Bottle Free Seas:

'Refill' to reduce single-use plastic bottles in Thailand

BOTTLE FREE SEAS

A PROJECT BY

ENVIRONMENTAL JUSTICE FOUNDATION

Protecting People and Planet

SUPPORTED BY

Norwegian Retailers' Environment Fund

EXECUTIVE SUMMARY

The Bottle Free Seas (BFS) project, initiated by the Environmental Justice Foundation (EJF) and funded by the Norwegian Retailers' Environment Fund (NREF), is dedicated to reducing the use of single-use water bottles. We have achieved this through the installation and promotion of water refill infrastructure in urban areas. Launched in Bangkok, Thailand, in 2023, in collaboration with the Bangkok Metropolitan Administration (BMA) the project has successfully installed 10 pilot water refill stations across Bangkok to decrease people's dependency on single-use plastic bottles. The result shows that the stations are capable of reducing an average of **100,000 bottles per month.** This proves that refill stations are an effective and sustainable concept for combatting plastic pollution.

This report captures the journey of Bottle Free Seas, outlining the lessons learned and how the initiative can be replicated elsewhere. Resources such as guidelines and checklists have been created to support municipal and provincial governments, city managers, and the private sector in developing refill policies, legislation, and action plans. In conclusion, national policy and legislation on refill and reduction are crucial for scaling refill initiatives such as Bottle Free Seas.

THE PROBLEM

Plastics currently pollute every corner of our world, from Mount Everest to the deepest ocean trenches to the bodies of animals and humans alike. Plastics severely impact the environment, human health, and society throughout their life cycle. Their impacts predominantly begin with the extraction of fossil fuels or to a lesser extent (in the form of bioplastics) the cultivation of plants/vegetables for raw materials. Their impacts continue throughout the production phases in the petrochemical sector, the transportation of plastics and related chemicals, the use and consumption of plastics in everyday life, and the post-consumption phases, including recycling and disposal.

People living in 187 countries worldwide do not have access to clean tap water, so they are reliant on purchasing bottled water.[1] The world currently generates roughly 600 billion plastic bottles, equating to about 25 million tonnes of plastic waste.[2] Yet across all types of plastic, only 9% is recycled, while 22% is mismanaged[3] , often ending up in landfills or, worse, leaking into the natural environment and polluting ecosystems.

In 2019, plastic bottles ranked as the number one litter found on Thai beaches.[4]

> "This makes the problem of single-use plastic bottles both a structural environmental and human rights issue."

EJF's survey (conducted in 2023) found that at least 4 million plastic water bottles are consumed daily in Bangkok - that's 1.4 billion bottles yearly.

This equates to a pile of plastic bottles as high as a 55-storey building

(over half as tall as the famous Bangkok Mahanakorn Tower).

> "In Bangkok, we generate around 1,500 to 1,800 tonnes of plastic waste daily, most of which comes from the water bottles we drink. Creating stations where people can refill water, and everyone brings their reusable bottle to refill, could be a massive help."

Chadchart Sittipunt,
Governor of Bangkok speaking at the launch event for Bottle Free Seas in August, 2023

WATER REFILL ECOSYSTEMS IN THAILAND

Regulations and legislation are essential in ensuring that a widespread, accessible, inclusive, safe and well-maintained refill system is established and can become durable. While the targets set out in the Royal Thai Government's Action Plan on Plastic Waste Management Phase II (2023 - 2027) set out to support the private sector in developing refill systems and increasing the number of refilling stations, these goals are not legally binding and lack repercussions if not achieved.[5] According to a ministerial regulation (2005) by the Ministry of Labour regarding labour welfare in business establishments, water refill stations are mandatory only when there are 40 or more employees.[6] However, there is no clear system to monitor, enforce and evaluate the implementation of this mandate.

Regulations concerning hygiene standards for refills could also be more effective. A 2013 Ministry of Public Health notification states that "drinking water from automatic vending machines for drinking water"[7] should adhere to the same standards as drinking water in sealed containers. However, 90% of commercial water refill stations operate without a permit or formal agreement with the BMA and are found to have contamination.[8] The use of the term "seller" in the 2013 notification further complicates matters as it confines regulatory actions to commercial water refill stations and not those available to the public free of charge.

BOTTLE FREE SEAS IN A NUTSHELL

Funded by the Norwegian Retailer's Environment Fund (NREF), the Bottle Free Seas project aims to demonstrate that transitioning to a less plastic reliant world can be 'easy and inexpensive'. In the first phase, we joined forces with the BMA, corporations, educational institutions, and civil society organisations to kick-start the transition.

OBJECTIVES

1. Install at least 10 water refill stations in Bangkok and aim to reduce 50,000 plastic bottles.
2. Promote a shift in mindset from focusing on 'recycling' to 'reducing and reusing/refilling' plastics.
3. Ensure equitable access to water refill stations throughout Bangkok by collaborating with the 'Refill Bangkok Network,' a coalition of like-minded organisations dedicated to realising the vision of reducing and reusing.

OUR IMPACTS

10 water stations installed across BKK

In collaboration with the BMA and corporates, including Central Pattana, Seacon Square, and CP Land.

Reducing 800,000 plastic bottles (600ml/bottle)

This amounts to a monthly average reduction of 100,000 plastic bottles, which includes 400,000 pieces of plastic such as lids, rings, bottles, and labels.

Over 200 Out of Home(OOH) screens advertised & promoted the campaign

Online (e.g., Facebook page and Bottle Free Seas landing page) and offline channels (e.g., events and meetings). These contributed to increased awareness of plastic pollution and the promotion and adoption of sustainable practices, particularly reducing, reusing, and refilling, to address the root causes of plastic pollution.

Over 120 water stations identified and located via a mapping initiative

In collaboration with the Refill Bangkok network, a comprehensive online map was created to help users locate the available water stations nearest to them. This readily accessible resource facilitates an enhanced and uniform distribution of safe drinking water within Bangkok's public spaces.

Expanded water refill program under official policy endorsement

The BMA plans to install 200 water refill stations in Bangkok by the end of 2025, including all public health service centres, all district offices, and public parks. 5,000 more stations will be developed in collaboration with private sector partners and other organisations as part of the BMA's single-use plastic reduction plan. This illustrates the strong commitment by policymakers and a systemic endorsement of the Bottle Free Seas advocacy messages surrounding reducing and refilling practices.

THE JOURNEY OF BOTTLE FREE SEAS

2023

Early 2023
Received letter of interest from BMA

July
First and second BFS water refill stations installed at Benjakitti Park

October
Third BFS water refill station installed at Bangkok Art & Cultural Centre

December
Fifth BFS water refill station installed at Central World

March
Refill Bangkok Network established

August
BFS launch event in collaboration with BMA and Refill Bangkok Network

November
Fourth BFS water refill station installed at Seacon Square

2024

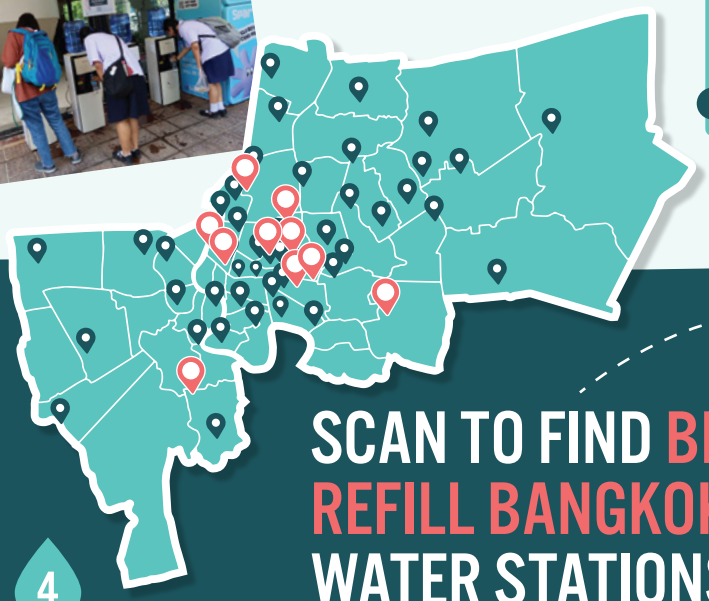
February
Sixth BFS water refill station installed at Fortune Town

March
Seventh and eighth BFS water refill stations installed at Thonburirom and Rodfai Park

April
- Ninth and tenth BFS water refill station installed at Na Pra Lan and Tha Maharaj tunnels
- **The BMA announces plans to install 200 water refill stations within BMA controlled entities and 5,000 more around Bangkok in collaboration with other stakeholder partners**

June
BFS water refill station pop-up at BKK Expo 2024

August
1 million bottles saved!



SCAN TO FIND BFS & REFILL BANGKOK NETWORK WATER STATIONS IN BKK

HTTPS://BIT.LY/BFSINBANGKOK

A GUIDE TO INSTALLING WATER STATIONS

EJF envisions a world where water stations are integrated into everyday life, making refilling a regular practice. Here are steps anyone can take - be it policymakers, NGOs, or civil society organisations - to make their city refill-friendly.

STEP 1: CONDUCT FEASIBILITY STUDIES

Maintenance and hygiene are key to instilling public confidence in your water refill system.

Different countries pose different challenges and opportunities when installing public water stations. Existing infrastructure, public awareness and domestic regulations are crucial in determining the approach to installing water refill stations. In countries with safe, drinkable tap water, installing refill stations will require different implementation strategies than in countries where water is unsafe to drink and where water politics are present. Therefore, the feasibility study is vital and should answer the following questions, but not limited to:

- Who should host the project (i.e., government, private sector, you)?
- What are the relevant laws and regulations that you need to follow (i.e. permits)?
- What type of water refill stations are needed (e.g., filtered water dispenser with automatic sensor, filtered water dispenser with hot and cold water, top-loading water dispenser, drinking fountain, filtered drinkable faucet, or stainless steel water cooler)?
- What encouragement or information does the public need for them to use refill stations?

Tip for choosing a supplier:

Choose a local supplier with well-structured after-sales maintenance services who can quickly respond to leaks and breakdowns.

STEP 2: IDENTIFY LOCATIONS AND WATER STATION SUPPLIERS

Once the feasibility study is completed, it is time to choose the water station locations and speak with suppliers. It is recommended that potential public users be surveyed to understand their needs and to choose the right locations and suppliers. For example, EJF conducted an online survey of 1,041 respondents over the course of two months. EJF worked with partners including the Refill Bangkok Network and the BMA to promote this survey and secure as broad and varied a sample as possible.

Tips for choosing locations:

- Ensure universal access, including for wheelchair users and children.
- Choose visible and high-foot-traffic locations that can be easily identified.
- Choose indoor locations for easier maintenance, but this also depends on the type of water stations you are using.

Tips for choosing a water station model:

- Ensure that the model will provide safe drinking water (if municipal water supply is not already potable).
- If water filters are required, the model should be able to show the filter status and when it needs to be changed.
- The source of water and quality control measures should be displayed and communicated to users on a monthly or quarterly basis.

The model EJF chose shows the status of water filters through the use of a light display (green, orange, or red). This helps build trust in the quality of water. Also, we encourage location owners to set up a cleaning schedule to ensure the continued cleanliness of the station and the surrounding areas. Most of the owners chose to do a daily external cleaning, and some do it twice a week.

STEP 3: OBTAIN PERMISSION TO INSTALL AND/OR ESTABLISH FORMAL COLLABORATION WITH LOCATION OWNERS

If you do not own the location you would like to place your water station in, permission and/or formal collaboration with the location owners will be necessary. The agreement should cover details such as:

- Who will own the station once installed?
- Who will cover installation and decoration costs?
- Who will handle operations (i.e., electricity, water bills, hygiene and upkeep) and maintenance-related logistics and costs long-term?
- Standard procedures regarding hygiene and safety upkeep of the water station
- Who will manage public relations and advertising?

STEP 4: INSTALL THE WATER STATIONS

During installation, consider the following:

- Make sure the water station is universally accessible and safe (e.g., how high you should place it, whether it is in danger of blocking emergency exit routes, etc.)
- Install all safety equipment and ensure health and safety guidelines are followed, including shock protection for water stations that require electricity
- Assess social and environmental risks during construction
- Create the signage step-by-step to use the station properly
- Design branding to ensure public recognition of the stations

Tips for designing onsite signage and branding:

- Think of the corporate identity (CI) you want for your stations. This helps ensure visibility and recognition of the water refill network
- Include "do's" and "don'ts" in your graphics. This helps inform and instil social responsibility amongst members of the public and helps maintain your water stations
- Include languages/systems to serve different groups of users, including persons with vision impairment or low vision

BFS stations at Na Pra Lan tunnel and Tha Maharaj provide instructions in four languages: Thai, English, Mandarin, and Burmese.

STEP 5: MONITOR AND EVALUATE

Implement a monitoring and evaluation plan to track the performance and impacts of refill stations at each location. Measure usage rates, user satisfaction, and plastic bottle reduction. Gather feedback from users and stakeholders to identify areas for improvement and inform future decision-making and policy advocacy.

THE WAY FORWARD

To promote water refill initiatives like BFS on a larger scale

National governments must:

Formulate and implement national policies and legislation to enable water refill

Refill systems are among the most straightforward, cost-effective, and efficient methods to combat plastic pollution and increase access to drinking water. In order to enable water refill ecosystems, national policy and legislation play a crucial role in accelerating the transition away from our linear, throw-away (disposable) consumption culture. EJF calls upon national governments to promptly enact policies and legislations that enable the development and expansion of safe and inclusive water refill and other refill infrastructures by taking into consideration:

- Hygiene standards, monitoring, and transparency
- Producer's responsibility and polluter pays principles
- Accessibility and the right to a clean and healthy environment for all
- Responsible agencies and other stakeholders for successful implementation

The policies, legislations, and standards should be translated in the national action plans with legally binding targets and timeframes for implementation.

Clean, quality tap water: the key to a bottle-free society.

Access to clean, quality drinking water is a fundamental human right essential for well-being, dignity, and prosperity. Poorer and more vulnerable communities are often disproportionately affected by a lack of potable drinking water and are forced to divert a greater proportion of their monthly income towards access to drinking water.

Providing potable water supply is also the most sustainable and cost-effective alternative to divert from our current single-use plastic culture. Apart from setting out targets for water refill stations, **governments should work to secure clean, quality tap water for all.**

At the local level, municipal governments should:

Establish water refill station installation and expansion targets in sustainability action plans

EJF calls upon municipal governments and city administrators to set ambitious targets and collaborate with local stakeholders, such as private sector partners and civil society organisations, to ensure equal participation in installing and expanding water refill stations. This will provide citizens with the infrastructure they need to reduce plastic waste.

Policy pool:

- Set up ambitious water refill station installation targets for your city.
- Mandate the installation of public water refill stations at city-owned entities (i.e. schools, hospitals, parks).
- Require refill targets with positive incentives for private sector partners who manage public spaces, retailers, restaurants, and Cafés.
- Work towards the provision of potable water supply to all households within the municipal jurisdiction.

Private entities should:

Incorporate water refill stations and other refill initiatives

Anyone can act on change and lead by example. Private entities, especially the owners of public spaces, such as shopping malls, hotels, theme parks, event spaces, art galleries, etc., have the power to promote the refill movement by installing water refill stations for their customers and employees to access or including other refill initiatives in their corporate sustainability plan.

Promote the visibility of SAFE and CLEAN water:

Building public trust in the safety and quality of water is essential for encouraging the use of reusable water bottles. To maintain and promote environmental cleanliness, we suggest conducting monthly self-assessments of the water as well as annual laboratory tests. The results should be shared in clear and understandable language to help build and maintain public confidence in the water station(s).

ANNEX: A

CHECKLIST FOR INSTALLING WATER REFILL STATION:

Step 1

Conduct feasibility studies

- ☐ Who should be the host of the project (i.e., government, private sector, you)?
- ☐ What are the laws and regulations involved you need to follow?
- ☐ What kind of water refill stations do you need to choose, available suppliers?
- ☐ What are the people's needs to make them refill?

☐

Identify locations and water station suppliers

Things to consider for location:

- ☐ Accessibility of the location
- ☐ Visibility of the location
- ☐ Indoor or outdoor?
- ☐ Who owns the location?
- ☐ Level of foot traffic per day?

Tips for choosing locations:

- Ensure universal access, including for wheelchair users and children
- Choose visible and high-foot-traffic locations that can be easily identified
- Choose indoor locations for easier maintenance, but this also depends othe type of water stations you are using

Things to consider for suppliers:

- ☐ Price of the potential refill station model
- ☐ Price of water filters for 1 year (if needed)
- ☐ Cost of installation and decoration fee
- ☐ Installation fees
- ☐ Cleaning/maintenance budget or other labour costs
- ☐ Intuitive/user-friendly design (How easy is it to use?)
- ☐ Level of complexity required (Sensors, filters, cooling technologies, etc)
- ☐ Hygiene and safety concerns
- ☐ Water quality testing fee

Tips for choosing a supplier:

- Choose a local supplier with well-structured after-sales maintenance services who can quickly respond to leaks and breakdowns.

Tips for choosing a water station model:

- Ensure that the model is providing safe drinking water
- If the water filter is required, the model should be able to show the filter statusand when it needs to be changed
- The source of water and quality control measures should be displayed and communicated to users on a monthly or quarterly basis

☐

Create a communications plan for the water refill station

- Onsite signage and decoration
- Online campaigning

Tips for designing onsite signage and branding:

- Think of the corporate identity (CI) you want for your stations. This helps ensure visibility and recognition of the water refill network
- Include "do's" and "don'ts" in your graphics. This helps inform and instil social responsibility amongst members of the public and helps maintain your water stations
- Include languages/systems to serve different groups of users, including persons with vision impairment or low vision

☐

Set implementation timeline

Step 2	**Project implementation**
☐	**Get permission to install or establish formal collaboration with location owners** Things to consider: ☐ Who will own the station once installed? ☐ Who will cover installation and decoration costs? ☐ Who will handle operation (i.e., electricity, water bills, hygiene and upkeep) and maintenance-related logistics and costs long-term? ☐ Standard procedures regarding hygiene and safety upkeep of the water station ☐ Who will manage public relations and advertisement? **Tips:** • Secure a formal written agreement with location owners which includes details of the above questions
☐	**Conduct a site visit with suppliers and location owners to discuss the installation**
☐	**Choose the best place to install your water refill station** Things to consider: • The ease of drainage and dealing with wastewater • The availability of electricity (if needed) • Surrounding environment (close or open space, indoor or outdoor, cleanliness, visibility to the public etc.)
☐	**Select a water station model that fits the location or vice versa (automatic, water dispenser top-bottom load) and suppliers**
☐	**Coordinate all relevant parties for installation according to the timeline** Things to consider: • All safety protocols are implemented, and safety devices are equipped, such as anti-shock devices (for water stations with electricity), Electronic Earth LeakageCircuit Breaker, pipework is proper for passage etc.
☐	**Promote the water refill stations to the public**
Step 3	**Maintaining your water stations**
☐	**Organise daily upkeep of outer areas of the water stations and their surrounding environment** Things to consider: • Create a cleaning roster to foster trust in the hygiene and cleanliness of the station
☐	**Conduct water quality testing on a quarterly basis or as frequently as possible**
☐	**Randomly visit the water stations to audit the cleanliness and functionality**
☐	**Monitor and change filters every three months or as required (if any)**
Step 4	**Monitor and evaluate**
☐	**Monitor and evaluate your project and the performance of your water refill stations** Things to consider: • Are users satisfied? • What needs to be improved? • How many bottles are reduced? • Are the stations kept clean, and are they safe to use? • What are ways to scale in the future?

FOOT NOTES

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WHAT DOES BANGKOK SAY ABOUT BFS?

"Thank you to EJF for doing great things for the people of Bangkok.[10] In addition to the BMA's target to install 200 public water refill stations within our agencies, we are planning to expand to 5,000 water refill stations in Bangkok through collaboration with private sectors and other organisations, such as offices and airports, to foster the reduction of single-use plastics."[11]

– Chadchart Sittipunt, Governor of Bangkok

"This water refill station is very beneficial, and it is well-located because there are many people here who drink a lot of water due to exercising. This consequently helps reduce plastic bottles as well as saves money for consumers."

– One of the users of the Bottle Free Seas water refill stations at Benjakitti Park

"Having the BFS station here makes it convenient for people carrying bottles. The project also helps create more trust in drinking safe water from public stations. I think the private sector can take part in this fight by investing in water refill stations in their areas, such as shopping malls, or campaigning to carry reusable bottles. "

– Bandid Phrukkumwong
Customer services & general services Department manager
Seacon Square

"The Bottle Free Seas project aligns with Central Pattana's purpose of "Imagining better futures for all." We emphasise creating well-being for all, which includes the environment, to all our customers and people in changing to a sustainable lifestyle."

– Uthaiwan Anuchitanukul,
Head of excellence & sustainable development,
Central Pattana

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