



**INTEWA 1**

**GWVT**  
GERMAN WATER TECHNOLOGIES

# THE MOST ENERGY EFFICIENT WATER TREATMENT SYSTEM EVER DEVELOPED

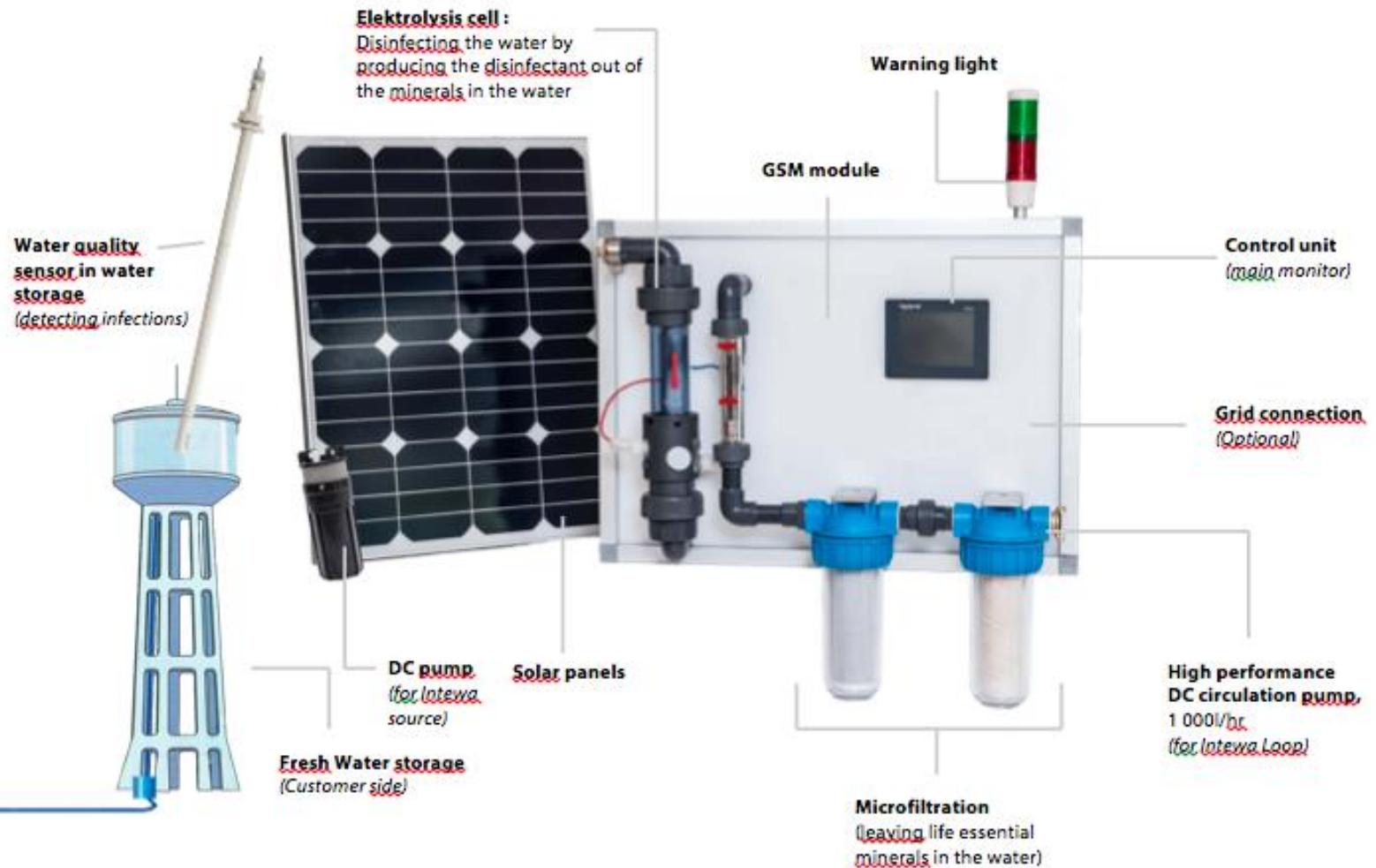
AUTOMATIC WATER FILTRATION, DISINFECTION  
AND CONTROL SYSTEM



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- 1. Product overview**
- 2. Water challenges and standard**
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- 5. Summary**
- 6. Outlook**

# PRODUCT OVERVIEW





# PRODUCT OVERVIEW

## MARKET POSITION

Centralized  
water supply for  
cities

Up to 50.000  
people for  
drinking,  
10 to 20.000  
people for safe  
consumption

Up to 6  
people, only  
for drinking

people

Capacity

< 0,2 m3/d

5 m3/d – 100 m3/d

> 100 m3/d

Small  
household  
systems


**G\VT**  
GERMAN WATER TECHNOLOGIES

Dezentralized water work

Water work plants



# PRODUCT OVERVIEW TREATMENT

Filtration 	Disinfection	Protection (residual disinfection)
<b>Microfiltration</b> >0,1µm	UV – ultraviolet light	No
Ultrafiltration >0,01µm	Ozone	No
Reverse Osmosis <0,001µm	<b>Chlorine</b>	<b>Yes</b>

We use Microfiltration

- to keep the life essential minerals in the water

We use Chlorine:

- to secure the disinfection 100%  
- to be in alignment with national and international water regulations.





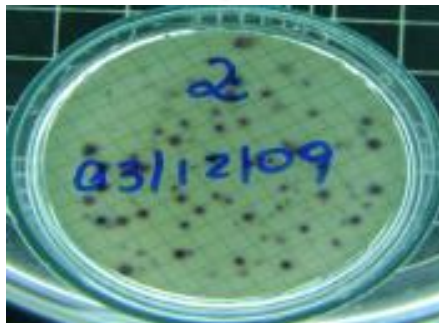
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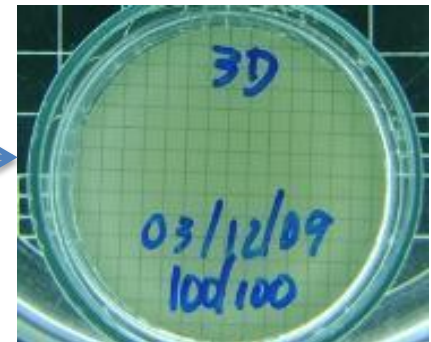
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# PRODUCT OVERVIEW

## TREATMENT RESULTS



- Highly efficient utilization of solar energy
- Direct production of disinfectant from ions of source water itself (for up to 24 m<sup>3</sup>/d)
- Residual disinfection
- Online control of water quality
- Easy to operate and maintain





# WATER STANDARDS

Parameter	WHO (2008, water for distrib.)	Thailand (Nat. Standard for DW-Quality)	Philippines (National Standard for Drinking Water)	Malaysia (Nat. Standard for DW-Quality)	Indonesia (No.492/MENKES/P ER/IV2010)
Residual Chlorine	min 0.5 mg/L	min. 0,5 mg/L max. 2,5 mg/L	min. 0,3 mg/L max. 1,5 mg/L	not less than 1.0 mg/L	up to 5 mg/L







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# APPLICATIONS



## 1. Private sector

- Schools, institutes and universities
- Hospitals
- Hotels, Resorts
- Administration and governmental buildings
- Apartment complexes and condominiums
- Health units and hospitals
- Religious institutions (Church, Mosque, Temple, Shrine, Synagogue...)
- Remote tourist attractions
- Remote houses and villages

# APPLICATIONS



## Private sector II

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- Factory canteen
- Breweries
- Beverage industry
- Ice factories
- Food processing industry
- Golf courses
- Restaurants
- Pools, spa and wellness areas
- Construction and Mining sites
- ...



# APPLICATIONS



## Public water utilities

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- Decentralized water supply
- Water Kiosk
- Water towers
- Safe supply of remote villages
- Public Schools,
- Public hospitals,
- Public buildings

# APPLICATIONS



## 3. Emergency and disaster management organizations

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- Technical Emergency Services (THW)
- Red Cross
- NGOs

Emergency Relief for:

- Floods
- Earthquakes
- Refugee camps
- Reconstruction of infrastructure



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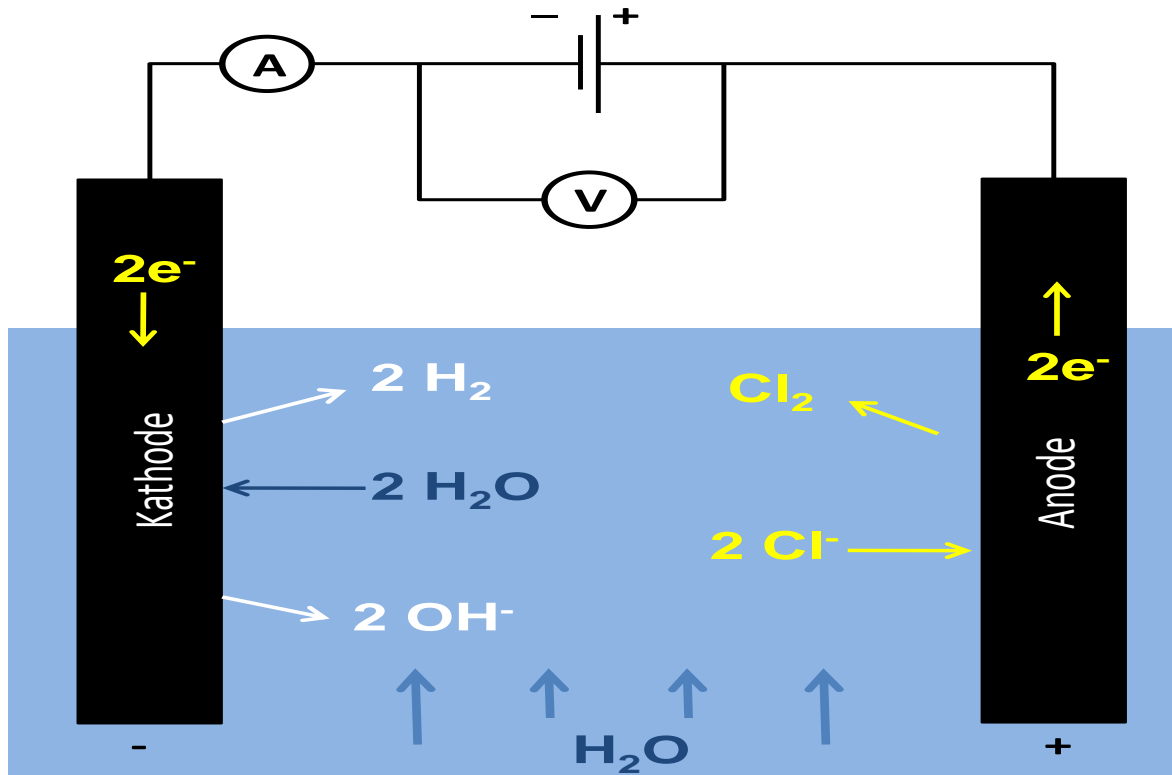
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# PRODUCT DETAILS

## ELECTROLYSIS PROCESS

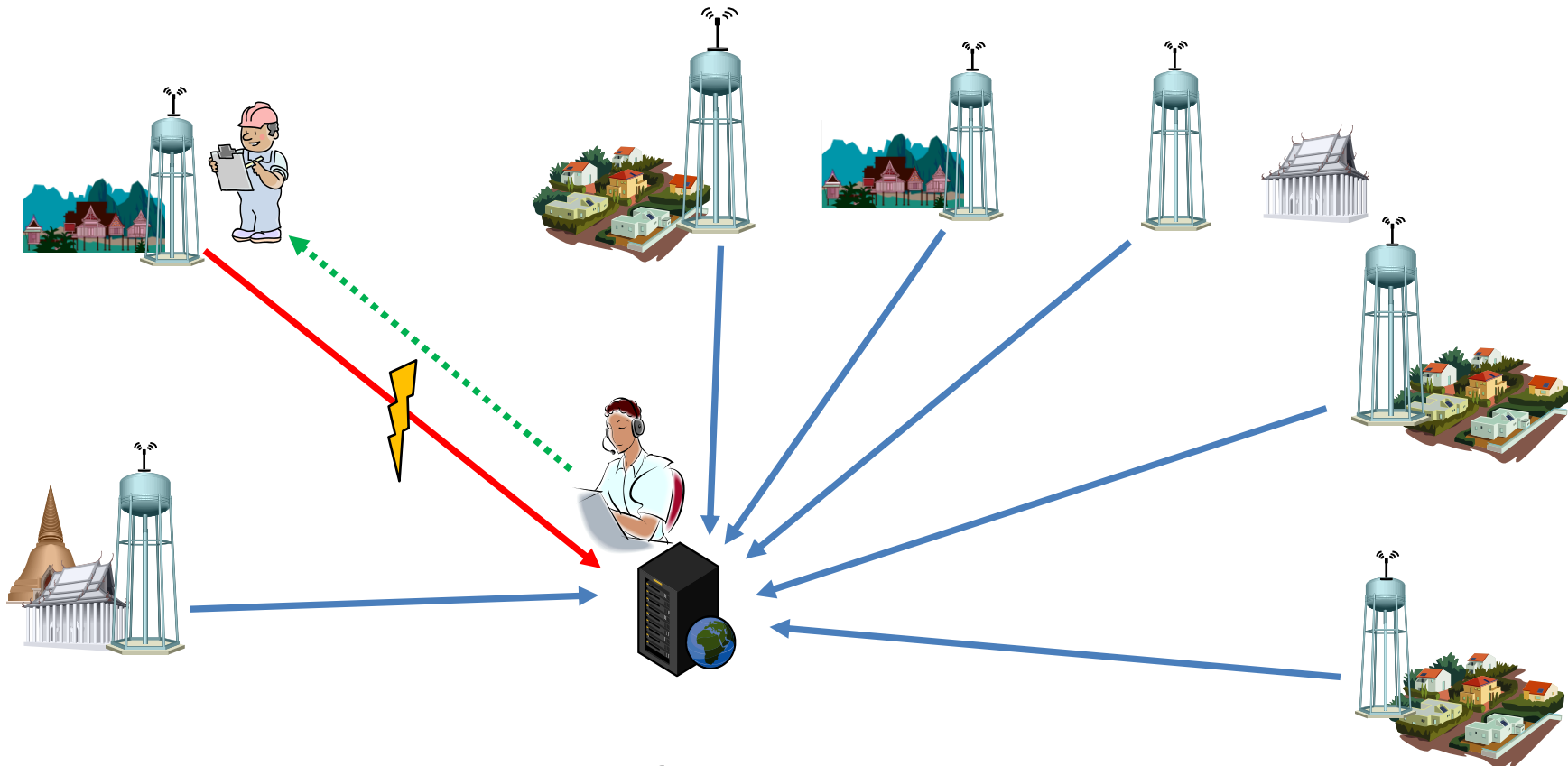


Electrolysis - Chemical  
disinfection  
without chemicals

Reaction in water  $Cl_2 + H_2O \leftrightarrow HOCl + H_3O^+ + Cl^-$

# PRODUCT DETAILS

## REMOTE CONTROLL



### Remote online monitoring of decentralized water supply

- All parameters are automatic controlled and sent online
- Only required in case of malfunction

# PRODUCT DETAILS

## ENERGY EFFICIENCY

	Micro-filtration	Ultra-filtration	Reverse Osmosis	Ultra Violet	Ozone	Chlorination	Boiling	INTEWA
Consumption of Energy	Medium	High	Very high	Medium	Medium	Medium	Very high	Very low
Specific energy consumption kWh/m <sup>3</sup>	1	4-8	8-12	0.5	1-3	1-3	93	0.2
Disinfection efficiency	+	+	+	-/+	++	++	++	++
Removal of particulate matter	Yes	Yes	Yes	No	No	No	No	Yes
Residual disinfectant	No	No	No	No	No	Yes	No	Yes
Controllability of water quality	No	No	No	No	No	No	No	Yes
Maintenance cost	Medium	High	Very high	Medium	High	High	Very low	Low
Investment cost	Medium	High	Very high	Low	High	Medium	Very low	High
Running costs	Medium	Very high	Very high	Medium	High	High	Very high	Low

Source: collection of different sources among them WHO 2008, Röske 2006 and own research



# PRODUCT DETAILS

## Easy maintenance

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*Operational personell is trained to conduct maintenance.*

- Rinsing of filters
- Rinsing of pump
- Cleansing of electrolytic cell
- Cleansing of PV- modules
- Cleansing of storage tanks



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# SUMMARY

## Core benefits

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- Zero energy consumption due to solar energy supply
- On grid or off grid solution
- Zero chemicals needed
- Continuously refreshing of water quality
- Continuous monitoring of water quality - People can trust water  
Online GSM transmission of operational and water quality parameters
- Very low / no running costs
- Simple to maintain, no technicians needed



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# EXAMPLES



Example 2:	Thailand
Location	Kalasin
System	INTEWA 24
Funktion	Public Drinking Water Tap
Capacity	24.000 l/t
Raw water source	Deep well water in raw water tank
Energy source	Solar



# EXAMPLES



Example 1:	Cambodia
Location	Kampong Chnang
System	INTEWA 24
Funktion	Drinking water botteling
Capacity	24.000 l/t
Raw water source	Deep well water in raw water tank
Energy source	Solar



# EXAMPLES

Example 4:	Philippines
Location	Prison Camp Tacloban
System	2 x INTEWA 24
Funktion	Red Cross Water Supply
Capacity	24.000 l/t
Raw water source	Deep well water in raw water tank
Energy source	Grid



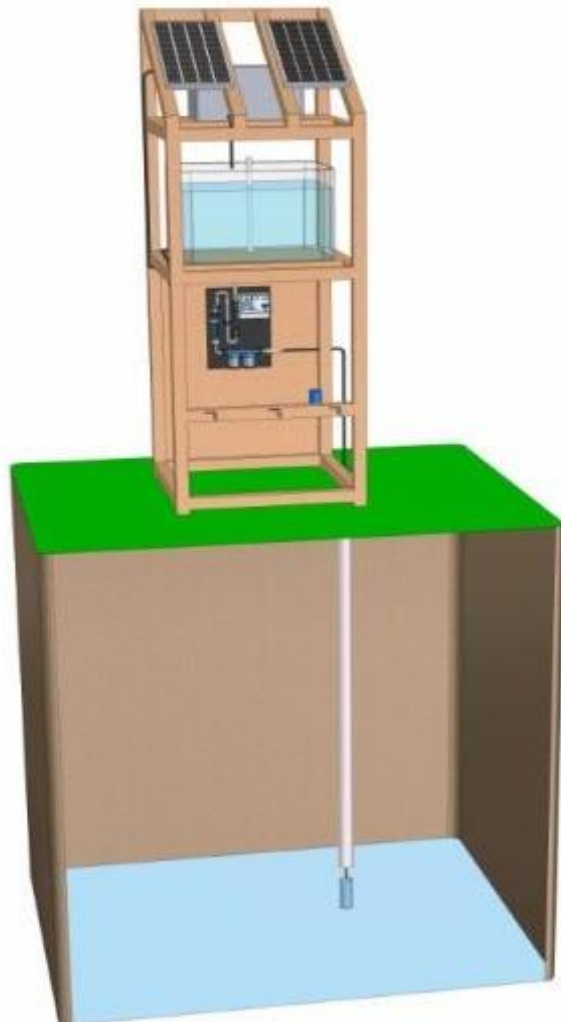
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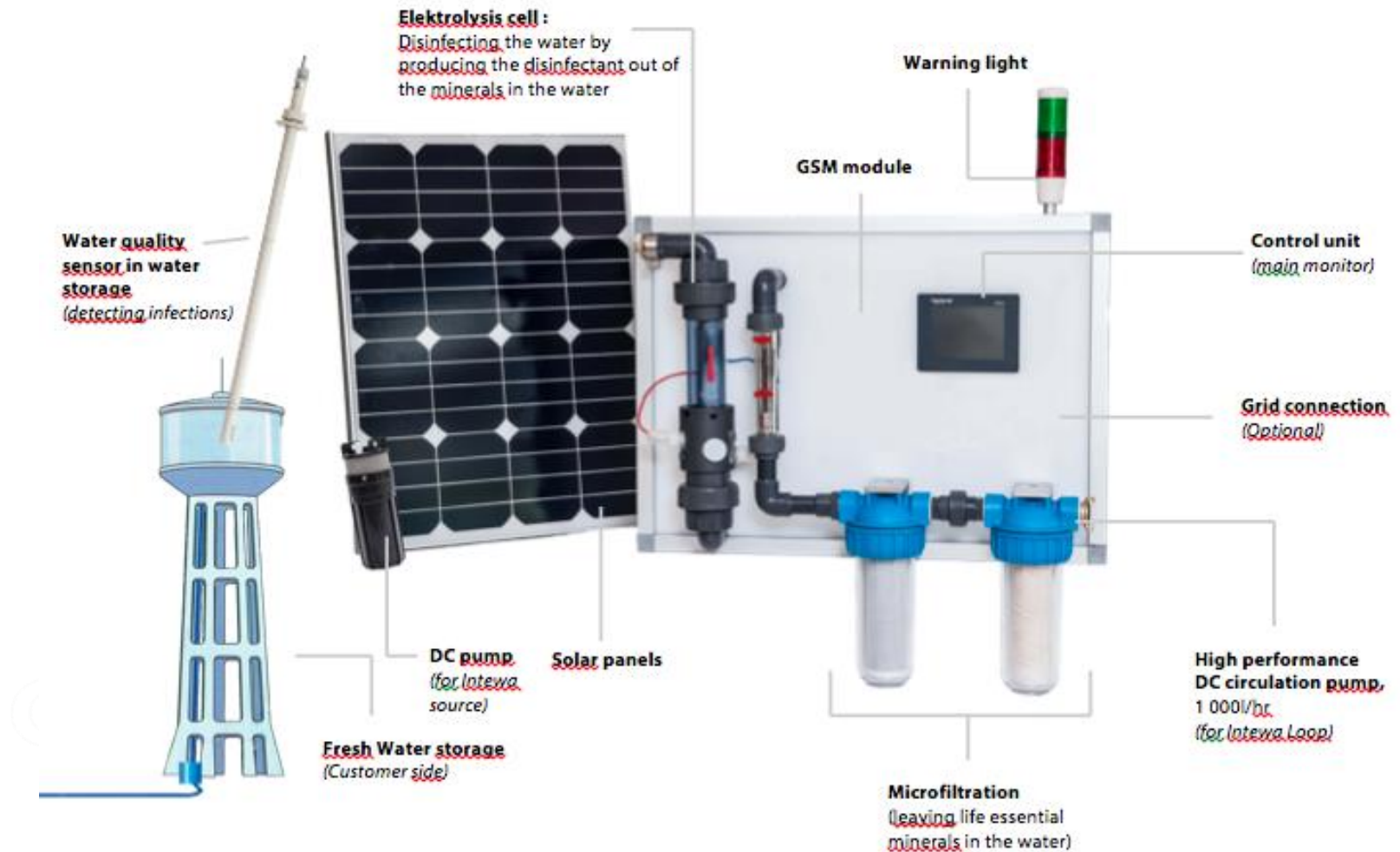


Example 5:	Vietnam
Location	Ho Chi Minh City, office building
System	INTEWA 5000
Funktion	Safe water out of every water tap
Capacity	5.000 l/t
Raw water source	Public water
Energy source	Grid



# EXAMPLES







# CONTACT

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