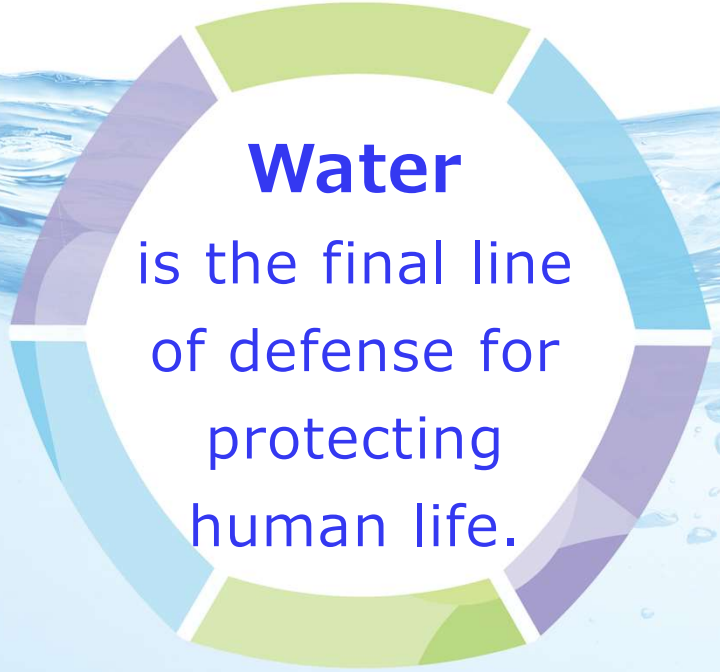
Proposals for New Disaster Prevention Infrastructure

2025.07.00

INDEX

Water is essential for life, yet during disasters, this vital lifeline is often severed



Earthquakes, typhoons, heavy rains, tsunamis, sudden disasters take everything away from us, and the most serious loss is **the loss of water**.

Humans cannot survive for more than three days without water.

Water is essential for everything, from toilets to washing hands, drinking, eating, and medical care. In times of disaster, the water supply stops. That is the reality.

We propose a new solution that can produce clean "water for life" in any situation, as long as there is air.

Water outage damage from past disasters |

Examples in Japan: Secondary damage caused by water shortages

The Great Hanshin-Awaji Earthquake

1995

- Many areas experienced water outages for over a week

Great East Japan Earthquake

2011

- Water trucks didn’t arrive
- Water is rationed
- Toilets were out of service and sanitation was deteriorating.

Kumamoto earthquake

2016

- Water shortages in evacuation centers
- Sanitation problems growing

In all cases, there are many cases of "secondary damage that could have been prevented if water had been available."
Infectious diseases, heat stroke, dehydration, mental and physical stress...

The reality is that "water shortages damage both the body and the mind."

[Source] Japan Medical Association "Water outage damage during disasters" etc.

What is POT1?

Minimal infrastructure to create water from air

This atmospheric water generator collects moisture from the air, filters and sterilizes it, and generates drinkable "water of life."

In the event of a disaster or when logistics are halted, water can be produced "on the spot," making it suitable for immediate use in evacuation centers, government offices, medical institutions, and homes.

Produces up to **140L** of water per unit per day

Note: Water production volume is a theoretical value and varies depending on the surrounding environment.

No external water supply required
Only air and power are required

Portable and easy to operate with touch panel.

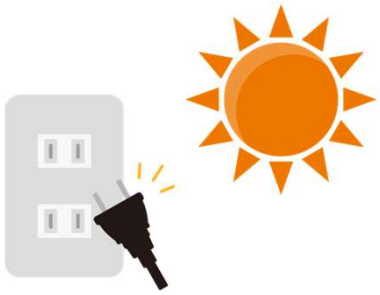
It is possible to secure an emergency water supply system for the first 24-72 hours without the need for transportation.

Item	Specifications	Remarks
Power supply/Maximum power consumption	Three-phase AC 380V, 50/60Hz, approx. 4.5kW	When all functions operate: water production, heating, and cooling
Rated Water Production	130ℓ/day(50Hz) 140ℓ/day(60Hz)	Temperature 27℃ Humidity 60%
Fan Type	Sirocco fan	
Air Intake Volume	30m3/min (50Hz) 32m3/min (60Hz)	
Operating Noise	59dBA(50Hz) 61dBA(60Hz)	
Water Storage Tank Capacity	Approx. 45ℓ	
Supply Water (Purified Water) Tank Capacity	Maximum capacity: Cold water: approx. 8ℓ Hot water: approx. 8ℓ	Hot water can be adjusted to room temperature
Supply Water Temperature	Cold water:approx. 5～10℃ Hot water:approx. 80～95℃	Hot water can be reheated
Water Dispensing Speed	Approx. 30ml/sec	
Unit Weight	Approx. 190kg (when water production is at maximum,Approx. 250kg)	
Dimensions	W1400×D530×H1730mm	
Supply Water Quality	Suitable for drinking (provided that the intake air is from a normal environment)	Option: sodium filtration and adding chlorine
Others	Features: direct water line connection and a water drawing function	

Why POT1 is chosen

Our unique technology provides a stable supply of life-giving water "anytime, anywhere"

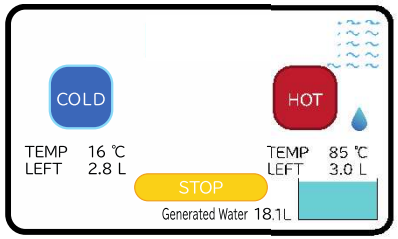
Water can be produced anywhere there is electricity.



Multi-stage filter sterilization WHO standard drinking water quality

Robust design, suitable for harsh field environments and transportation

Touch panel operation makes it easy for anyone to use



How many people can be saved with POT1 water?

Greatly reduce the hygiene and
health risks of evacuation life!

140 ÷ **2** = **70**

POT1/1unit daily production capacity
140L

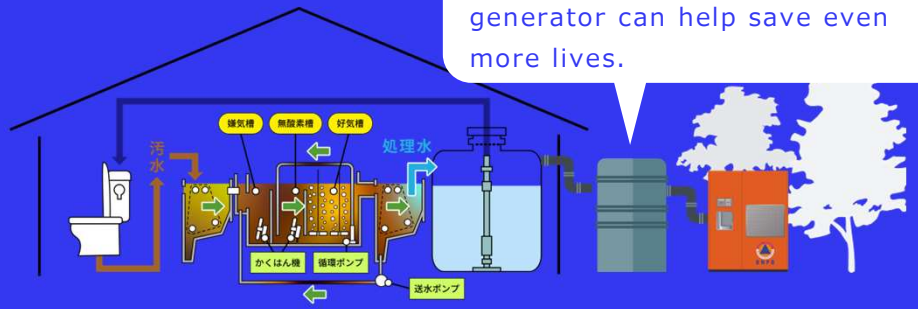
The minimum requirement for an adult is
2L/day

One unit can save the lives of
70 people
a day

100 units
supply water to
7,000 people

Note: Water production volume is a theoretical value and varies depending on the surrounding environment.

It is also possible to expand the water storage capacity and add more water supply outlets using an external tank.
The atmospheric water generator can help save even more lives.



Reliability proven in Japan, a disaster-prone country

Supplying "life-saving water" during the Noto Peninsula earthquake

Immediately after the earthquake, we donated two POT1 units to evacuation centers (isolated villages with no water supply), which were installed and put into operation.

Shika Town, Hakui County, Ishikawa Prefecture
February 5, 2024

Noto Town, Hōsu District, Ishikawa Prefecture
February 26, 2024

We were able to provide clean water even to isolated villages and evacuation centers where lifelines had been cut off, and the people there were very happy that they could now drink it safely.

Instant water supply
even in isolated areas with no water supply

Demonstration experiment example: Disaster prevention roadside station

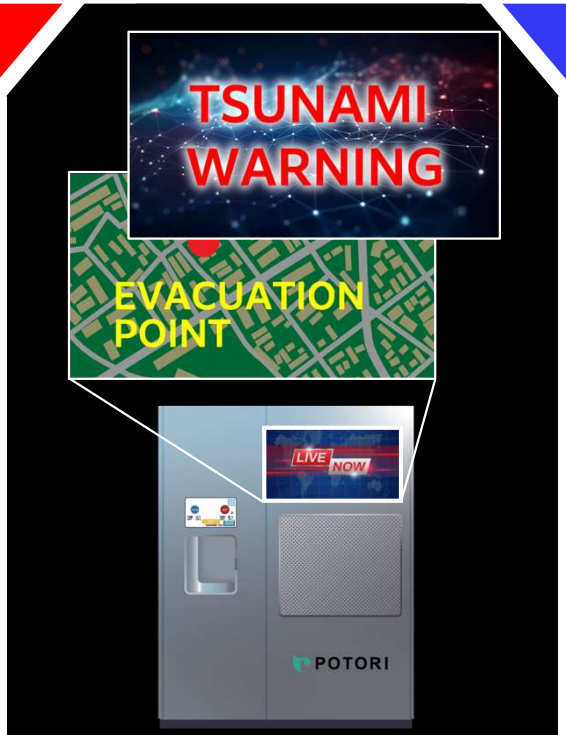
Demonstrated at multiple locations in Japan (Michino Station and local governments)

Contributes to strengthening local government disaster prevention systems during typhoons and earthquakes

Digital signage | A next-generation disaster prevention center that simultaneously delivers water and information

In emergencies, it becomes a **"lifeline"**

- **Instant display** of warnings and evacuation instructions from the government's Disaster Control Headquarters
- **Real-time information** on evacuation shelter maps, safety information, and water supply status
- Information can be provided in **multiple languages** to accommodate tourists
- Functions as **a local safety confirmation board** even when communication networks are cut off



This unit is a **water supply base** and an **information center**.

In normal times, we will be a **"trusted community hub"**

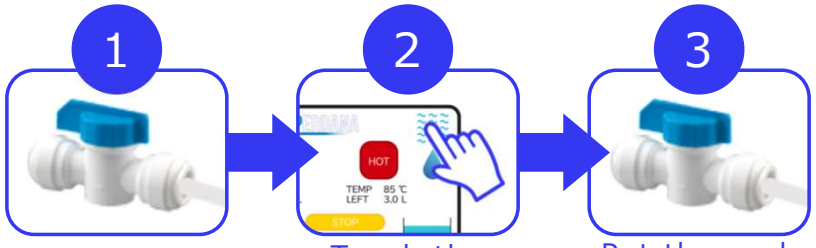
- **Raising public awareness of disaster prevention** through announcements of disaster prevention drills and hazard maps
- **Providing public health information from the government**, such as heatstroke and infectious disease prevention measures
- Regular use of infrastructure **promotes smooth use in emergencies**

Signage is available at an optional cost

No experts required! Maintenance can be carried out by local staff only | 1

No need to dispatch a specialized team for maintenance, even when installed in numerous locations that are difficult to access, such as mountainous areas or remote islands.This system significantly reduces operating costs and time, and enables continuous water supply.

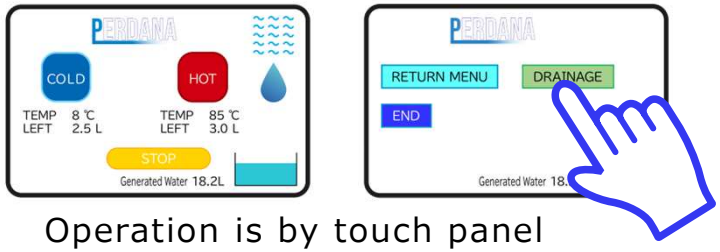
Maintenance of draining water when not in use can be completed in **just 3 steps**



Turn the tap

Touch the screen

Put the cock back



Operation is by touch panel

What this can accomplish

No specialized knowledge required

Anyone can respond easily and safely; it only requires local government officials and community members.

Significantly reduce operational costs

There is no need to organize a maintenance team with specialized skills or to send technicians to remote islands.

Maintaining high operating rates

In the unlikely event of an emergency, we can respond immediately on-site, minimizing downtime caused by cuts in water supply.

No experts required! Maintenance can be carried out by local staff only | 2

From daily cleaning to periodic filter changes, no special skills or specialized tools are required.

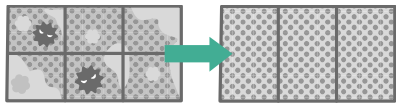
This allows for sustainable water infrastructure operation at sites throughout the country, especially on remote islands and in mountainous areas.

2 types of maintenance that do not require specialized knowledge

Daily cleaning

Air filter

Just open the cover and use a brush to remove any dust from the filter.
Anyone can do it in just a few minutes.



Regular replacement

Water filter

Simply open the housing panel with a simple tool and twist the cartridge filter to replace it. The three filters are color-coded, so you can install them safely and without mistakes.

What this can accomplish

Building an independent operational structure

Without waiting for experts, local staff and residents will take the lead in maintaining water infrastructure, building a technically independent disaster prevention system.

High operating rate ensures life-saving water supply is never cut off

Replacement can be completed in just a few minutes, minimizing downtime and preventing the most fatal situation of having no water in the event of a disaster.

Providing equal access to safe water to every corner of the country

Even in difficult-to-reach remote islands and mountainous areas, long-term operation is possible with simple procedures. We deliver life-saving water equally throughout the country.

Water quality testing | A specialized agency certifies that the water is drinkable as it is

報告書No. TBJ0091-001-01 (1/2)
発行日 2022年10月05日

検査結果判定書

株式会社FREE 様

株式会社日吉

水道法第20条第3項 登録水質検査機関第72号
〒523-8555 滋賀県近江八幡市北之庄町908番地
TEL: 0748-32-5001 FAX: 0748-32-4192

2022年09月16日 にご依頼頂きました試料についての検査結果を下記の通り報告致します。

採取場所名	
試料名	2004塩素仕様
採取日時	2022年09月15日 11:00
天候	前日 - 当日 - 気温 - ℃ 水温 - ℃ 残留塩素 - mg/L
採取者	送付

判定	検査結果において水道法水質基準値に適合しています。

	検査項目	単位	検査結果	基準値	検査方法
1	一般細菌	個/mL	0	100以下	標準寒天培地法
2	大腸菌	-	不検出	検出されないこと	特定酵素基質培地法
3	カドミウム及びその化合物	mg/L	0.0003未満	0.003以下	誘導結合プラズマ－質量分析装置による一斉分析法
4	水銀及びその化合物	mg/L	0.00005未満	0.0005以下	還元気化－原子吸光光度法
5	セレン及びその化合物	mg/L	0.001未満	0.01以下	誘導結合プラズマ－質量分析装置による一斉分析法
6	鉛及びその化合物	mg/L	0.003	0.01以下	誘導結合プラズマ－質量分析装置による一斉分析法
7	砒素及びその化合物	mg/L	0.001未満	0.01以下	誘導結合プラズマ－質量分析装置による一斉分析法
8	六価クロム化合物	mg/L	0.002未満	0.02以下	誘導結合プラズマ－質量分析装置による一斉分析法
9	亜硝酸態窒素	mg/L	0.004未満	0.04以下	イオンクロマトグラフ(陰イオン)による一斉分析法
10	シアン化物イオン及び塩化シアン	mg/L	0.001未満	0.01以下	イオンクロマトグラフ－ポストカラム吸光光度法
11	硝酸態窒素及び亜硝酸態窒素	mg/L	0.1未満	10以下	イオンクロマトグラフ(陰イオン)による一斉分析法
12	フッ素及びその化合物	mg/L	0.05未満	0.8以下	イオンクロマトグラフ(陰イオン)による一斉分析法
13	ホウ素及びその化合物	mg/L	0.1未満	1.0以下	誘導結合プラズマ－質量分析装置による一斉分析法
14	四塩化炭素	mg/L	0.0002未満	0.002以下	ヘッドスペース－ガスクロマトグラフ－質量分析法による一斉分析法
15	1,4-ジオキサン	mg/L	0.005未満	0.05以下	ヘッドスペース－ガスクロマトグラフ－質量分析法による一斉分析法
16	シス-1,2-ジクロロエチレン及びトランス-1,2-ジクロロエチレン	mg/L	0.004未満	0.04以下	ヘッドスペース－ガスクロマトグラフ－質量分析法による一斉分析法
17	ジクロロメタン	mg/L	0.001未満	0.02以下	ヘッドスペース－ガスクロマトグラフ－質量分析法による一斉分析法
18	テトラクロロエチレン	mg/L	0.001未満	0.01以下	ヘッドスペース－ガスクロマトグラフ－質量分析法による一斉分析法
19	トリクロロエチレン	mg/L	0.001未満	0.01以下	ヘッドスペース－ガスクロマトグラフ－質量分析法による一斉分析法
20	ベンゼン	mg/L	0.001未満	0.01以下	ヘッドスペース－ガスクロマトグラフ－質量分析法による一斉分析法
21	塩素酸	mg/L	0.06未満	0.6以下	イオンクロマトグラフ(陰イオン)による一斉分析法
22	クロロ酢酸	mg/L	0.002未満	0.02以下	前処理法－誘導体化－ガスクロマトグラフ－質量分析法による一斉分析法
23	クロロホルム	mg/L	0.001未満	0.06以下	ヘッドスペース－ガスクロマトグラフ－質量分析法による一斉分析法
24	ジクロロ酢酸	mg/L	0.003未満	0.03以下	前処理法－誘導体化－ガスクロマトグラフ－質量分析法による一斉分析法
25	ジブロモクロロメタン	mg/L	0.001未満	0.1以下	ヘッドスペース－ガスクロマトグラフ－質量分析法による一斉分析法
26	臭素酸	mg/L	0.001未満	0.01以下	イオンクロマトグラフ－ポストカラム吸光光度法
27	総トリハロメタン	mg/L	0.001未満	0.1以下	ヘッドスペース－ガスクロマトグラフ－質量分析法による一斉分析法
28	トリクロロ酢酸	mg/L	0.002未満	0.03以下	前処理法－誘導体化－ガスクロマトグラフ－質量分析法による一斉分析法
29	ブロモジクロロメタン	mg/L	0.001未満	0.03以下	ヘッドスペース－ガスクロマトグラフ－質量分析法による一斉分析法

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備考	検査方法は平成15年厚生労働省告示261号によるものです。

管理No. CJ3411

報告書No. TBJ0091-001-01 (2/2)
発行日 2022年10月05日

検査結果判定書

株式会社FREE 様

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試料名	2004塩素仕様
採取日時	2022年09月15日 11:00
天候	前日 - 当日 - 気温 - ℃ 水温 - ℃ 残留塩素 - mg/L
採取者	送付

	検査項目	単位	検査結果	基準値	検査方法
30	ブロモホルム	mg/L	0.001未満	0.09以下	ヘッドスペース－ガスクロマトグラフ－質量分析法による一斉分析法
31	ホルムアルデヒド	mg/L	0.014	0.08以下	誘導体化－高速液体クロマトグラフ法
32	亜鉛及びその化合物	mg/L	0.03	1.0以下	誘導結合プラズマ－質量分析装置による一斉分析法
33	アルミニウム及びその化合物	mg/L	0.18	0.2以下	誘導結合プラズマ－質量分析装置による一斉分析法
34	鉄及びその化合物	mg/L	0.01未満	0.3以下	誘導結合プラズマ－質量分析装置による一斉分析法
35	銅及びその化合物	mg/L	0.01未満	1.0以下	誘導結合プラズマ－質量分析装置による一斉分析法
36	ナトリウム及びその化合物	mg/L	0.5	200以下	誘導結合プラズマ－質量分析装置による一斉分析法
37	マンガン及びその化合物	mg/L	0.001未満	0.05以下	誘導結合プラズマ－質量分析装置による一斉分析法
38	塩化物イオン	mg/L	0.5	200以下	イオンクロマトグラフ(陰イオン)による一斉分析法
39	カルシウム,マグネシウム等(硬度)	mg/L	6.4	300以下	誘導結合プラズマ－質量分析装置による一斉分析法
40	蒸発残留物	mg/L	10	500以下	重量法
41	陰イオン界面活性剤	mg/L	0.02未満	0.2以下	固相抽出－高速液体クロマトグラフ法
42	ジェオスミン	mg/L	0.000001未満	0.00001以下	パージ・トラップ－ガスクロマトグラフ－質量分析法
43	2-メチルイソボルネオール	mg/L	0.000001未満	0.00001以下	パージ・トラップ－ガスクロマトグラフ－質量分析法
44	非イオン界面活性剤	mg/L	0.005未満	0.02以下	固相抽出－吸光光度法
45	フェノール類	mg/L	0.0005未満	フェノール(C6H5OH)として0.005以下	固相抽出－誘導体化－ガスクロマトグラフ－質量分析法
46	有機物(全有機炭素の量)	mg/L	0.4	3以下	全有機炭素計測定法
47	pH値	-	7.3	5.8以上8.6以下	ガラス電極法
48	味	-	異常なし	異常でないこと	官能法
49	臭気	-	異常なし	異常でないこと	官能法
50	色度	度	0.5未満	5以下	透過光測定法
51	濁度	度	0.1未満	2以下	積分球式光電光度法

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備考	検査方法は平成15年厚生労働省告示261号によるものです。

管理No. CJ3411

Rigorous third-party water quality certification

This certificate was issued by Hiyoshi Corporation, a water quality inspection organization registered under Japan's Waterworks Law.The test results prove that the water meets all of Japan's strict water quality standards for a total of 51 items, including heavy metals such as lead, mercury, and cadmium, which are harmful to the human body, as well as disease-causing E. coli and general bacteria.As “water of life” of the highest quality, drinkable as it is, it can be used not only for emergency purposes in times of disaster, but also for daily drinking with peace of mind.

"Now is the time to get water from the air to save lives"

No need for running water, water trucks, or bottled water.
All you need is air and electricity –
The atmospheric water generator POT1 is a
"new lifeline" that produces clean drinking water on the spot.

It serves as the 'final infrastructure'—supplying water for drinking, toilets, food preparation, and hand washing—in both evacuation shelters and local government disaster headquarters.
Clean water saves lives in
hospitals and nursing homes –
It can be a "savior" in any situation.

Even if conventional stockpiles and aid run out,
water can be produced as long as there is air.

POT1 is a "sustainable water source" that
connects us to the future.
It's too late to say
"we should have been prepared.“
At disaster sites where lives are lost
every moment, we need infrastructure
that produces water from air
as a technology that "truly saves lives.“
Your decision now will save the future of the world.