores, restaurants, service stations, grocery stores, at sporting events, and on the street, etc.

### Buyer Preferences



- Kirène is most widely known and is considered of good quality and taste.
- 76.6% of surveyed customers buy wholesale, 22.8% buy retail.
- 48.1% of surveyed customers buy more bottled water during hot times of year.

### Spotlight: Kirène Bottled Water

- Revenues of 2 billion FCFA (USD 3.5M)/year
- Produces 98,000 m<sup>3</sup>/year
- Produces 15,000 bottles of water per hour
- Sells 90% of product within Senegal, exports 10%
- Strong brand awareness and consumer affinity





**Afri-Dev does not see bottled water as a viable business opportunity given competition and aversion to waste derived water products.**

### Marketing Guidance from Afri-Dev Consulting

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- Avoid bottled water activities, as the competitive market is not as viable a business opportunity as the bagged/sachet water market, which is the fastest growing drinking water market.
- Consider the public relations aspect of a new product launch in a market with competitive brands, as the “fecal origin” of the J-OP water could make a new entrant vulnerable.



Bagged/sachet water is a profitable market, with largely informal producers bagging tap water in their homes and selling for a low price.

### Current Market Size



Market Size (USD/yr): 68 million

Market Size (FCFA/yr): 37.5 billion

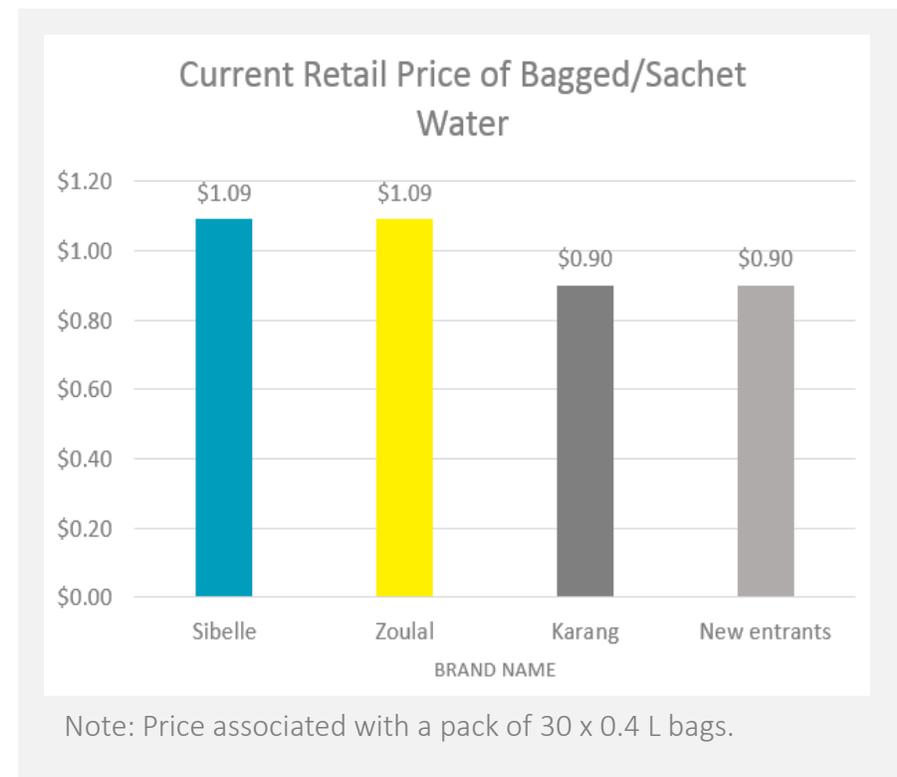
Market Volume (m3/yr): 900,925

### Market Trends



- Market is informal and highly profitable. ~91% of market dominated by new entrants.
- Water sold in bags/sachets is sourced from SDE, upgraded and bagged.
- Production equipment is inexpensive, accessible.
- There are two classes of water available:
  - Type 1: Bagged Tap Water—Majority of market is highly informal; requires access to tap water and a refrigerator; common issues with hygiene, safety and quality.
  - Type 2: Bagged “Certified” Water—Niche offering, tap water is purified according to specified hygiene and quality standards; sold as “certified” water in limited regions.

### Current Price





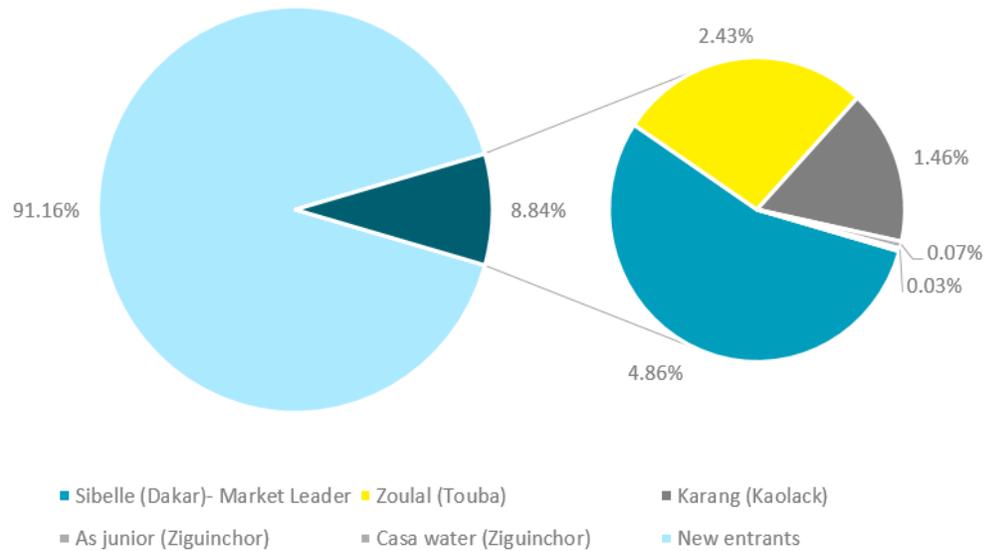
The tap water market is largely composed of two organizations; both struggle to provide quality water and to preserve scarce groundwater.

### Leading Brands and Providers



Bagged/Sachet water is a highly fragmented market.

Market Share of Select Bagged Water Brands



### Buyers



- Larger operations, like Sibelle, work through distribution channels: Factory > Bulk dealer > Wholesale > Retail > Micro (individual sales).
- Consumers purchase on the street and in retail outlets.

### Buyer Preferences



- Dealers often purchase wholesale and cool the product in mass. They then sell to retail customers and directly to consumers (to a lesser extent).
- Bagged/sachet water is distributed in schools, in markets, public spaces, along major roadways, and in rural areas.
- People buy in bulk for events.



Consumer desire for higher quality bagged water creates an opening for J-OP end products, but fecal origin of water may prove a challenge.

### Marketing Guidance from Afri-Dev Consulting

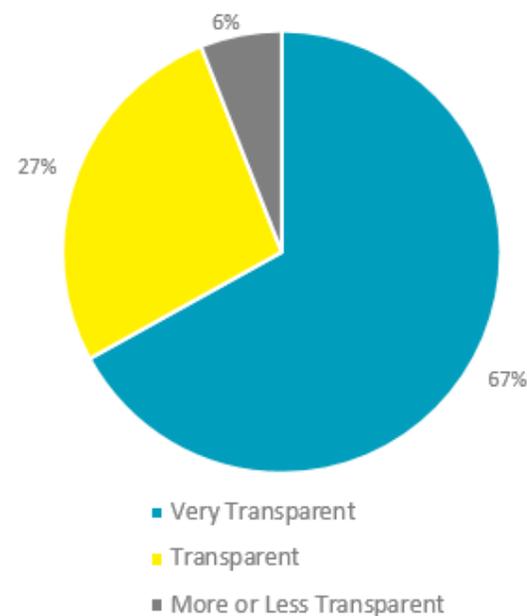


- Consider bagged/sachet water only as a product of last resort given the fecal origin of water. Consider only if/when there is a surplus in water supply.
- Play in mass water bag market, differentiate product with good-quality water and packaging.
- Consider selling to wholesale market with prices slightly lower than competitors.
- Build business with focus on cost reduction, production capacity, and logistical efficiency.

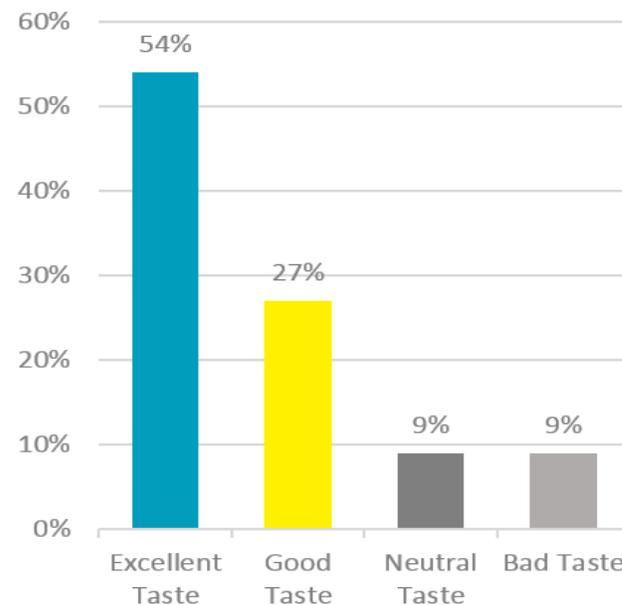
In blind taste tests, consumers prefer drinking water from J-OP less than bottled water, Kirène, but more than bagged water, Sibelle.

### Perception of J-OP Water

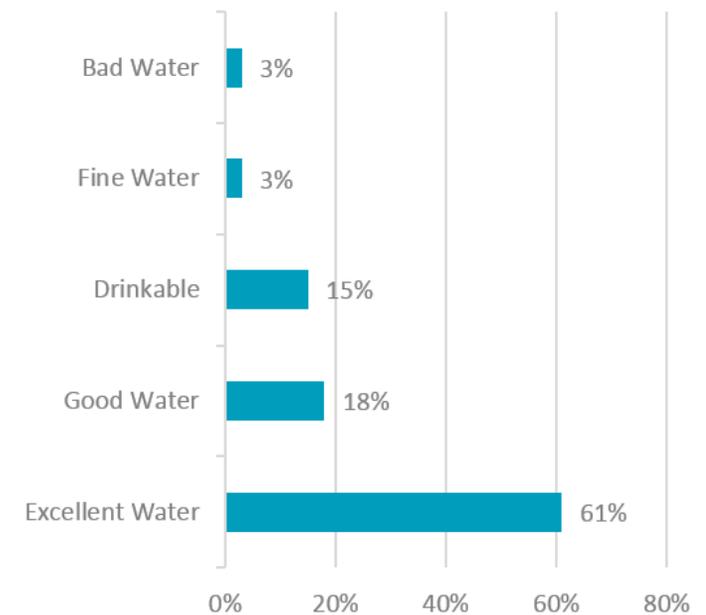
Transparency



Taste



Quality



#### Results: Reported Preferences from Blind Tests

Blind Test Products	# of people who ranked First	# of people who ranked Second	# of people who ranked Third
Kirene bottled water	15	1	1
Water from the J-OP	8	6	1
Si belle bagged Water	8	1	4

#### Consumer Preferences:

Some tasters noted that water tasted of bleach or contained a higher ash content than desired.

**STeP Note:** Perceptions of J-OP may influence consumer willingness to purchase or drinking water end products. Due to the nature of the blind taste tests, consumers were not made aware of the water’s origin.

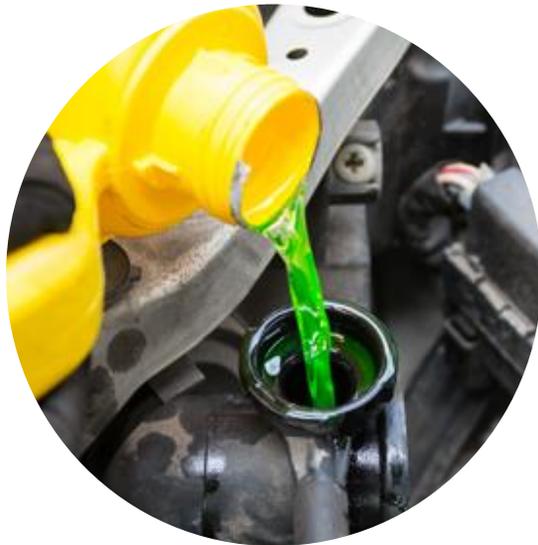


## TABLE OF CONTENTS



- I. Overview
- II. Methodology
- III. Market Insights**
  - I. Drinking Water
  - II. Coolant**
  - III. Distilled Water
- IV. Summarized Recommendations
- V. Next Steps

The coolant market includes both general-use and specialty product segments.



General Coolant

- Coolant is used by individuals and businesses in vehicles and other equipment with motors. It may be sold as a concentrate or mixed with distilled water and sold ready to use.
- Some products are imported, whereas others are produced locally (formally or informally as “glaciol”), with a range of water types.



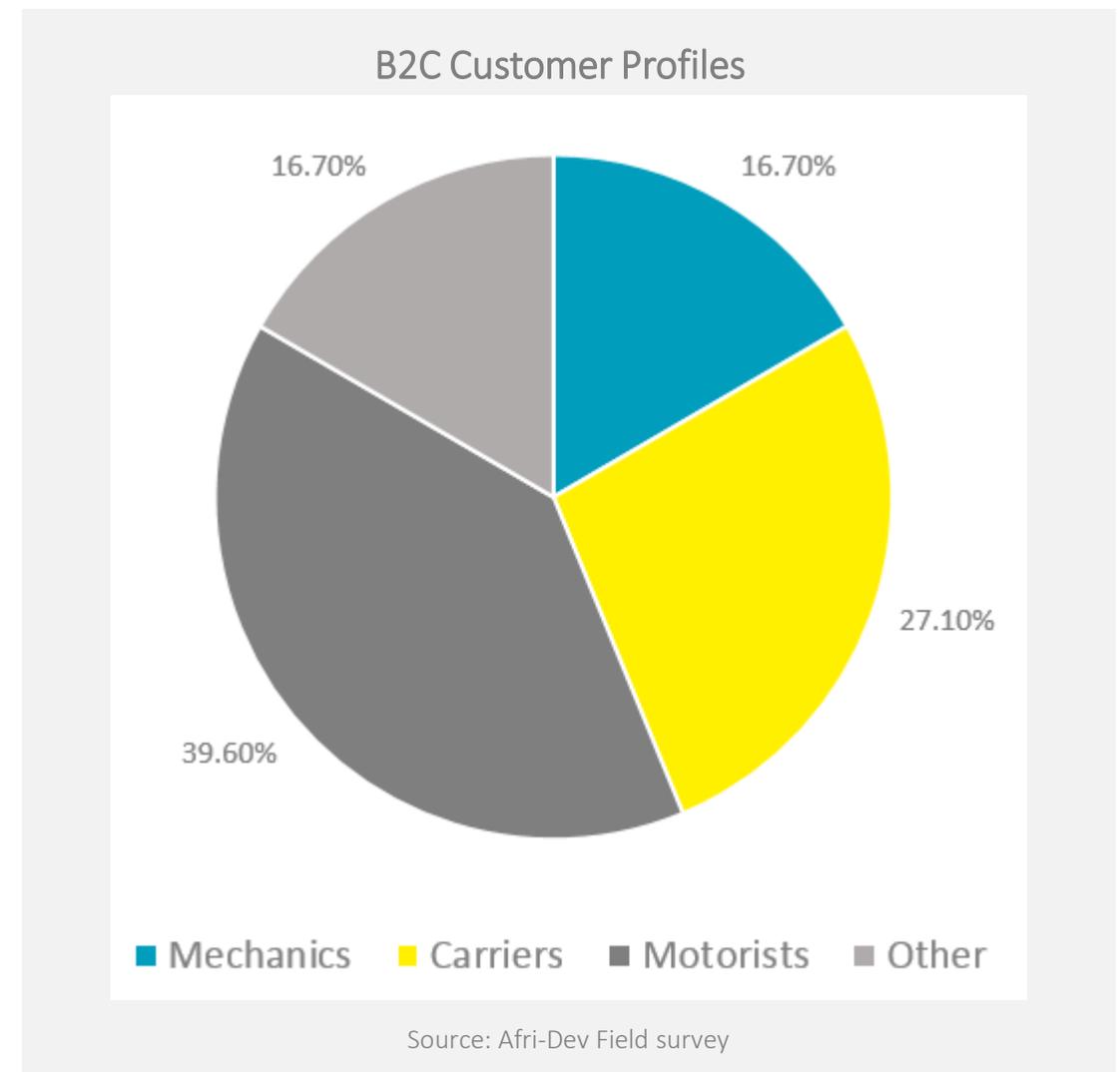
Specialty Coolants

- Specialty coolants are made with distilled or deionized water and include corrosion inhibitors or other additives for use in industrial equipment. Several are produced by Nalco and its licensees (Nalcool 2000, Nalco 402, TRAC 118, TRAC 102).
- Froid-Service is the sole distributor in Senegal (and surrounding countries, selling exclusively to industrial customers).

The coolant market is increasing due to the growing middle class, resumption of industry, and investment in national infrastructure.

### Market Overview

- Role of coolant: cool engine, prevent freezing, prevent overflows, and protect various parts of cooling system.
- Coolant consists of 50%–70% water (ideally distilled) and 30%–50% ethylene glycol or propylene glycol.
- The coolant market is very promising with an annual growth rate of ~2%–3% due to the growing middle class, the resumption of industrial and mining activities, and national construction and rehabilitation initiatives.
- 75% of the market is local production; 25% is imported.
- Local production is highly fragmented, largely because of unauthorized producers using a range of water sources.





With questionable quality and frequent stock outages, there is unsatisfied market demand for coolant.

### Current Market Size



Market Size (USD/yr): Unknown

Market Size (FCFA/yr): Unknown

Market Volume (m<sup>3</sup>/yr): 72,856

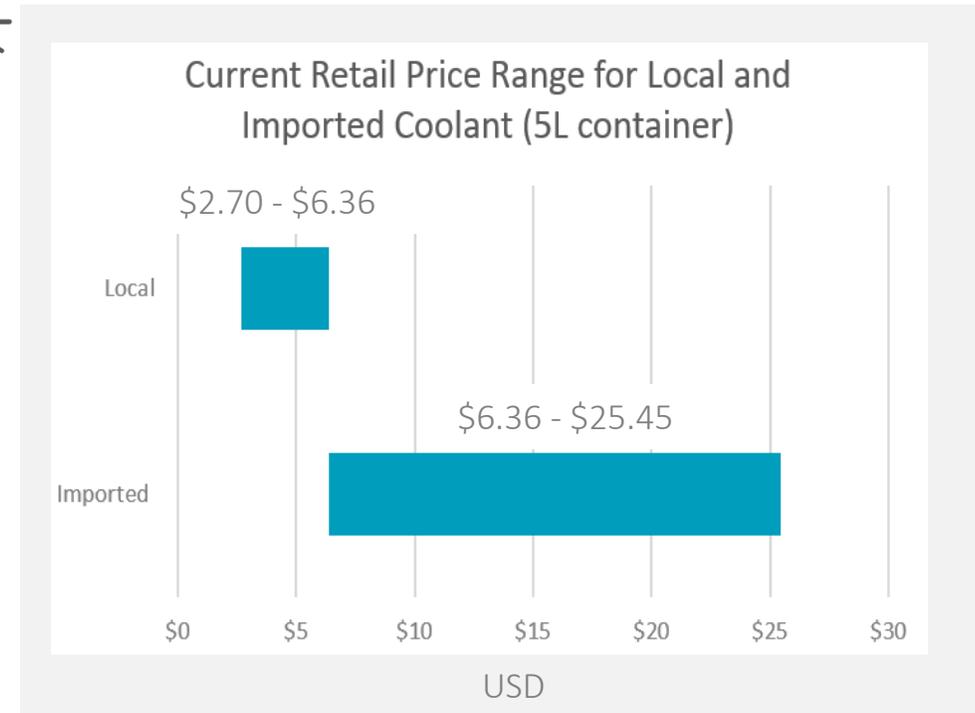
Imported	Local
Volume: 18,214 m <sup>3</sup> /year	Volume: 54,642 m <sup>3</sup> /year
Market share: 25%	Market share: 75%

### Market Trends



- Stock shortages are frequent, leading to growing unsatisfied demand.
- Highly fragmented market—leading producer of local coolant accounts for 0.6% market share.
- Local producers have low production capacity and questionable quality.
- 70% of imported coolant is purchased by the oil and gas industry, and 30% is sold through distributors.

### Current Price



**STeP Note:** Price drivers were not examined as a part of this report. The wide range of price for imported products captures both general automotive coolants and specialty products for industrial applications.



Consumers purchase local coolant, despite doubtful quality, due to lower price than imports; business customers purchase pricey imports.

### Leading Brands and Providers

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**Producers:** Kebe Naar, Cyclo professional performance, other local informal producers

**Distributors:** Norauto, Abro, Gas stations, Senegalese De l'Automobile, CFAO and other car sellers, wholesalers, and small retailers

### Buyers

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- B2C or small business buyers: car drivers, taxi drivers, mechanics
- B2B buyers: oil and gas industry (Oilers Vivo - Energie [Shell], Total Senegal, Oil Libya [Mobile], Elton and Touba Oil)

### Buyer Preferences

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- Consumers prefer imported coolant due to higher quality than local offerings, but they purchase local most often due to lower price.
- Generally low awareness of coolant, qualities, or benefits. Consumers frequently use substitutes (drinking water, air conditioner drain water, etc.).
- 46.2% buy monthly; 17.3% purchase biweekly.
- 96.2% of buyers purchase wholesale.
- Coolant is used year-round with peak usage during the dry season.



Questionable quality of local coolant and high price of imports opens opportunity to provide a high-quality coolant at a lower price.

### Marketing Guidance from Afri-Dev Consulting

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- Beat imported products on price, and local products with “certified quality,” using certified distilled water to create a finished coolant product.
- Consider targeting B2B and B2G customers, given their consistent high-volume demand.
- Consider partnering with local producers and distributors, like Kebe Naar, to improve product quality and production capacity.
- Explore potential to partner with oil and gas companies with a well-branded and packaged end product.



Nalco is a specific brand of coolant, distributed only by Froid-Service, which is unable to meet increasing demand of industrial customers.

### Current Market Size



Size\*: 10,760,000 USD/yr (5,918,240,000 FCFA/yr)

Sales Volume: 1,574 m<sup>3</sup>/yr

### Market Trends



- Market monopolized by one distributor, Froid-Service.
- Froid-Service currently distributes to Senegal, Guinea, The Gambia, Mauritania, Niger, and is adding Guinea-Bissau.
- Froid-Service is unable to meet current and growing demand from industrial customers, who use Nalco as a corrosion inhibitor.

### Current Price



Current price for 25L container: 171 USD/94,000 FCFA





A wide range of industries, and all industries with boilers, use Nalco, and there are potential customers across the sub-region.

### Leading Brands and Providers



Froid-Service

### Buyers



- Electricity companies (Senelec)
- Refineries (SAR)
- Agro-food industries (Olam, Patisen, Kirène, CSS, The Great Mills of Dakar)
- Mining companies
- All industries with boilers (Cement of Sahel, Sococim)

### Buyer Preferences



Unknown

### Spotlight: Potential Customers Across the Sub-Region

- Mauritanian Electricity Company (SOMELEC)
- National industrial and Mining company of Mauritania (SNIM)
- Energie du Mali (EDM)
- Nigerian Electricity Company (NIGELEC)
- National Electricity Company of Burkina Faso (SONABEL)
- Electricity of Guinea (EDG)



## Afri-Dev strongly recommends production of specialty coolant products and potential partnership with Froid-Service.

### Marketing Guidance from Afri-Dev Consulting

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- Specialty coolants for industrial applications are imported to West Africa, and the high price of these imported products creates the most promising opportunity for profitable J-OP end products.
- Local and sub-regional industrial customers that are large, credit-worthy businesses with steady demand, a need for large volumes, and relatively high willingness to pay for quality products.
- Partnership with Froid-Service, currently the only distributor, could help expand the market.
- Locally produced specialty coolants may be able to achieve a cost advantage over imported products.



## TABLE OF CONTENTS



- I. Overview
- II. Methodology
- III. Market Insights**
  - I. Drinking Water
  - II. Coolant
  - III. Distilled Water**
- IV. Summarized Recommendations
- V. Next Steps

## Industrial demand for quality distilled water is high, but locally produced water is of questionable quality.

### Market Overview

- The distilled water\* market is competitive between imported and local products and substitutes.
- Distilled water is used to maintain car batteries and to cool boilers, and to operate appliances like hairdryer hoods and steam irons.
- Market demand is subject to seasonal fluctuation.
- Questionable quality of distilled water makes users wary and reluctant to buy.
- B2C—Currently low demand, as much of the addressable consumer market is unaware of the unique benefits of this product, employ substitutes.
- B2B—Industrial requirements are so high that some large companies produce their own distilled water.



\*Distilled and demineralized water have the same market characteristics and are largely combined in this report.

Distilled water market has relatively low volume compared with other water derivatives highlighted in this report.

### Current Market Size



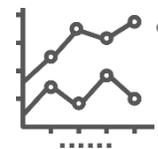
Market Size (USD/yr): Unknown

Market Size (FCFA/yr): Unknown

Market Volume (m<sup>3</sup>/yr): 528

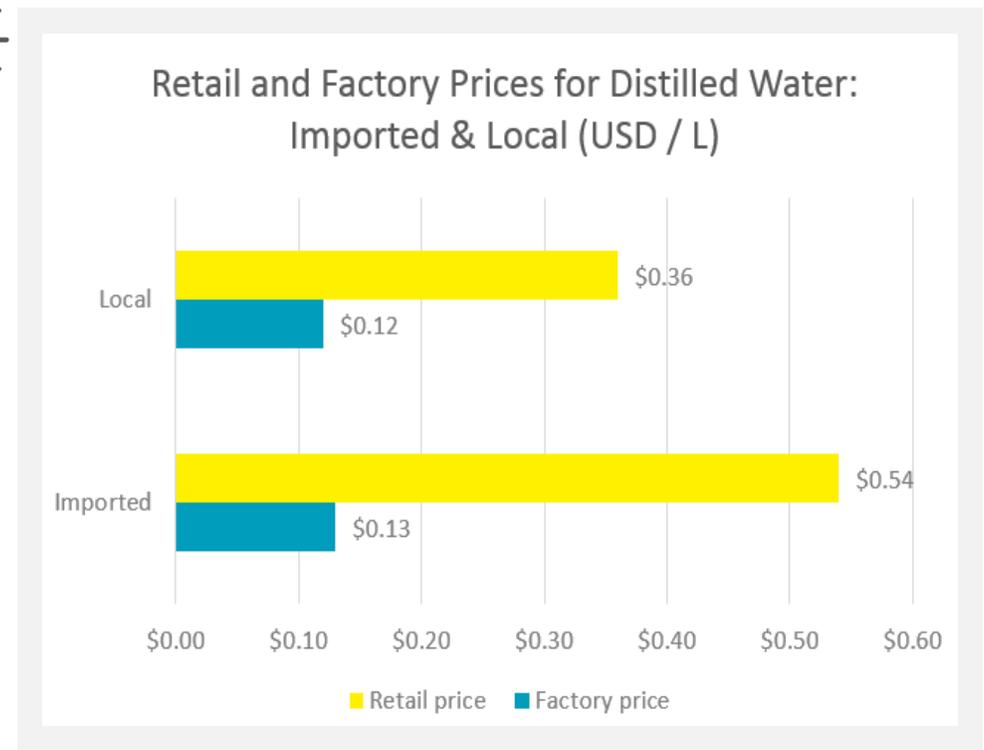
Imported	Local
Volume: 132 m <sup>3</sup> /year	Volume: 396 m <sup>3</sup> /year
Market share: 25%	Market share: 75%
Market size: Unknown USD/yr	Market size: 144,000 USD/yr
Market size: Unknown FCFA/yr	Market size: 79,200,000 FCFA/yr

### Market Trends



- Companies are producing their own distilled water to ensure quality, volume, and consistency.
- Consumer demand for distilled water has decreased with the arrival of maintenance-free car batteries, which are disposed of and replaced rather than maintained over time; Industrial demand is intact.
- Consumer confidence has decreased as informal suppliers package and sell air conditioner water as "distilled water."

### Current Price



Distilled water is purchased at fuel stations and directly from producers or filtered on site by businesses who purchase tap water.

### Leading Brands and Providers



**Sales outlets (B2C):** Fuel stations (Total, Shell, OiLibya, Elton), hardware stores, spare parts dealer

**Producers (B2B/B2G):** KÉBÉ NAAR largest producer and supplier to smaller industry

### Buyers



- Primary consumers (B2C): motorists, hairdressers, laundry, sewing workshops, mechanics, etc.
- Industrial demand (B2B/B2G): Industrial companies, central government

### Buyer Preferences



- Low consumer awareness of product benefits, many consumers have not heard of distilled or demineralized water, especially in Kaolack and Touba
- High use of substitutes including tap, drinking water, air conditioner water

### Spotlight: Industrial Water Use & Production

Some companies produce their own distilled water, as many industries require significant volumes of water (distilled, reverse osmosis, softened, deionized) for production and maintenance. Senelec, in partnership with the Government of Senegal, buys drinking water from SDE, produces distilled water, and sells to other companies, like Socicim. Socicim transforms this into deionized water to create coolant or mix with industrial Nalco.

## Afri-Dev sees opportunity for high-quality distilled water for both industrial customers and smaller-scale business consumers.

### Marketing Guidance from Afri-Dev Consulting

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- B2C recommendations (sell to wholesalers, who will sell to retail)
  - Introduce a certified lab-tested distilled water brand with secure packaging at a lower or equal price to competitors
  - Create sizes more compatible with product use (e.g., single use for batteries, 10L cans for hood dryers during hot months)
  - Elevate differentiators and benefits of distilled water, using compelling communication (media and non-media)
- B2B recommendations:
  - Consider strong industrial opportunity to create a technical certified quality product.
  - Target industrial customers including transportation companies, oil and gas companies, etc.



## TABLE OF CONTENTS

- I. Overview
- II. Methodology
- III. Market Insights
  - I. Drinking Water
  - II. Coolant
  - III. Distilled Water
- IV. Summarized Recommendations**
- V. Next Steps

To pursue opportunities in bulk coolants or coolant inputs, firms should develop technical expertise and network with B2B influencers.

	Specialty Coolant	General Coolant	Distilled Water	Bagged/Sachet Water
	<b>Strongest Opportunity</b>	<b>Strong Opportunity</b>	<b>Medium Opportunity</b>	<b>Limited Opportunity</b>
<b>Proposed Value Proposition</b>	<ul style="list-style-type: none"> <li>Guaranteed quality</li> <li>Authentic technical certification</li> </ul>	<ul style="list-style-type: none"> <li>Certified quality</li> </ul>	<ul style="list-style-type: none"> <li>Guaranteed quality</li> <li>Authentic technical certification</li> </ul>	<ul style="list-style-type: none"> <li>Certified quality</li> </ul>
<b>Target Audience</b>	<ul style="list-style-type: none"> <li>Electricity companies</li> <li>Refineries</li> <li>Agro-food industries</li> <li>Mining companies</li> <li>All industries with boilers</li> <li>Companies that use diesel generators</li> <li>Transportation companies</li> <li>Major construction companies</li> </ul>	<ul style="list-style-type: none"> <li>Industrial manufacturing</li> <li>Transportation companies</li> <li>Large companies</li> <li>Dealers</li> <li>Service stations</li> <li>Wholesalers</li> </ul>	<ul style="list-style-type: none"> <li>Industrial manufacturing</li> <li>Transportation companies</li> <li>Large companies</li> <li>Dealers</li> <li>Oil and gas companies</li> <li>Wholesalers</li> </ul>	<ul style="list-style-type: none"> <li>Wholesalers</li> </ul>
<b>Recommended Next Steps</b>	<ul style="list-style-type: none"> <li>Acquire technical expertise to produce specialty coolants</li> <li>Design a product line*</li> <li>Obtain approval to bid on contracts</li> <li>Network through influencers (sales reps for industrial machines, generators, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Acquire technical expertise to produce coolants</li> <li>Design a product line*</li> <li>Seek references from distributors and dealers</li> </ul>	<ul style="list-style-type: none"> <li>Obtain approval to bid on contracts</li> <li>Seek referrals from distributors and dealers</li> </ul>	<ul style="list-style-type: none"> <li>Consider only if/when there is a surplus of J-OP water output</li> </ul>

**\*STeP Note:** If designing a product line (along with the associated sales and distribution channels) runs counter to the business focus of a J-OP operator, establishing offtake agreements for the bulk supply of coolants products may be a more simplistic path forward.



## TABLE OF CONTENTS



- I. Overview
- II. Methodology
- III. Market Insights
  - I. Drinking Water
  - II. Coolant
  - III. Distilled Water
- IV. Summarized Recommendations
- V. Next Steps**

## Based on Afri-Dev's work, STeP recommends that cost and viability of coolant production should be explored next.

1. Get specific about production expenses and timeframe, in order to arrive at a realizable price to the J-OP operator
  - Evaluate costs (both fixed and variable) to upgrade, blend, store, package, and/or transport the four potential end products.
  - Determine expertise, equipment, and quality standards required, and evaluate timeframe.
  - Continue discussions with potential distribution partners and end users to understand market needs, particularly market trends that might impact future demand for end products.
2. Validate profitability of business model
  - Hone market segmentation, product position, volume, and pricing.

## WATER MARKETS IN SENEGAL

Summary of Market Study of Drinking Water, Distilled Water, and Coolant in Dakar, Touba, Kaloack, and Zigunchor

Research and report by Afri-Dev International Consulting for Delvic Sanitation Initiatives

May–August 2017

Summary report by RTI Innovation Advisors

October 2018