

‘2021

**Suggestion for Sustainable Development : Safe
Drinking Water and Electricity for All.
Business Suggestion for 90% who left out their
business**

2021. 10.14



The book called “소외된 90%를 위한 비즈니스”

“The business marginalized for 90%”

While thinking about the business for marginalized 90% and business that is designed for marginalized 90%.

This made us realized about how we practice and experience commercializing ODA for about 7 years and propose it realistically.



CONTENTS



- Introduction of book
- Necessity of ODA
 - > Climatic change
 - > Lack of Water
 - > Gender equality issue
 - > Virus appearance
 - > SDGs problem solving task

- Solution concept and suggestion.
- Technical overview
 - > Key technology
 - > Product line
 - > A solution to SDGs' problem

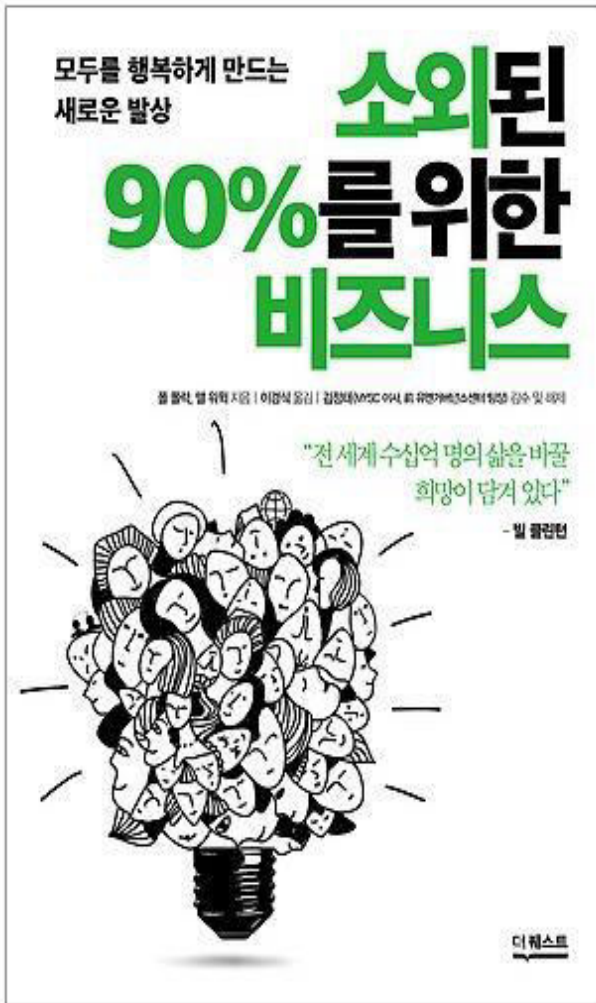
- > Regional marketing
- > Regional Contribution
- > UN SDGs

- > Profit model
- > TBRM (technology business road map)

- Our goal for sustainable development.
- Our thoughts and Practices.

01. Proposal Background

|| Book that inspired



Agreed with the author's statement that poverty can only be solved by business.

It doesn't mean that anyone doesn't need help. It could be done through continuous help. It is best to teach how to catch a fish, not to teach them to put fishing net in pond.

The new idea makes everyone happy

This book made us realized the importance of Bill Clinton's statement of hope to change the lives of billions people around the world. It is shocking that 2.7 billion world population live at \$2 a day. It is heartbreaking to think that how these poor countries people survive and come out from poverty in COVID-19 pandemic situation.

What can we do for them?

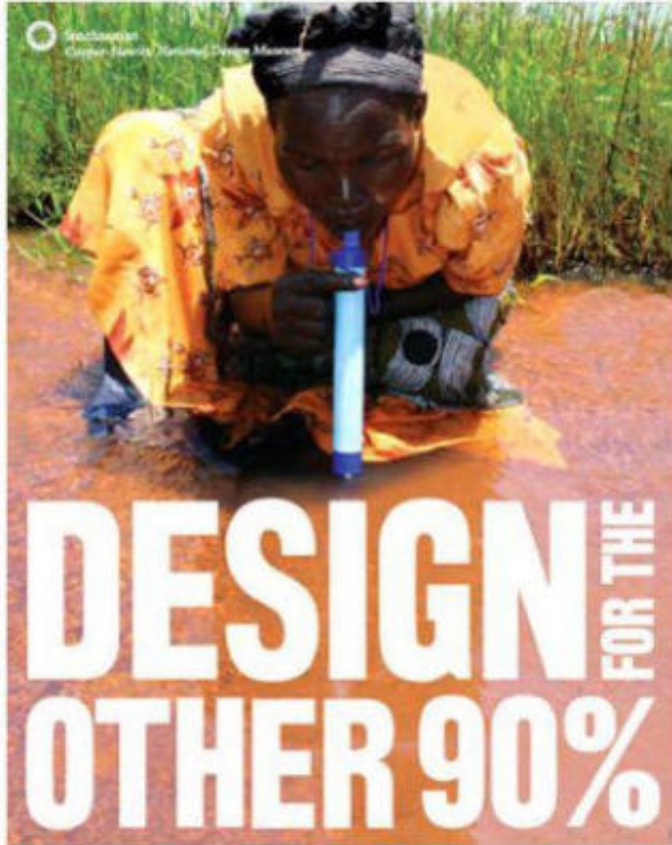
It's not a simple question.

It is the time to break the idea or roughly developing new idea and selling affordable things.

We decided to design a business for them.

01. Proposal Background

Introducing Book that Everyone Must Read



“Design for the other 80%”

The most important is ‘appropriate price !!!’ for 90% of the ‘appropriate target region ’ will obviously handle the situation.

The technology that creatively produces a product with ‘appropriate function and use’.

On the other hand, maintenance and management in reasonable price.

Not a Good Technology “A Warm Technology!”

The Introductory document on appropriate technology design for the other 90%, This book provides a story of anyone who dreams of “technology with human face” This book point out that mass production technology destroys the ecosystem and wastes scarce resources. Suggested mass production technology that makes good use of modern knowledge and experiences, induces decentralization, and no waste renewable resources.



01. Proposal Background

Necessity of overseas aid project (ODA)



Global Disaster and Damaged caused by Disaster



- Increase the need for government or individual to prepare for disasters.
- Need of emergencies relief supplies
- **Drinking water and electricity are the most necessary things in disaster situations ,**
- **Communication (Internet) radio (news)**
- **vaccines, etc.**



**Serious electricity shortage and water shortage at the time of natural disasters.
Unpredictable earthquakes, tsunamis, tornadoes, typhoons, etc.**

01. Proposal Background

Climate Change

- Climate change affects precipitation, evaporation, and soil function of earth.
- Reduction in amount of water that the crop root extract from soil.

- The temperature has increased at an average rate of $0.93 \pm 0.07^\circ\text{C}$ per decade since 1980.

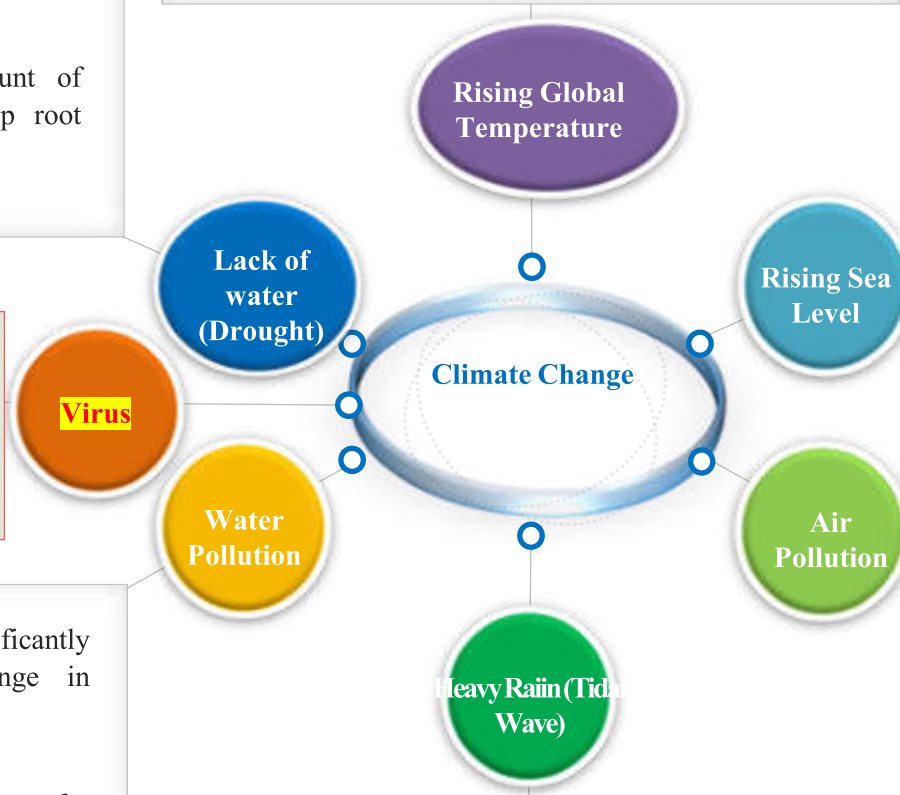
- As of February 2016, the global average sea level increased by 74. mm from 1993
- Melting the glaciers around the world

- The emergence of a novel strains (Mutation) influenza, such as COVID-19 and Pandemic

- Water stability significantly decrease due to change in annual temperature.
- Immense amount of cost for counter measures.

- Increases in heavy precipitation due to strong winds and rain.
- As it gets stronger the system climate changes.

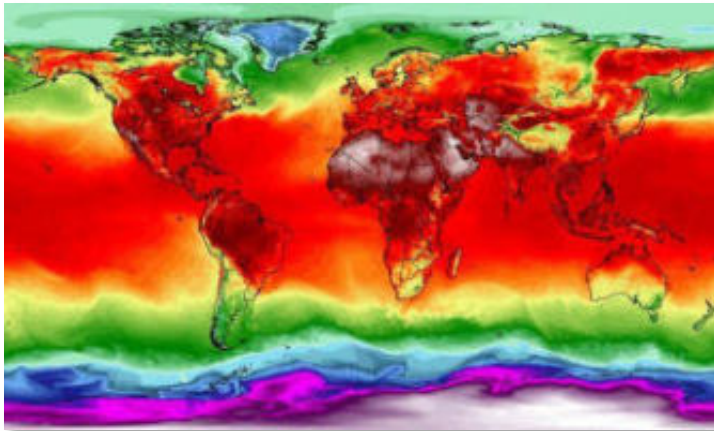
- Rising air motion cause changes to the global atmospheric circulation.
- The diversification and increasing concentrations of air pollution



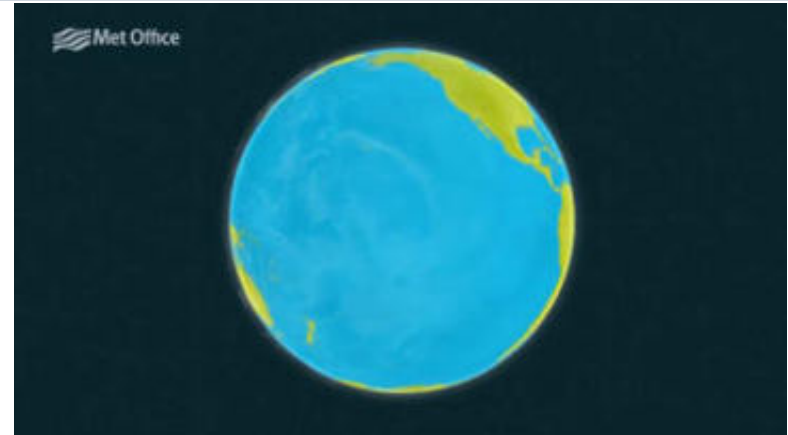
01. Proposal Background

Global Warming

Climate change caused by Global Warming: Flood, Droughts, Tsunami, Etc.



※ 출처 : 2018년 7월 7일의 세계온도 지도, University of Marine



※ 출처 : <https://www.youtube.com/watch?v=WPA-KpldDvc>. Met Office - Weather

- ✓ Sea level rises because of global warming, the thermal expansion of the ocean and glacier melting.
- ✓ Elino Phenomena on earth large amount of sea significantly get warmer and evaporates and the intense offshore low-pressure system can cause flood.
- ✓ Laninha Phenomenon cause heatwaves, torrential rains, and typhoons (the sea level temperature in the East Pacific Ocean decreases).
- ✓ From 1971 to 2010, the sea level rose at a rate of 2mm per year, and if it continues, predicted to increase by 37.8cm and 65.0cm in 2081 and 2100).
- ✓ Coastal and lowlands face problems such as flooding, coastal erosion, and flooding.



01. Proposal Background

|| Lack of water lead to water pollution

High concentration in drinking water; arsenic has been found in Vietnam, Cambodia, Laos, etc.

- ✓ More than 230 million people worldwide, which include 180 million from Asia and Africa do not access to safe drinking water.
- ✓ According to UNEP report 323 m people drink contaminated drinking water all over the world.



※ 출처: World Vision, 2019

- ✓ Southeast Asia population use contaminated ground water for drinking without proper treatment because of economic reasons.
- ✓ According to WHO every year more than 3.4 m people die as a result of water related diseases around the world.

 안전한 식수 공급
(Safe Water)



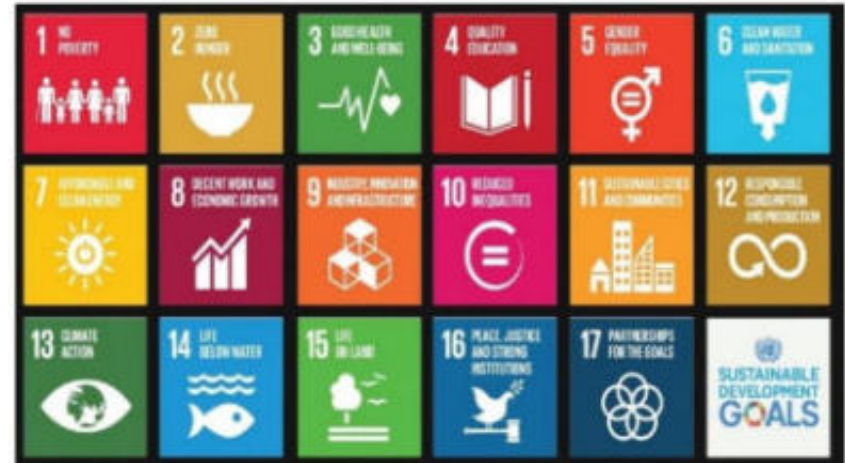
01. Proposal Background

From MDGs to SDGs

❖ New Millennium Development Goals (MDGs)



❖ Sustainable Development Goals (SDGs)



| categories | MDGs (2001~2015) | SDGs (2016~2030) |
|----------------------|--|---|
| Configuration | 8 goals+ 21detailed goals | 17goals+ 169 detailed goals |
| Target | Developing Countries | (Universal) For developing and developed countries |
| Field | Focusing on social fields such as poverty, medical care, and education | (Transformation) economic growth, climate change, economy, society, considering environment and integration. |
| Participation | Government-centered | (Inclusive) Participation of all stakeholders, including the government, civil society and private enterprises. |

01. Proposal Background

Sustainable development goal SDGs



End all forms of poverty



End hunger, achieve food security, nutrition improvement, and promote sustainable agriculture



Ensuring a healthy life and promoting welfare for everyone of all ages.



Ensure inclusive and fair quality education and promoting lifelong learning opportunities for all.



Achieving gender equality and enhancing the right and interests of all women and girls.



Ensuring the availability and sustainable management of water and hygiene for all.



Ensuring access to affordable, reliable, sustainable and modern energy for everyone.



Continuous, inclusive, sustainable economic growth for all, complete and generate employment and quality of jobs



Establishing a resilient infrastructure, promoting inclusive and sustainable industrialization, and promoting innovation.



Mitigating inequality within and between nations.



Create an inclusive, complete, resilient, and sustainable city and residence.



Ensuring sustainable consumption and production patterns



Implementation of urgent actions to prevent climate change and its effects.



Conservation and sustainable use of ocean, sea and marine resources for sustainable development.



Promote a peaceful and inclusive society for sustainable development at all levels, provide access to justice for everyone, and establish an effective and inclusive system.



Strengthen implementation measures and revitalize global partnerships for sustainable development.

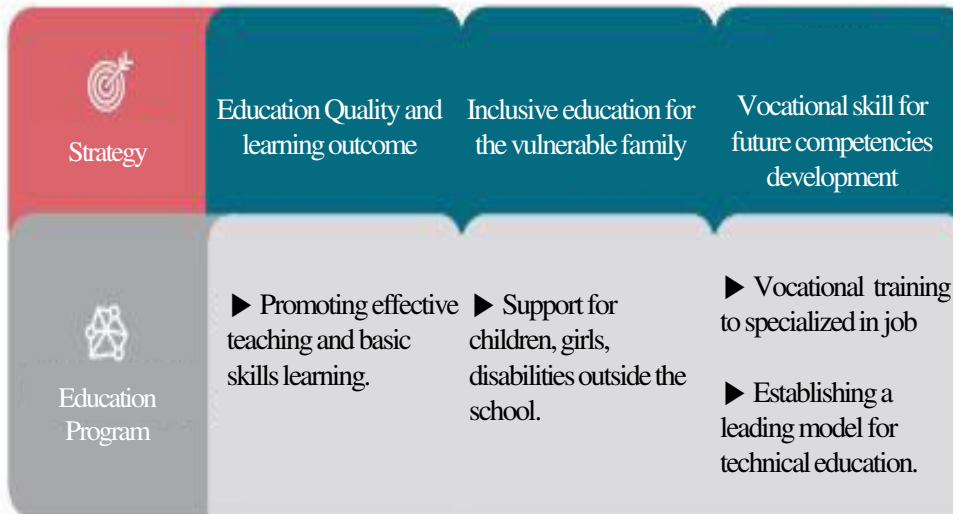


Protecting, restoring, and promoting sustainable use of the rooftop ecosystem, sustainable management of forests, preventing desertification, stopping land devastation, recovery, and stopping biodiversity damage.



01. SDGs Task Analysis

Sustainable Development Goals SDGs

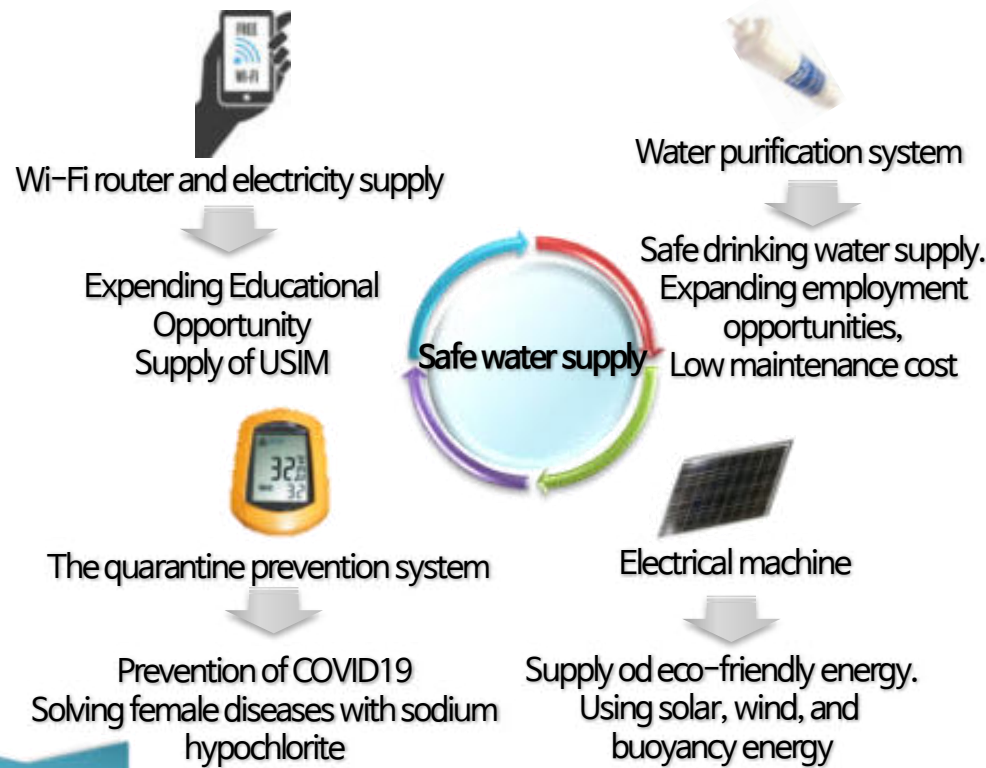
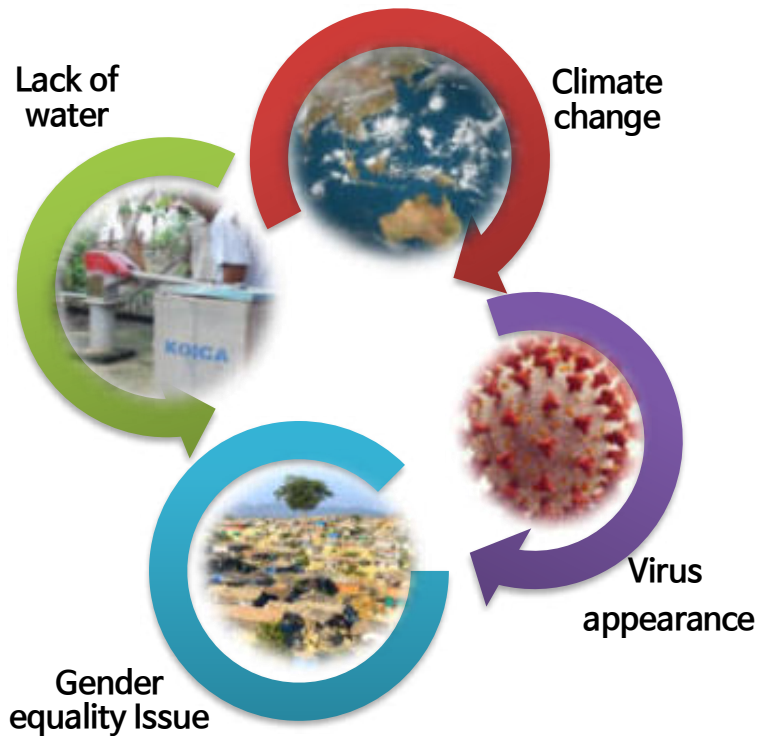


| 분야 | 비전 | 미션 | SDG 목표 |
|---------|--------------------------|---|--------------------|
| 교육 | 양질의 교육을 통한 포용적 발전 | 질적인 교육시스템 강화 및 교육주체 참여 제고를 통해 모든 인간이 교육의 향상에 기여한다 | 4, 5, 10, 17 |
| 보건 | 모든 인간의 건강하고 존엄한 삶 보장 | 모든 사람이 양질의 보건 의료 서비스를 제공받을 수 있도록 보편적 건강보장 달성에 기여한다 | 3, 5, 10, 17 |
| 공공행정 | 효과적이고 포용적인 거버넌스 | 국가발전의 기반이 되는 효율성, 책임성, 투명성을 갖춘 제도를 구축할 수 있도록 지원하여 개도국의 지속가능한 발전과 인권을 증진에 기여한다 | 16, 17 |
| 농촌개발 | 농촌 지역주민의 포용적 발전에 보편적 삶 | 포용적이고 지속가능한 농민-농촌개발을 통해 모두의 삶의 질 증진에 기여한다 | 1, 2, 5, 8, 10, 17 |
| 물 | 인간의 기본 권으로서의 물 | 안전적인 물 공급, 물 이용 효율성 증대 및 기후변화에 따른 재해경감을 통해 개발도상국의 복원력 확보와 지속가능 발전에 기여한다 | 6, 13, 17 |
| 교통 | 모두를 위한 경제사회발전 | 지속가능한 교통체계 구축 지원을 통해 포용적 성장에 기여한다 | 9, 10, 11, 17 |
| 에너지 | 에너지를 통한 지속가능개발 촉진 | 지속가능한 에너지를 통해 온실가스감축에 기여하고, 포용적 성장을 실현한다 | 7, 13, 17 |
| 성평등 | 여성의 존엄성이 보장되는 성평등한 사회 | SDGs의 실행성과 보편성에 기반해 성평등한 개발정책을 추구하고 국제사회의 지속가능한 발전에 기여한다 | 5, 10, 17 |
| 기후변화 대응 | 계도국 주민의 삶의 질 향상 | 계도국의 기후변화 대응 역량강화에 기여한다 | 13, 17 |
| 과학기술혁신 | 계도국 스스로 성장가능한 혁신기반 경제 구축 | 과학기술혁신에 기반한 미래 성장동력 확보를 지원한다 | 9, 10, 17 |

02. Understanding Technology

Solution Concept and Suggestion

SOLUTION

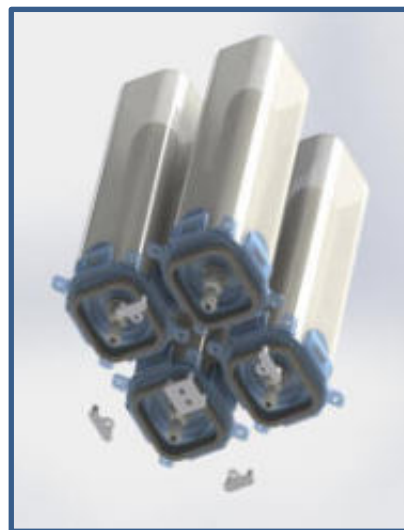
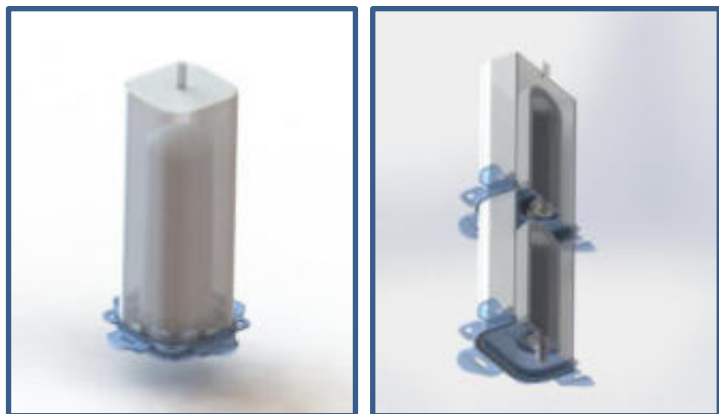


02. Understanding Technology

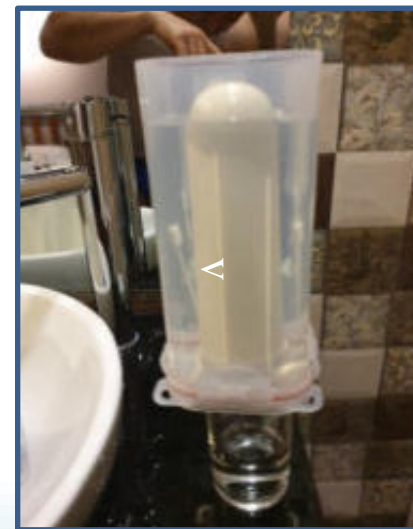
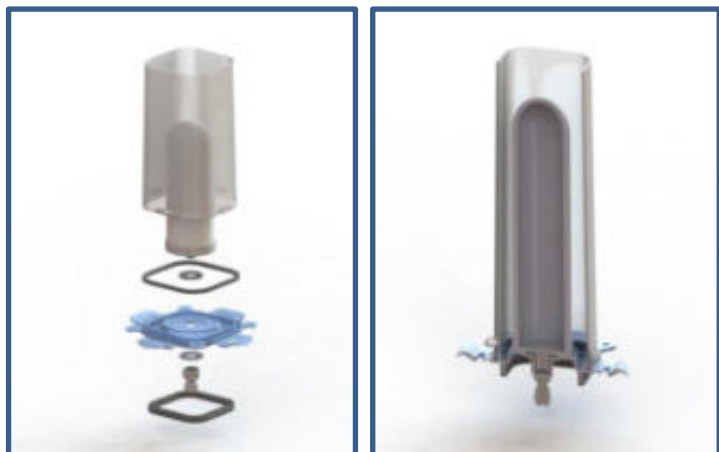
Design Concept

Two Low-Cost Ceramic Filters designed for raw water pretreatment.

❖ Filter Type

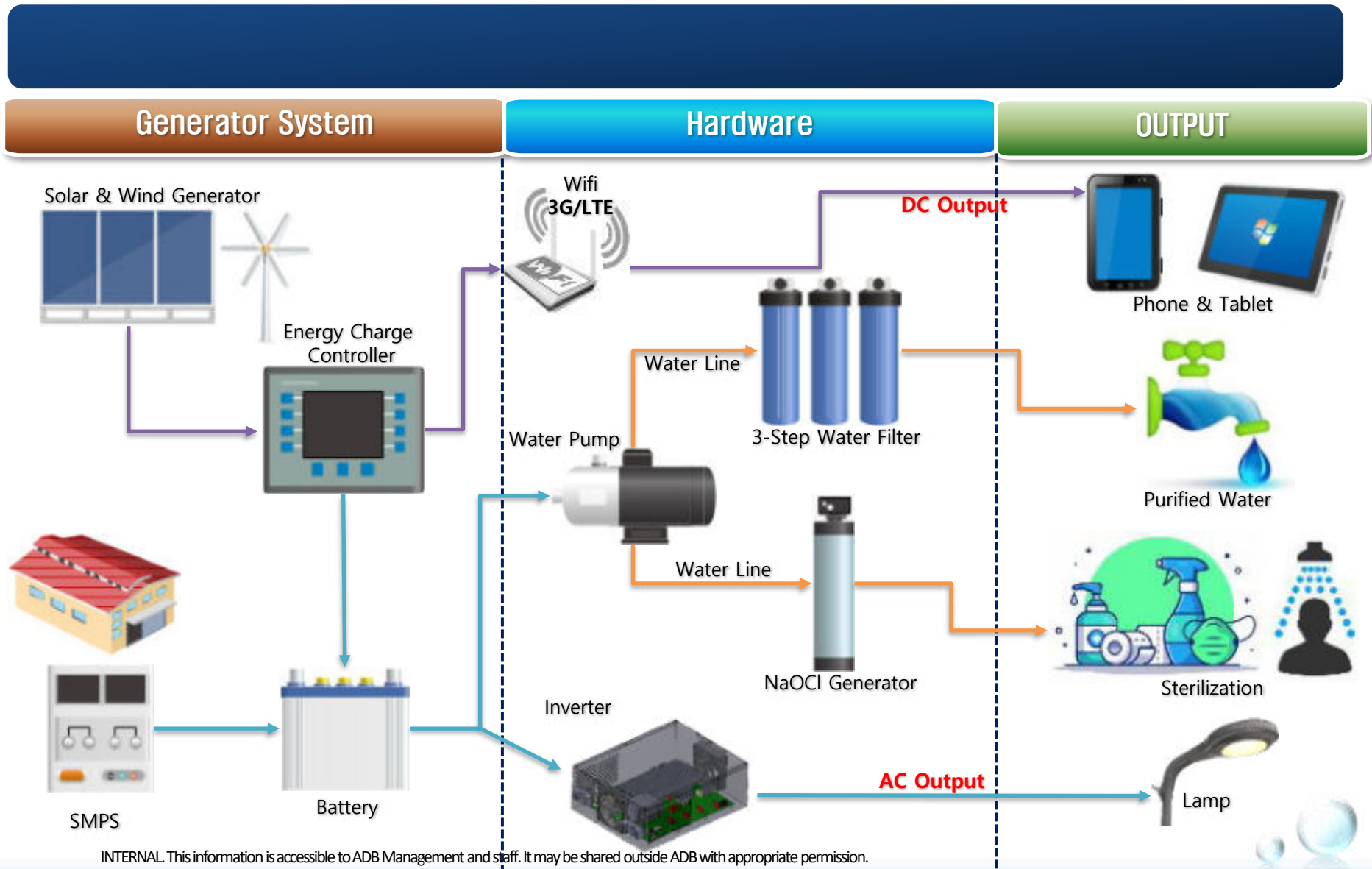


❖ Open Type : Adoption(Confirmed)



02. Understanding Technology

Technology(1)



02. Understanding Technology

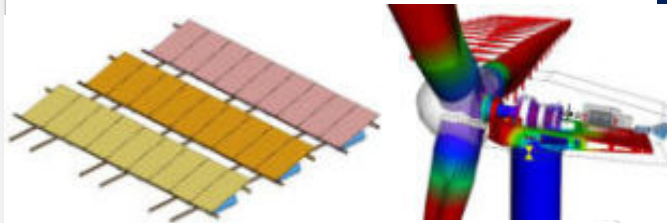
Technology Overview (2)

The water purification unit consists of **generator, a water purification system, a Wi-Fi router, and a quarantine prevention system.**

Generator



- Energy transfer through solar panel and store it in built-in batteries pack.



Water Purification

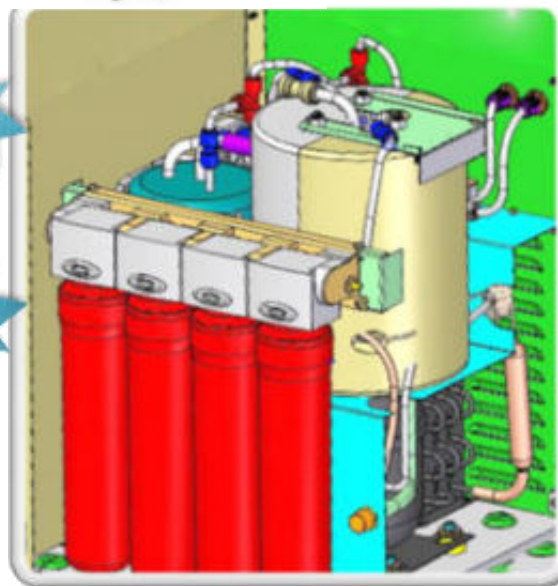


- Installation of a carbon filter and Nano membrane to improve water quality and taste of the treated water.

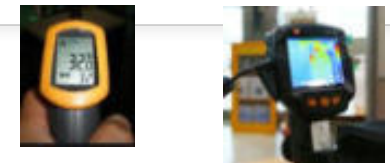
Wi-Fi



- Wi-Fi Router USIM.
Establishing a system



Prevention for Quarantine



- Support the rotating stem nut by turning the handle and accommodating the bearing vibration.
- Hypochlorous Acid Generator.

02. Understanding Technology

Technology Overview –4th Generation SOLPA 2K

4th Generation Water Purifier is a device that can be mounted directly by single PCB, A technology that solves technological innovation, users' convenience, and produce economy.

Mini PC



Filter to improve water quality



Renewable Energy: Solar, wind, buoyancy



Feature

Variety Pack Chips in One Board (Including Wi-Fi)
Fully integrated and Compact Package

Supply healthy mineral water.
Usable in high water pressure flowing (6kg/cm2)

Renewable energy using wind and buoyancy,
Power generation by Solar Panels

Merits

Easy to install functions reflect the consumer.

No pressure pump, can be used directly
No purified water is wasted

Easy to maintain.
High efficiency (40%)

Demerit

Need to product separately

Not applicable for (1kg/cm2) low water pressure

Unable to repair in case of battery weight failure detected.

Other

Save time to design and production part.

CPP Bag for preprocessing
Ceramic, carbon filter

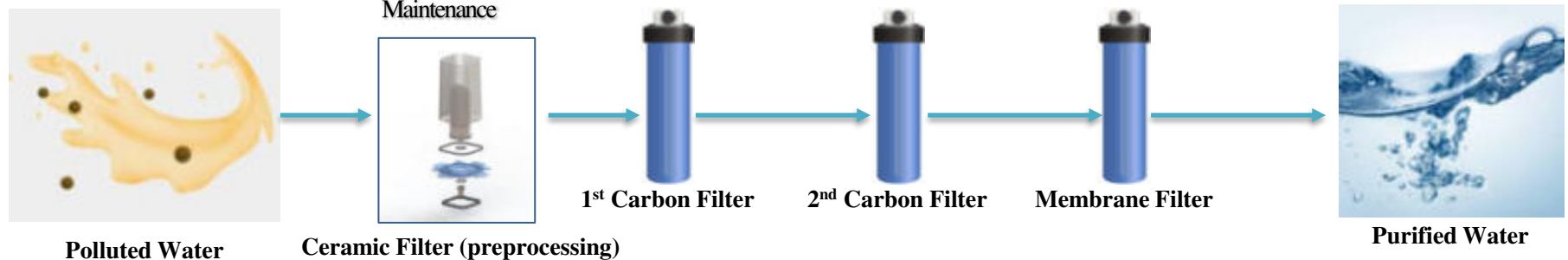
Adjustable Solar Panel Size.
Possible to be lightened with the development of battery technology

02. Understanding Technology

Key Technology –Water Purifier System (Nano Membrane Filter)

Equipped with Ceramic and Carbon Filters
to improve the quality of water and taste of water.

SOLPA convenient and safe high-quality purified water



Technology in Ceramic Filter

- Technology to ensure uniformity of below 0.2 μm pore diameter fine ceramics.
- Generate inorganic minerals and alkali-ionic
- Protected 3 Step Preprocessing technique

3-Step Filtering Skill

- A multi-stage carbon filter to remove contamination
- Development of carbon filter considering adsorption efficiency.
- Development of a membrane fiber filter to remove particles
- 100% usable water
- (80% recycled water generated using RO filter)

Sensor-Based Control

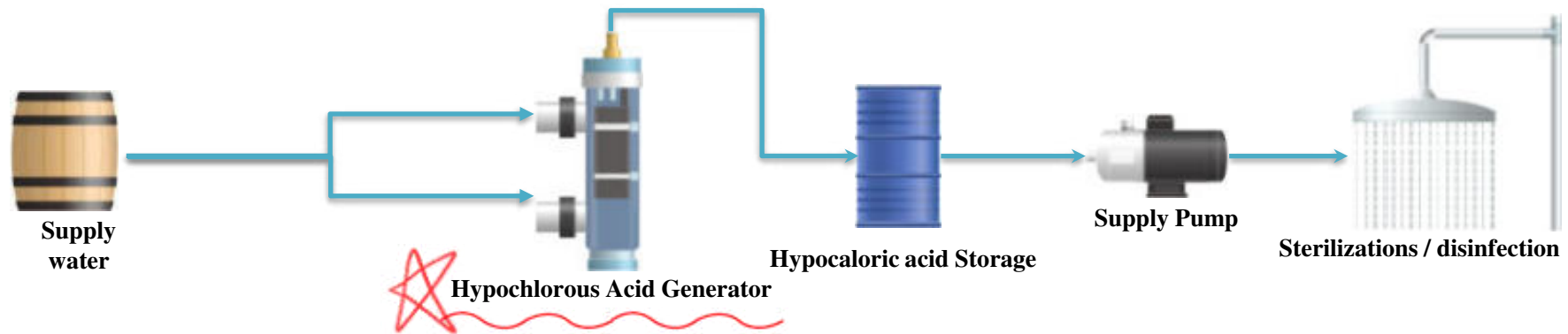
- Determining the existence of treated water.
- Use of Pump according to the flow rate of treated water.

Technology applied ceramic and multi-stage filters to enhance the quality of drinking water.

02. Understanding Technology

Key Technology –Sterilization and Disinfection System

Sodium Hypochlorite Solution generate sterilization / prevent the spread of infections and protect personal hygiene by disinfection.



Electrolysis Technology

- Production of hydrochloric acid using electrochemical decomposition technology.
- Carry out the sterilized water through electrolysis control technology

Electric Filter Technology

- Inlet metal, remove anti bacterial substance
- Technology to remove lime ingredients using electric filters.

Automatic cleaning/ Sterilization technology

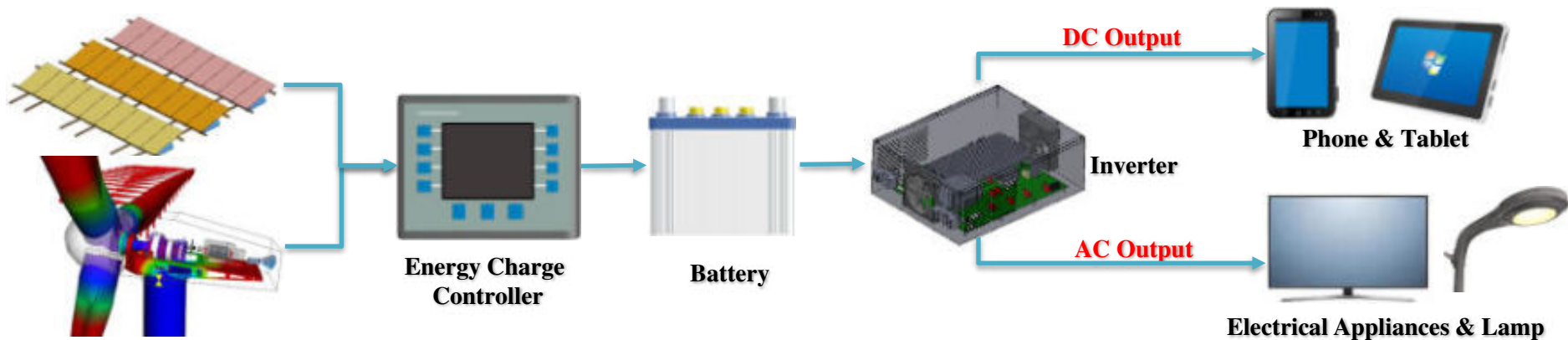
- Metal ions were adsorbed on the plate of an electrode-separated.
- Discharge the separated ions to maintain the cleanliness of electrolytic tank.
- Sterilized with electrolyzed water

Development of technology to prevent infectious diseases and secure personal hygiene by installing a sodium hypochlorite generator.

02. Understanding Technology

Key Technology - Generator composition

Generators store new and renewable energy from solar and wind power in recycled waste batteries to make it environmentally -friendly technology



EMS Service Technology

- Established an EMS system to store energy generated by solar and wind power generation.
- Carrier Compact Designed
- Can store energy on rainy, cloudy or windy days.

Battery Technology

- Developed battery charging /discharging system using power generation storage energy
- BMS based battery developed for long real-time operating system.

Inverter System Technology

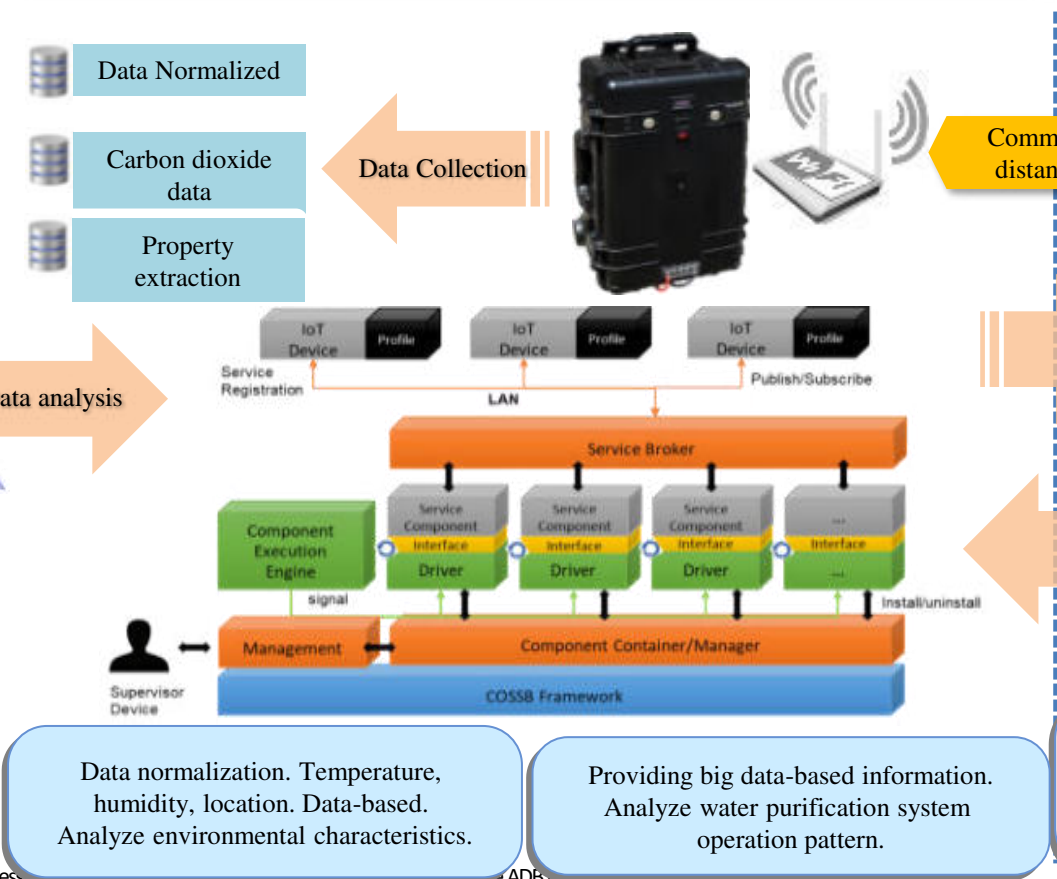
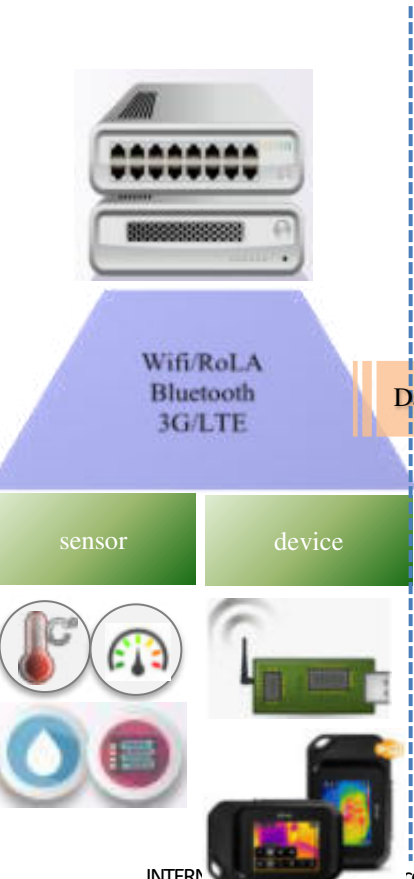
- Developed an inverter for DC-AC conversion from battery power.
- Structural design of heat dissipation system composed of heating element.

Development of a packing technology of power generation system by utilizing renewable energy.

02. Understanding Technology

Core technology –Communication Network Configuration

Development of 3G/4G communication system and water purifier operation system in region by providing IOT-based USIM.



Data normalization. Temperature, humidity, location. Data-based. Analyze environmental characteristics.

Providing big data-based information. Analyze water purification system operation pattern.

Integrated monitoring system (Water quality analysis, filter replacement, analysis of usage patterns, failure factors)

02. Understanding Technology

|| Main Product

Water Purifier



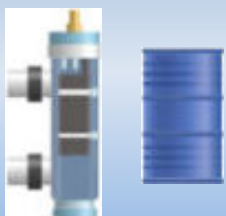
- ✓ **First Generation Product launched in 2015, developing and selling 4th generation product in 2020.**
- ✓ **The main function of device is water purification and power generation. However, the multiple function can be use by identifying consumers need such as Wi-Fi, Radio, Bluetooth, Speaker, etc.**
- ✓ **Export to Southeast Asian countries, where many people drinking conventional water and facing water shortage problem**
- ✓ **Holding intellectual property right including patents related to target product.**

02. Understanding Technology

How to solve SDG's challenges



Hypochlorous acid water provided to solve women's diseases related problems



Safe water supply and...
Create employment opportunities



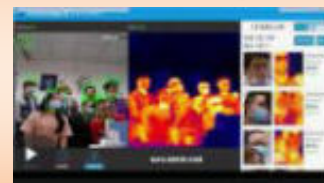
Using wind and solar energy.
Using eco-friendly technologies to respond to climate change



Wi-Fi and internet.
Use to provide training opportunities.



Check virus by observing
real time temperature and
quarantine system.



03. ODA Activities

Asia Regional Activities(1)

Indonesia

- Visited Indonesia.
- Demonstration of water purifier.



Philippines

- Visited the Manila, Philippines in 2017 and 2020 and use a water purifier,
- Demonstration of ceramic filter.



Vietnam langson

- Demonstration of water purifier during Vietnam Langson visit in 2018,

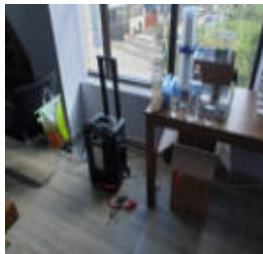


03. ODA Activities

Activities in Asia(2)

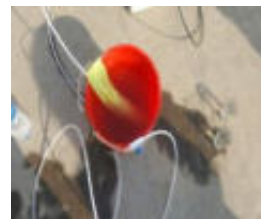
Nepal

- Signed export contact with NANC Nepal in 2019. Demonstration of water purifier.



Malaysia

- In 2012, he visited Malaysia to demonstrate the water purifier.



Laos

- Visit Laos in 2018 to demonstrate the water purifier and communicate with localities.



03. ODA Activities

Asia Regional Activities(3)

- ASEAN countries. (Nepal, Sri Lanka, Indonesia, Philippines, Vietnam, Cambodia, Myanmar, etc.) Local...
- Project expansion through demonstrations and consultations with government agencies.



03. ODA Activities

Asia Regional Activities(4)

◆ Kim Young-ki, chairman of the Manila branch of the World Korean Trade Revolution (OKTA).



2018 ADB (Asia Development Bank) Invitational Water Purification Generator Announcement (Supporting former Prime Minister Han Seung-soo)



- ❖ Prime water in the Philippines (private water supplier)
- ❖ Two water purifiers are being supplied and tested.
 - In the future, in areas and islands where there is no water supply facilities.
- We examined the changes after supplying this water purifier (SOLPA),
 - Indonesia-related business.
 - ADB is now talking about 900,000 Bangladeshi refugees.

03. ODA Activities

Asia Regional Activities(5)

❖ Consultation on cooperative projects with the Nepalese branch for hunger countermeasures (2019).



❖ Koica Nepal (2019.09)



❖ NGO Headquarters (Seoul) Consultation on Water Purification Generator Supply Project (2019.11)



03. ODA Activities

Asia Regional Activities(6)



❖ Nepal NANC's export contract worth \$300,000 for three years (2019.12.06)



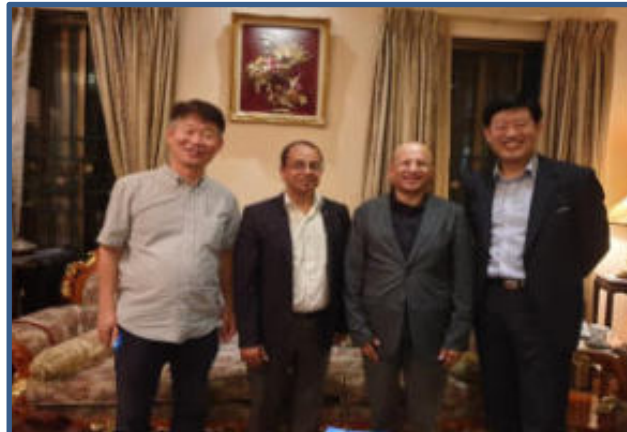
❖ 2019 ASEAN-Korea Water Security Forum Invitation Announcement (2019.11.22)



❖ (Consultation on cooperative support for NANC in Nepal by Gangwon Information and Culture Promotion Agency(2019.12.06)



❖ Contact signed between MIJ & Nepal NANC



❖ Consultation on support for former vice president of the Asian Development Bank (ADB)



❖ Demonstration in Nepal



03. ODA Activities

Regional Contribution



- Exporting 110 products to eight countries, including Nepal, Sri Lanka, Indonesia, Cambodia, Vietnam, Langson Island, Mindanao, Cameroon, and Myanmar in the Philippines.
- In 2018, Prime Water in the Philippines signed an MOU to introduced water purifiers.
- 1,000 portable water purifier CPP bags were exported to earthquake-hit areas in Indonesia in October 2018.
- Additional request: Internet communication (WiFi),
- Bluetooth function, mosquito repellent.
- Virus, etc.

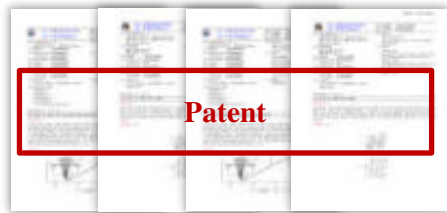


04. Business

Business Directions with Technology Strategy

Open Technology Platform

Expanding usability of technology by opening the platform for technology.



Determining whether the patented technology shares.

Profit from technology transfer

Profits from expanding product utilization.

Designation of world relief supplies

Supply of drinking water is must for the emergency relief.



Suggestion for efficient drinking water supply system

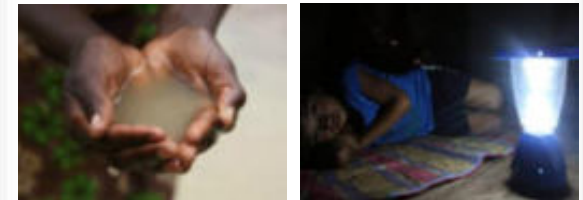
Investigation and judging the mass disaster region

Need of drinking water, electricity, and communication source at the same time.

Water Purifier set provide relief supplies

Designation of daily necessities in poverty areas

Poverty area such as Asia and Africa. Supply basic household requirements



Permanently solves life problems in area

04. Business

Profit Model(BM)



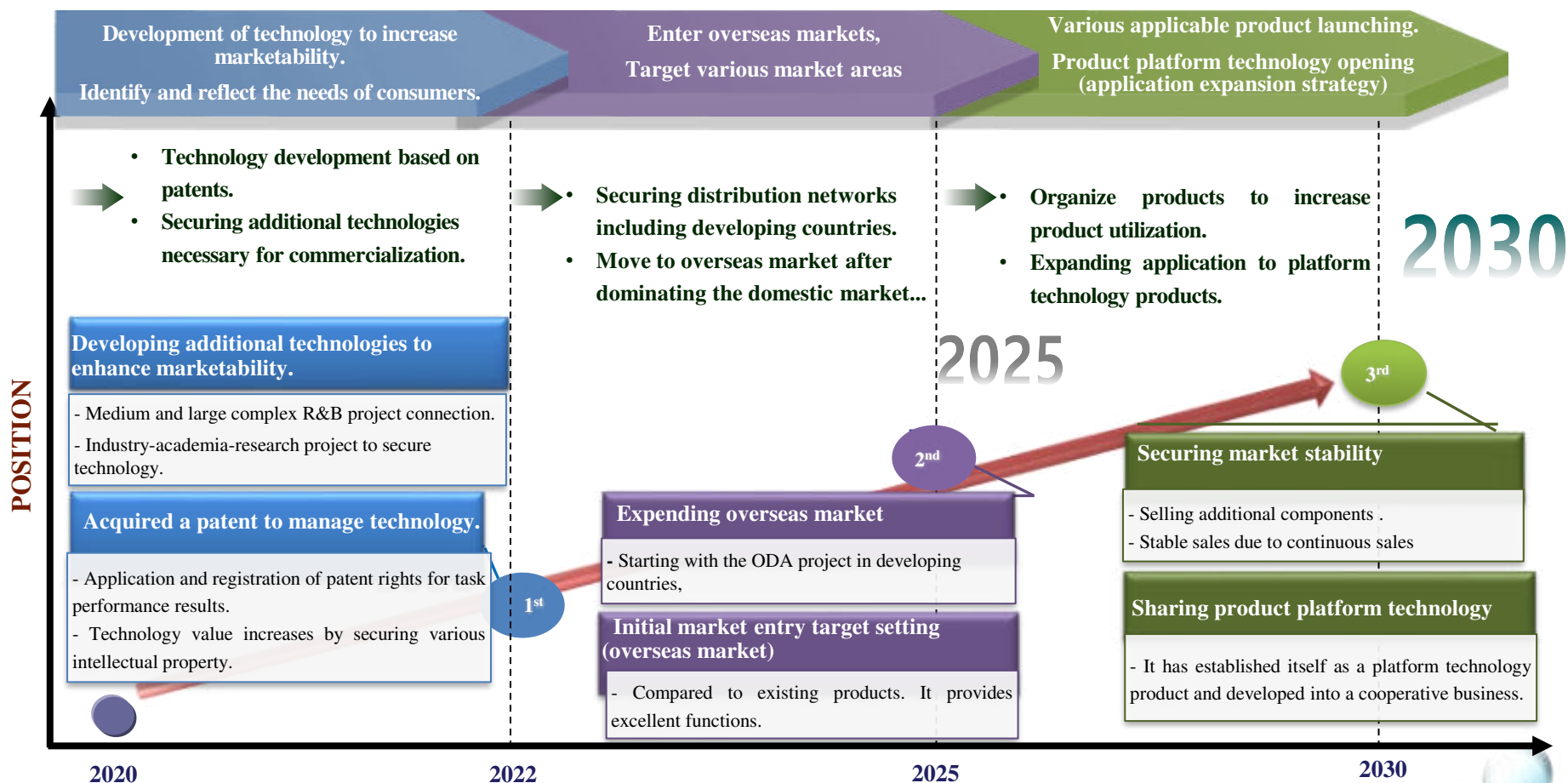
04. Business

TBRM (Road map for technology business.)

Short-term:
Require commercialization
for technologies development

Mid Term :
Expansion of Domestic and
International market

Long term :
Establishing a stable sale market



05. Determination

Goals for sustainable development

The project eligible for South Asian countries, it contribute for the improvement of **refugee's life quality**.
In addition, suggestions for solutions to water quality problems that meet high standards of sustainability and profitability.

Improving the quality of life of Asian residents by providing multi-water purification generators using appropriate technologies.



Multifunctional Water Purifier

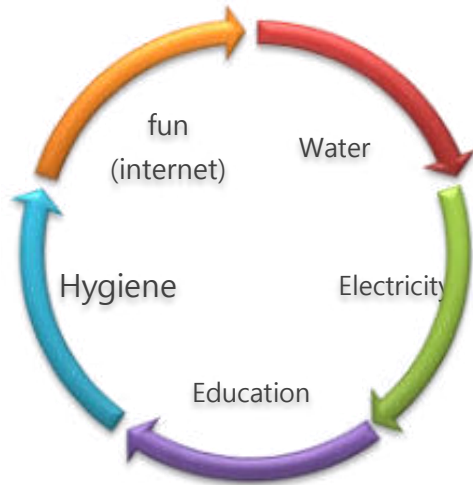


SUSTAINABLE DEVELOPMENT GOALS



05. Determination

Remarks



- ✓ Expanding basic life and educational opportunities.
- ✓ Minimize children around the world who are threatened with life opportunities due to lack of water.
- ✓ Equal health care for all.
- ✓ Provide a safe basic living area (safe water, clean hygiene, eco-friendly energy)
- ✓ MIJ Korea.



Let's consider the people in need, to support least benefited region.

Let the world move together through cooperation.

-MIJ Korea -

<<General Critique>>

|| What are we going to do?

Here are people who have been disregarded and markets that have been looked away.

It is time for the convergence of marginalized people and markets through post-Corona, design and BM (business model).

Then, what can we do?

◆ Companies and individuals

✓ Social responsibility(CSR)

✓ Shared Value Creation Strategy(CSV)

➤ ESG Practice

: Harmonizing for environmental protection, social, and ethical management, it means that the companies taking the lead in environmental protection, actively supporting the social disadvantaged, and practicing ethical management that strictly complies with laws and ethics.





THANK YOU