Feasibility Study Report

ON

WATER BOTTLING PLANT

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Executive Summary

Demand for bottled drinking water has been growing rapidly since the 1980s, increasing nearly 400% in the last decade according to the Council of Bottled Water Manufacturers, as a result of declining consumer confidence in the safety and quality of municipal water supplies.

This report presents a strategic analysis of the Bangladeshi bottled water market and a forecast for its development in the medium term. It provides a comprehensive overview of the market volume and value, dynamics, segmentation, characteristics, main players, prices, international trade, trends and insights, growth and demand drivers, challenges, etc. This is one of the most comprehensive reports about the bottled water market, offering unmatched value, accuracy and expert insights.

The purpose of the report is to describe the state of the Bottled water market and to present real and expert-verified information about the volumes, values, dynamics, segmentation and characteristics of consumption, prices, imports, and exports. The report also presents a forecast for the market development in the medium term. In addition, the report presents an elaborate analysis of the main market participants, industry trends and insights, growth and demand drivers and challenges and all other factors, influencing the market development.

The report on the bottled water market covers:

- Market volume, value and dynamics for the last five years;
- Analysis of the factors, influencing the market development (market trends and insights, drivers and challenges);
- Value chain analysis and structure of price formation;
- Analysis of retail price levels and their dynamics for the last five years;
- Analysis of the major international trade flows;
- Volume, value, dynamics, and analysis of imports for the last five years;
- Volume, value, dynamics, and analysis of exports for the last five years;
- Volume and dynamics of the average import and export prices for the last five years;
- Volume, value, dynamics, and analysis of per capita consumption for the last five years;
- Forecast for market development in the medium term;
- Characteristics of the main players on the market;
- Analysis of the competitive landscape;
- Market shares of the main market players;
- Distribution channels for retail sales;
- Analysis and forecast for the global economy and demographics.
- This report presents reliable and real market data, providing valuable support to make important strategic decisions regarding:
- Strategic planning;
- Marketing and sales;

- Market and industry evaluation;
- Evaluation of market opportunities, risks and challenges;
- Regional and country evaluation and opportunity analysis;
- Market entry;
- Market growth;
- Pricing and promotion;
- New product development;
- Distribution;
- Sourcing and supply chain management;
- Company evaluation;

Contents

1. Introduction

The bottled water industry is a huge business that involves many of the biggest food brands in the world and is worth billions. It has grown dramatically in the last decade and today millions of people around the world, in developed and developing countries, consume bottled water regularly. Bottled water competes with soft drinks and tap water. While it is healthier than most other soft drinks, studies indicate that it does not have a real benefit over tap water. In addition, in many places around the world bottled water is regarded as a food item, and as such is less regulated than tap water. The production and consumption of bottled water entail various impacts on health, the environment and society. The health risks are related not only to the quality of the water but also to the quality of containers and to storage conditions. The environmental hazards are linked to the energy used and resources consumed in the processing, bottling and shipping of bottled water and to the huge amounts of bottled waste which is not recycled. These, in turn, raise social, equity and justice questions, such as who is being exposed to the risks and who should pay for the damages. The growing awareness of the negative impacts of bottled water on the environment and society has led to some improvements in bottled water regulation. It also pushed the industry to improve its use of resources and waste management schemes.

The global bottled water market size was valued at USD 283.01 billion in 2021 and is expected to expand at a compound annual growth rate (CAGR) of 6.7% from 2022 to 2030. Increasing concerns regarding various health problems such as gastrointestinal diseases caused by consuming contaminated water are leading to the increased demand for clean and hygienic packaged options. Drinking water scarcity in several regions further necessitates the demand for safe drinking water, leading to increased product sales, and thereby augmenting the market growth.

Extensive restrictions imposed by governments worldwide to combat COVID-19 created logistical challenges for the bottled water industry. It has been more than one and a half years since the initial global outbreak of COVID-19. According to the International Bottled Water Association (IBWA), bottled water businesses have boosted their production capacities in 2020 to cater to the surge in demand for bottled water. This includes increasing bottling capacity, obtaining extra production and packaging materials, and consulting retailers to determine the demand.

Increasing preference for nutrient-fortified water is trending owing to consumers' rising importance of health and wellness. The demand has been increasing among travelers and working professionals and for in-house consumption. Over the past few years, products with labels such as alkaline, electrolyte-rich, fortified, caffeinated water, and fortified with additional hydrogen or oxygen have been gaining popularity.

2. Product or Service

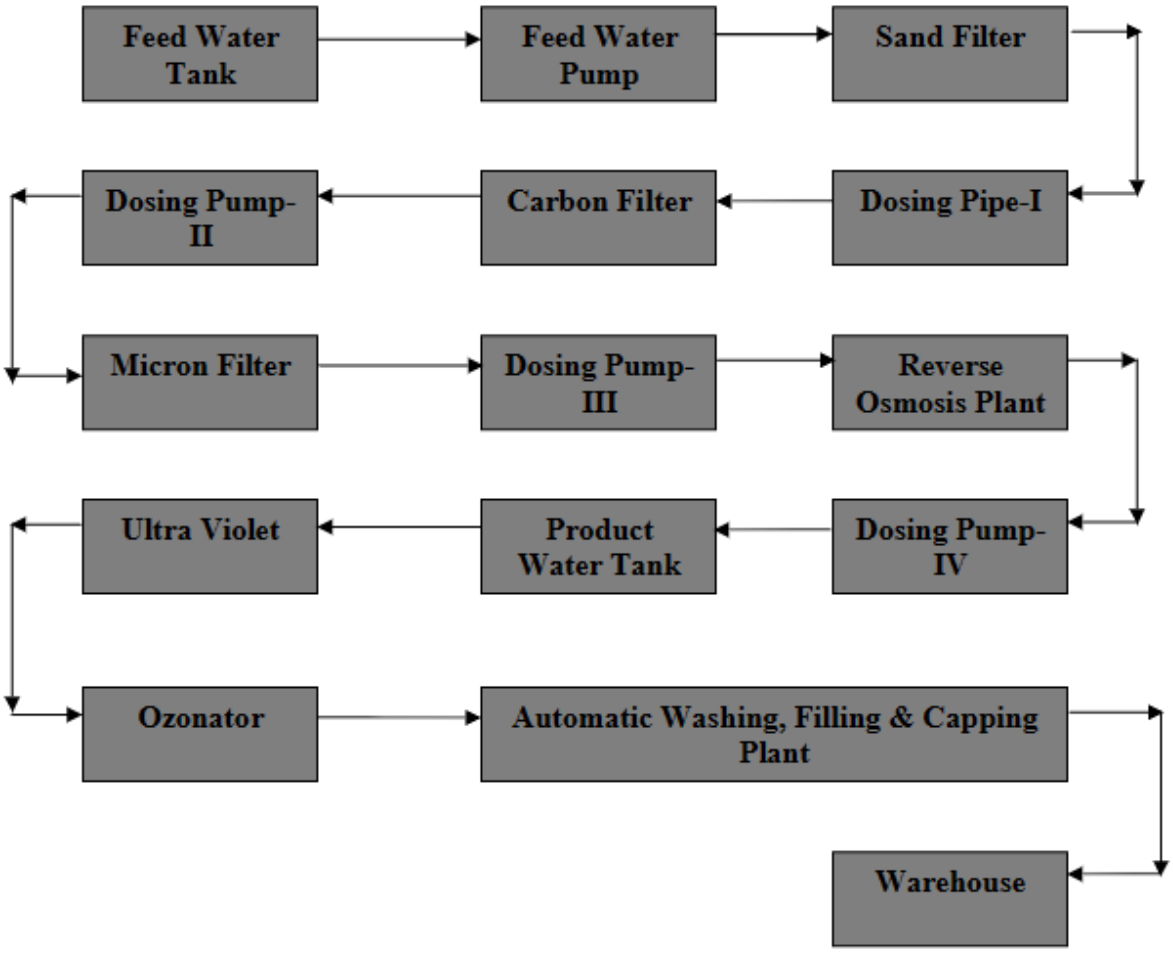
From the survey report one can assume that X has basically a good image in the mineral water market. This product comes with 2 pack sizes 500ml and 1500ml which is greatly appreciated by the consumers. Quality perception is very much high to all the traders, institutions, and consumers. From the survey it is seen that a particular brand influence the purchasing behavior of a consumer and this is X. The reasons are its reliability, feature, conformance and features. Mostly these four things of X influence the purchasing behavior of a consumer, perception about the quality of product.

3. Technology:

The process flow-

1. The first step for setting up a water purification plant is the analysis of the source of water. After the chemical analysis, the specifications of the purification plant are set. In the purification plant, the source water is stored in the feed water tank and passes through the sand filter for preliminary water filtration.
2. Water then passes through the dosing pump-I where chlorine is added to kill the germs in the water. After chlorination, water passes through a carbon filter. It helps in the maintenance of the proper odor and taste of the water. It also removes chlorine from water.
3. Water is then passed from dosing pump-II, where Ozone gas is added. It helps in killing the germs of water.
4. Water is filtered next and passes through dosing pump-III, where the anti-sealant is added. It prevents the scaling of membranes from calcium, magnesium, and biological growth. Water then passes through the reverse osmosis module.
5. This stage of the process makes the water clear of all the contaminations and minute particles.
6. Water then passes through dosing pump-IV, where minerals are added for taste development. After this stage, water undergoes Ultra Violet treatment to avoid any contamination from bacteria and other microorganisms.
7. Water then passes through the automatic washing, filling, and capping of plants.
8. Here water is filled into bottles. After filling, bottles are taken into the warehouse or shipped to the retailers.

The complete process flow diagram is as under.



Machinery (Fixed) Asset-

1. Injection Mold Machine: 6 Set
2. Blow Mold Machine: 4 Set
3. Filling machine (Semi-auto): 2 Set
4. Air Compressors: 2 sets.
5. Wrapping Machine : 3 Set
6. Water Pumps and Motors: 4 sets.
7. Ozone Generator: 1 Set
8. Deep Tube well: 1 Set
9. Filtering Water Treatment Plant: 1 Set
10. Reverse Osmosis Water Treatment Plant: 1 Set
11. UV disinfection unit: 1 Set

12. Cooling Tower: 1 Set
13. Date Coding Machine: 1 Set
14. Collection/Distribution vehicle truck/lorry/van: 1 set

Purification Capacity: 10000-15000 ltr./hr. (Including 4000 ltr/hr washing)

Raw Materials:
PET -PET bottles are bottles made of polyethylene terephthalate (PET). Then polyethylene terephthalate will be introduced. PET bottlesPET is a thermoplastic polymer resin of the polyester family and is used in synthetic fibers; beverages, food, and other liquid containers; thermoforming applications; and engineering resins often in combination with glass fiber. The term polyethylene terephthalate is a source of confusion because this substance: PET does not contain polyethylene.

PET in its natural state is a colorless, semi-crystalline resin. Based on how it is processed, PET can be semi-rigid to rigid, and it is very lightweight. It makes a good gas and fair moisture barrier, as well as a good barrier to alcohol and solvents. It is strong and impact-resistant. PET is used as a raw material for making packaging materials such as bottles and containers for packaging a wide range of food products and other consumer goods. Examples include soft drinks, alcoholic beverages, detergents, cosmetics, pharmaceutical products and edible oils. Polyethylene terephthalate also can be used as the main material in making paper.
PET is one of the most common consumer plastics used. Manufacturers like it because it's safe, strong, transparent and versatile. Customers choose it for its safety, light weigh PET Bottles Recyclingt, resealability, shatter resistance and recyclability. Up to 100% of a PET package can be

4. Market Environment

Bottle water production can improve marketing strategies by aiming to survive in a very competitive environment. This is a very competitive market because the easy to entry into this market makes it so. One company wanting to set up a business in the industry can easily do so with needing much financial capital to start off. Apart from having good marketing strategies, for these companies it is necessary to expand the business by expending into new markets and introducing new or modified products, as well as responding quickly to market needs and consumer taste changes. Therefore, we would propose these recommendations for bottled water producers:

- Establishment of marketing department on large companies while employing a marketing manager in medium size companies.
- Companies should base their marketing strategy on mid and long-term strategic plan and not rely on imitating market leaders and other competition within rivalry among them, as this might be too late for getting the benefits of first mover advantages and gaining a competitive advantage.
- Companies should attempt to identify market needs and wants and try to fulfill those needs and wants.
- Companies should delegate the responsibility to marketing managers and give them a freedom on decision making.
- Companies should avoid expending their business through trying to export and leave the domestic market without fulfilling market demand.
- Companies must always conduct market analyses for identifying main competitors in the market and knowing what do they offer to customers.
- Companies should continuously modify their products toward the market needs by adding flavors to the water as customers demand.
- Companies should attempt to benefit from horizontal and vertical integration strategy as much as it is possible in an attempt to lowering their costs of production, by gaining from economies of scale.

  Bottle water companies should improve in their company products. Based on this, these companies then would be able to produce not what they can produce, but what are market needs and benefits as well as the values they will deliver to the market with the main aim, to be a step ahead of their main competitors.

5. Competition:

Bottled water brands in Bangladesh:

There are numerous water bottling brands in the local market of Bangladesh. Bangladesh has close to 150 bottled water companies nationwide. Among all, what are the top bottled drinking water brands in Bangladesh? Let's get to know them!

MUM from Partex Beverage is the pioneer of bottled water in Bangladesh. The company produces and supplies bottled mineral water all over Bangladesh through its 350+ distributors. Since the launching of MUM, it has become a synonym for bottled water as there was no significant alternative during that time.

Kinley is owned by the Coca-Cola Company, which is sold in many Asian and European countries. However, Kinley came in 2016 in the Bangladeshi market but grabbed the market in a short span of time. Although it comes in different packages and sizes in other countries, 500ml is popular in Bangladesh.

Fresh mineral water from Meghna Group of Industries is one of the top bottled water brands in Bangladesh. Besides, the water Meghna Group also has a product line of chemicals, cement, real estate, consumer products, securities, insurance, and more. The freshwater brand is highly popular for its taste and bottle size. Whether it's a small or large bottle, it is robust and can fit in your hand easily. The water is transparent, clear and free from any sort of microorganisms. It is produced through the seven-stage purification processes as De-Iron, Pre-Ozone, De-Odor, Softening, Reverse Osmosis, Ultraviolet Treatment, and Ozonation. It comes in 500ml, 1-liter, 2-liter, and 5-liter bottles. However, the company launched another brand of water named "No.1 Drinking Water" in 2013.

Mukta is a water brand from the Bangladesh government. It has been the official water bottle for almost all the government organizations such as the prime minister's office, secretariat, all ministries, Bangladesh Parjatan Corporation, and various other autonomous institutions. Mukta started its operation in 2004. It ensured quality since its inception in 2004. The best thing about Mukta is that 75 out of the 81 employees are disabled. This state-owned company has been supporting disabled people by employing them in the production process. However, it is a government-owned company. The plant is owned by the Maitri Shilpa and run by the Sharirik Pratibandhi Surakkha Trust (SPST). Mukta made it available for the general people in 2019 and started selling nationwide. However, the company is still developing its distribution channel. Therefore, it is not widely available all over Bangladesh.

Acme bottled water is a sister concern of the ACME group. They run the production through ACME Agrovet and Beverages Ltd. The company started its liquid product line via a small range of products such as juice, and then they introduced the ACME mineral water. According to a report from 2019, Acme holds a 9% market share, which is relatively lower than the market leader MUM's 45%. It comes in 500ml and 2-liter bottles.

Aquafina is from PepsiCo, Transcom Beverages. PepsiCo launched its new product line in 2015. However, it is one of the top water brands in the USA and is currently sold all over the world. The company has been using PepsiCo's distribution channel to spread the product across the country. The Aquafina production process starts with the pre-filtration stage, and the water enters into the static mixer, and then particles are removed through the activated carbon purifier that helps to isolate the trace

elements. Next, the water goes through the polishing process and catches the small particle, and then is removed. Aquafina offers half a liter and 1.5-liter bottles.

Spa: The Spa is another famous Bangladeshi bottled water brand manufactured as well as marketed by "AKIJ FOOD AND BEVERAGE LIMITED" company owned by the reputed AKIJ GROUP of INDUSTRY. It is mainly sold in the local market. Akij Food and Beverage started its operation in 2000. However, Spa got the popularity of its bottle size and quality. Compared to other local brands, Spa water tastes slightly different. The Spa offers half-lite, one liter, and two liters bottles.

Pran: Although the brand name is PRAN, it is manufactured by Mymensingh Agro Limited. PRAN drinking water is claimed to be produced through 13 purification steps with Reverse Osmosis technology, which ensures water quality, maintaining the mineral levels. PRAN water bottles come in six different sizes, 250ml, 500ml, 1 liter, 1.5 liter, 2 liters, and 5 liters. None of the brands in Bangladesh has such variation in the bottles. Hence it grabs the attention of all types of consumers from official to home.

These are the top bottled water brands in Bangladesh. However, occasionally, you may find other brands in the local stores, such as Evian, Jibon, Rong Dhonu, No. 1, Duncans, Delta, etc. But you will hardly find any store that doesn't have any of these eight brands.

Imported Water Bottle brands in Bangladesh

Evian Natural Mineral Water – 1.5Ltr is available in MB Imports. This 1.5 liters of water costs about 650 takas. Evian natural spring water is neutrally balanced at 7.2 pH and uses recyclable plastic bottles containing up to 35% recycled plastic.

6. Industry

The market for bottled drinking water has been growing rapidly since the 1980s, increasing nearly 400% in the last decade according to the Council of Bottled Water Manufacturers, as a result of declining consumer confidence in the safety and quality of municipal water supplies. This nationwide trend is also evident in the Greater Wichita area, where Sparkling Horizon intends to operate.

In response, individuals and businesses are purchasing bottled drinking water for use in their homes and offices. Free of contaminants and government-monitored, bottled waters are derived from protected springs or wells or are produced by purifying and processing water from public water supplies. Consumer demand for bottled water is expected to continue to increase, as water supplies worldwide are deemed undrinkable or unhealthy.

According to a survey conducted by E-Works in 1988, more than 60% of consumers questioned about their purchase of bottled waters claimed "taste" was the primary reason for buying bottled water. Other reasons cited were safety and concerns about "too many chemicals in tap water."

The bottled water market in Bangladesh was equal to 760.00 million USD (calculated in retail prices) in 2015. Until 2025, the water market in Bangladesh is forecast to reach 2.52 billion USD (in retail prices), thus increasing at a CAGR of 9.87% per annum for the period 2020-2025. This is a decrease, compared to the growth of about 16.58% per year, registered in 2015-2019.

The average consumption per capita in value terms reached 4.77 USD per capita (in retail prices) in 2015. In the next five years, it grew at a CAGR of 14.97% per annum. In the medium term (by 2025), the indicator is forecast to slow down its growth and increase at a CAGR of 7.54% per annum.

The growing consumer wellness and healthcare awareness is one of the most important drivers, which has contributed to the expansion of the global bottled water market in the past few years. The category has significantly grown, outpacing the carbonated soft drinks in many countries, including the USA. In addition, consumers are also increasingly adopting flavored and functional waters such as alkaline, Ph-balanced, protein and others, due to their additional health benefits.

7. Marketing & Sales Strategy

Bottled water is popular among consumers. A report from the International Bottled Water Association states that sales of bottled water in 2020 totaled 14.2 billion—over almost 40 million every day. This comes as no surprise, as people know that bottled water is a safe, healthy, and convenient product. Thus, leveraging the popularity of bottled water can be used to your brand's advantage.

Bottled water advertising is even more advantageous now that more and more consumers are practicing environmentally-friendly consumption, and will be more likely to use the plastic bottle again once empty, making the labels on the bottle prime advertising real estate. Not only that, but you'll be providing customers a useful product, making them feel appreciated while ensuring that you promote your business anywhere the bottle goes.

So whether it's by offering customers bottled water in our company's office lobby or sponsoring a sporting event, we want to consider bottled water advertising as an effective way to promote our brand and increase brand awareness.

One of the best things about bottled water advertising is that they're completely customizable. We design the bottle and the label, as it will be uniquely representative of our company brand.

For this, it's best to invest in a professional graphic designer, one who specializes in product design. Our marketing reflect the quality of our company brand, and this means quality in form, label design, bottle appearance, production—and even the type of water.

Important items to include when labeling bottled water are:

- Logo or photo
- Company Address
- Company Website
- Phone number
- Contact email
- Slogan or motto

Another important part of using custom bottled water is knowing how and where to advertise. We want to include situations in which the bottled water will be useful and appreciated, to amp up customer satisfaction. Here are a few ways we can make the most out of bottled water advertising:

1. AS A RECEPTION AREA AMENITY AT THE OFFICE LOBBY

Offering company-branded bottled water makes an excellent impression on a client. It makes our company look very professional and customer-oriented. Make sure to offer the bottle the moment they enter or as they are seated to ensure that the client feels welcome and comfortable.

2. AS REFRESHMENTS DURING CHARITY WALKS/RUNS

Our company can give participants or customers bottles of water at various hydration stations. This is a huge marketing opportunity and an excellent way of promoting our brand in a local community. Especially if it's for a charity run, it also shows that our company cares about things outside of business profit, making a good impression on consumers.

3. IN SWAG BAGS DURING COMPANY-SPONSORED EVENTS

Adding bottled water in the swag bag at company events is a must. It's not only a good way to get noticed and appreciated, it's also a great way to make sure the audience is hydrated and energetic enough to pay attention to the event program.

4. IN THE CONFERENCE ROOM AT COMPANY MEETINGS

Bottled water labeled with our company logo sitting on the conference table gives a great impression to members in the meeting. This is especially helpful if you're in a meeting with clients and partners.

5. SPONSORSHIP

Especially for a sports-related brand, sponsoring a team or league and giving custom bottled water to participants and attendees is another great marketing opportunity too good to pass up. Sporting events usually attract large crowds, and so assured brand promotion will be off the charts.

FINAL THOUGHTS

Custom-branded bottled water has been proven to be an innovative, cheap, and effective way to

8. Production/Operating Requirements

Key Assumptions

Period of construction & machinery installation (months)	18-22 months
Total Area for Plant, Warehouse, and other utilities surrounding the plant.	Maximum 0.5 Acre area needed.
The projected life of the project	35 years

Operating Assumption

No. of working days in one year	300 days
No. of working hours in one day	8 or 16 or 24 hours
No. of workers needed	40

FINANCIAL ASSUMPTIONS
Project Costs- (Owners' Equity + Debt + Investment)

Capital Investment	Taka
Land	2500000
Building / Infrastructure	5000000
Machinery & Equipment	15000000
Furniture & Fixture	250000
Office Vehicles	500000
Office Equipment	500000
Pre-operating Cost	200000
Total Capital Costs	23950000

9. Regulations/Environmental Issues:

Proposed Business Legal Status- There are three main forms of business: Sole Proprietorship, Partnership and Company. An enterprise can be a proprietorship or a partnership and even it can be registered under company law with corporate law authority. Although selection totally depends upon the choices of an entrepreneur, but this feasibility study has been based on a private limited company.

Legal Requirements:

Investment decisions, and laws and tax laws

Table: Expense Assumption- Government /Legal fees (Including fees for legal, audit consultants, and cost for preparation of all the documents, etc.)

Description	**Estimated cost**
Trade License Fee / TIN/ BIN	30,000/-
Business /Company Registration Fee	15000/- to -25,000/-
Fire Service License	10,000/- to 15000
Environment Certificate	20000/- to 50000/-
BSTI Registration Fee	20,000/- to 25000/-

Environmental Clearance Certificate: General Procedure in Bangladesh.

Step 1: Submit the application with supporting documents.

Step 2: Verification of application and supporting documents by DOE

Step 3: Inspection by the authorized officer after verification of all reports and documents. [Then make a decision about the clearance (Only Green and Orange-A)]

Step 4: Meeting of Environmental Clearance Committee (for Orange-B and Red Category)

Step 5: Decision

For industrial units and projects falling in the Orange-A, Orange-B, first a Site Clearance Certificate and thereafter an Environmental Clearance Certificate shall be issued. In the case of Red category industries, firstly a Location Clearance Certificate, then Environment Impact Assessment (EIA) approval, and thereafter an Environmental Clearance Certificate shall be issued.

Since our project will not need any buildings higher than 30 feet or three-storied buildings, we will not need an Environmental certificate to start building our warehouse/shed for the production plant.

Assuming the plant falls under the Red category, the documents needed are (these documents will also cover other categories) -

- Red Category: Documents Required for Red Category for Environmental Clearance Certificate.
- Application through prescribed form-3 under Environment Conservation Rules 1997
- Prescribed fees under schedule-13 under Environment Conservation Rules 1997 (Amended 2002)
- Report on the feasibility of the industrial unit or project (applicable only for the proposed industrial unit or project)
- Report on the Initial Environmental Examination (IEE)
- Environmental Impact Assessment (EIA)
- Process Flow Diagram (showing the location of the Effluent Treatment Plant)
- Layout Plan (showing location of Effluent Treatment Plant)
- Design and Time Schedule of the Effluent Treatment Plant (ETP)
- Report on the Environmental Management Plan (EMP)
- No objection certificate (Prescribed Form) of the local authority
- Emergency plan relating to adverse environmental impact and plan for mitigation of the effect of pollution
- Outline of relocation, and rehabilitation plan (where applicable)
- Other necessary information (where applicable)

All these documents are very easy to produce and may be produced within 30 days.

The Time Frame for Environmental Clearance Certificate in BD.

S.L	Category	Site Clearance	Environmental Clearance
1.	Green	N/A	15 Days
2.	Orange-A	30 Days	15 Days
3.	Orange-B	60 Days	30 Days
4.	Red	60 Days	30 Days

Fees payable under these Rules shall be deposited with the Bangladesh Bank or a Government Treasury by a Treasury Chalan in favor of the Director General under the Head 1 – 4541 – 0000 – 2681.

S.L	Investment Amount (BDT)	Environmental Clearance Fees (BDT)	Renewal Fees (BDT)
A	B	C	D
1.	100,000 – 500,000	1,500 TK	375 TK
2.	500,000 – 1,000,000	3,000 TK	750 TK
3.	1,000,000 – 5,000,000	5,000 TK	1,250 TK
4.	5,000,000 – 10,000,000	10,000 TK	2,500 TK
5.	10,000,000 – 50,000,000	20,000 TK	5,000 TK

10. Critical Risk Factors

Risk Identification: This section identifies the potential risks and uncertainties associated with the proposed business idea, including both internal and external risks.

The risks should be grouped into categories, such as financial, operational, regulatory, or technological.

Risk Evaluation: This section evaluates the potential impact and likelihood of each identified risk, using a risk matrix or other evaluation method. The risks should be prioritized based on their potential impact and likelihood.

Risk Management Strategies: This section outlines the strategies that will be used to mitigate or manage the identified risks, including risk transfer, risk avoidance, or risk reduction. It should also include a plan for monitoring and controlling the risks over time.

11. Start-up schedule

Project Time Lines- Activity Time (months)

- Financing from various sources +Fulfilling Legal requirements- 3 months.
- Land/Site preparation- 1 month. (The Owners have land, Owners equity)
- Civil Works+Electritrcity +Water source - 4 months.
- Plant machinery & equipment importing - 4 months.
- Laying fitting-fixing & testing Plant machinery & equipment - 2 months.
- Pre-opening operations- 1 month.
- Pre-launch Launch Marketing/advertisements on TV and in print media - 1 month.

Action C and D can be carried out parallel/at the same time. The project timeline may extend and cut back depending upon the start of activities on a parallel basis or one after another.

12. Financial projection:

Estimated Costing (Bdt) of 250ml, 0.5Liter, 1.0Liter, 1.5Liter, 2.0Liter, 5.0Liter Bottled & 20 Liter Jar Water									
SL No.	**Cost Items**	**0.250 L**	**0.5 L**	**1.0 L**	**1.5 L**	**2.0 L**	**5.0 L**	**20.0 L**	**Remarks**
1	Bottle (PET)	2.37	3.03	4.48	5.656	7.53	18.01	0.00	PET Price 162.999 Tk/kg Weight- 0.25L = 15.20gm, 0.5L =18.60gm, 1.0L= 27.50gm, 1.5L = 34.70gm, 2.0L=46.20gm, 5.0L= 110.50gm
2	Cap (HDPE & LLDPE)	1.05	1.05	1.05	1.05	1.05	1.02	1.36	HDPE, LDPE, LLDPE Price 180.21 Tk/kg Cap 5L Weight- 5.7gm, Cap 20L Jar Weight- 7.6gm.
3	Hanger (HDPE & LLDPE)	0.00	0.00	0.00	0.00	0.00	1.35	0.00	HDPE, LDPE, LLDPE Price 180.21 Tk/kg Weight-7.45gm

4	Body Label	0.52	1.02	1.04	1.32	2.77	3.26	0.93	Body Label Price 1633 Tk/kg, Weight- 0.25L = 0.38gm, 0.5L =0.55gm, 1.0L= 0.81gm, 1.5L = 1.50gm, 2.0L=1.70gm, 5.0L= 20gm
5	Wrapping	0.50	1.00	1.50	1.86	2.70	5.75	0.00	Wrapping Paper Price- 277.01 Tk/kg, Weight- 0.25L = 28gm, 0.5L =35gm, 1.0L= 31gm, 1.5L = 41.5gm, 2.0L=53gm
6	Security Seal & Tag	0.00	0.00	0.00	0.00	0.00	0.00	1.60	Security Seal Price- 1480Tk/kg, Weight- 0.4gm/pc, MFG tap 1 tk/pc
7	Dosing Chemical	0.001	0.002	0.004	0.005	0.006	0.007	0.1	As expenditure
8	Power	0.067	0.133	0.26	0.26	0.533	0.533	0.533	Total =3406213tk/y , Per day (34062136/365) =9332.09tk, prt liter = (9332.09/35000)=0.266TK
9	Fuel (Gas & Oil)	0.011	0.011	0.011	0.011	0.011	0.011	0.00	Gas + Oil =586386tk/y , Per day (586386/365) =1606.54tk, prt liter = (1606.54/35000)=0.045TK
10	Salary, Over Time, Convence (Out Sursing & MasterRol)	0.08	0.107	0.107	0.107	0.107	0.107	0.107	Total =55,00,000 tk/y , Per day (5500000/365) =15068.5tk, prt liter = (15068.5/35000)=0.43TK
11	Consumable Item Cost	0.02	0.02	0.02	0.02	0.02	0.02	0	Total =10,00000tk/y , Per day (1000000/365) =2739.726tk, prt liter = (2739.72/35000)=0.078TK
12	Maintenance Cost	0.01	0.03	0.03	0.03	0.03	0.03	0.03	Total =19,00000tk/y , Per day (19,00000/365) =5205.47tk, prt liter = (5205.47/35000)=0.148TK
13	Capital Invesment (10%)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	Total =75,65,914tk/y , Per day (7565914/365) =20728.53tk, prt liter = (20728.53/35000)=0.6TK
14	Raw Water	0.01	0.02	0.04	0.06	0.08	0.2	0.80	35.28tk/1000 leater , rate=0.035tk/lit
15	Overhead (1%)	0.03979	0.05603	0.07772	0.09433	0.14017	0.29298	0.0547	

16	Depreciation (5%)	0.2009395	0.2829515	0.392486	0.476366 5	0.707858 5	1.479549	0.276235	
17	**Total Cost**	**4.2197295**	**5.9419815**	**8.242206**	**10.0036965**	**14.8650285**	**31.0705 29**	**5.80**	
18	SD	0.21098647 5	0.297099075	0.4121103	0.500184825	0.743251425	1.553526 45	0.29004675	**(5% of total cost)**
19	VAT	0.66460739625	0.93586208625	1.298147445	1.575582198 75	2.341241988 75	4.893608 3175	0.913647262 5	**(15% of total cost)**
	Grand Total Cost	5.09532337125	7.17494266125	9.952463745	12.07946352375	17.94952191375	37.51766 37675	7.004629012 5	**(Taka) Per bottle of water of given size**

Variable Cost	4.6597	6.564	9.183	11.189	16.724	35.176	6.4275

Fixed Costs:

Salary, Over Time, Convence (Out Sursing & MasterRol)	5500000
Consumable Item Cost	1,000,000
Maintenance Cost	1,900,000
Capital Invesment (10%)	7565914
Overhead (1%)	239500
Depreciation (5%)	700000
Total Fixed Cost	16905414 or 17000000

Size & Pricing:

Serial No	Size (ml)	Plant Rate (TK)	Trade Price (TK)	Max Retailed Price (TK)
1	250	7.00	8.00	10.00
2	500	10.00	11.00	13.00
3	1000	13.00	15.00	17.00
4	1500	16.00	18.00	20.00
5	2000	20.00	22.00	25.00
6	5000	40.00	45.00	50.00
7	20000	30.00	40.00	50.00

Break-Even Analysis in taka:

Variable Cost	Plant Rate (TK)	Contribution Margin	X, the number of units at break-even	Distributed fixed cost	X2, the number of units at break-even with Distributed fixed cost
4.6597	7	2.3403	7264025	2430000	1038328
6.564	10	3.436	4947613	2430000	707217
9.183	13	3.817	4453759	2430000	636625
11.189	16	4.811	3533568	2430000	505092
16.724	20	3.276	5189255	2430000	741758
35.176	40	4.824	3524046	2430000	503731

6.4275	30	23.5725	721179	2430000	103086

Financial Assumption

Debt	60%
Equity	40%
Interest Rate	10%
Interest Rate on short term debt	16%
Interest on cash in bank	0.02%
Corporate tax rate	41%
Turnover tax rate	1%
Dividend rate	50%
Required rate of return on equity	25%
WACC	15%

Expense Assumption

Description	Cost / Rate
Cost of goods sold growth rate	5.0%
Operating cists growth rate	5.0%
Administration benefits expense	3.0%
Traveling expense	3.0%
Communication expense	2.0%

Table: Expense Assumption- Administrative

Description	Estimated cost
Deep tube well (Water source)	1,00,000/-
Annual Fee (Water source)	50,000/-
Electricity connection fee/Demand note fees	1,50,000/-

•**Selling Price (SP) - Represents the price that** each unit will sell or retail for. The SP is generally expressed as revenue in dollars per unit.
•**Variable Costs (VC) - Consist of costs that vary** in proportion to sales levels. They include direct material & labor costs, the variable part of manufacturing operating costs, and transportation & sales expenses. The VC is usually expressed as a cost in dollars per unit.
•**Contribution Margin (CM) - Equal to sales** revenues less variable costs or SP - VC.

•**Fixed Costs (FC) - These costs are considered** those that remain constant within the projected range of sales levels. These can include facilities costs, general & administrative costs, capital interest & depreciation expenses. The FC is usually expressed as a lump-sum cost in dollars.
•**Units (X) - Represents the number of items sold** or produced. For the purpose of a break-even calculation, it is assumed that the number of units sold during a period is equal to the number of units produced during the same period.

•To calculate break-even, the entrepreneur should determine the variables: FC, SP, & VC. The process of separating the selling price & variable costs is not always straight forward & alternatively a contribution margin is given. The CM can still be used in the break-even calculation, replacing the SP & VC.
•To calculate the number of units sold (or produced) at breakeven.
SP(X) = VC(X) + FC
•Alternatively the formula to solve for X, the number of units at break-even will give you:
X = FC / (SP - VC) or X = FC / CM
•The formula to calculate the break-even revenue in $ is as follows:
Break-even revenue ($) = Break-even units x Selling Price

13. Conclusion:

The demand for bottled water is rising every day. And throughout this report we have found that water bottling plant can be a profitable venture for investors in Bangladesh. So if anyone ventures into this industry and sticks to it, he/she can come out with a huge profit.