Planet Co.,Ltd

Main Businesses

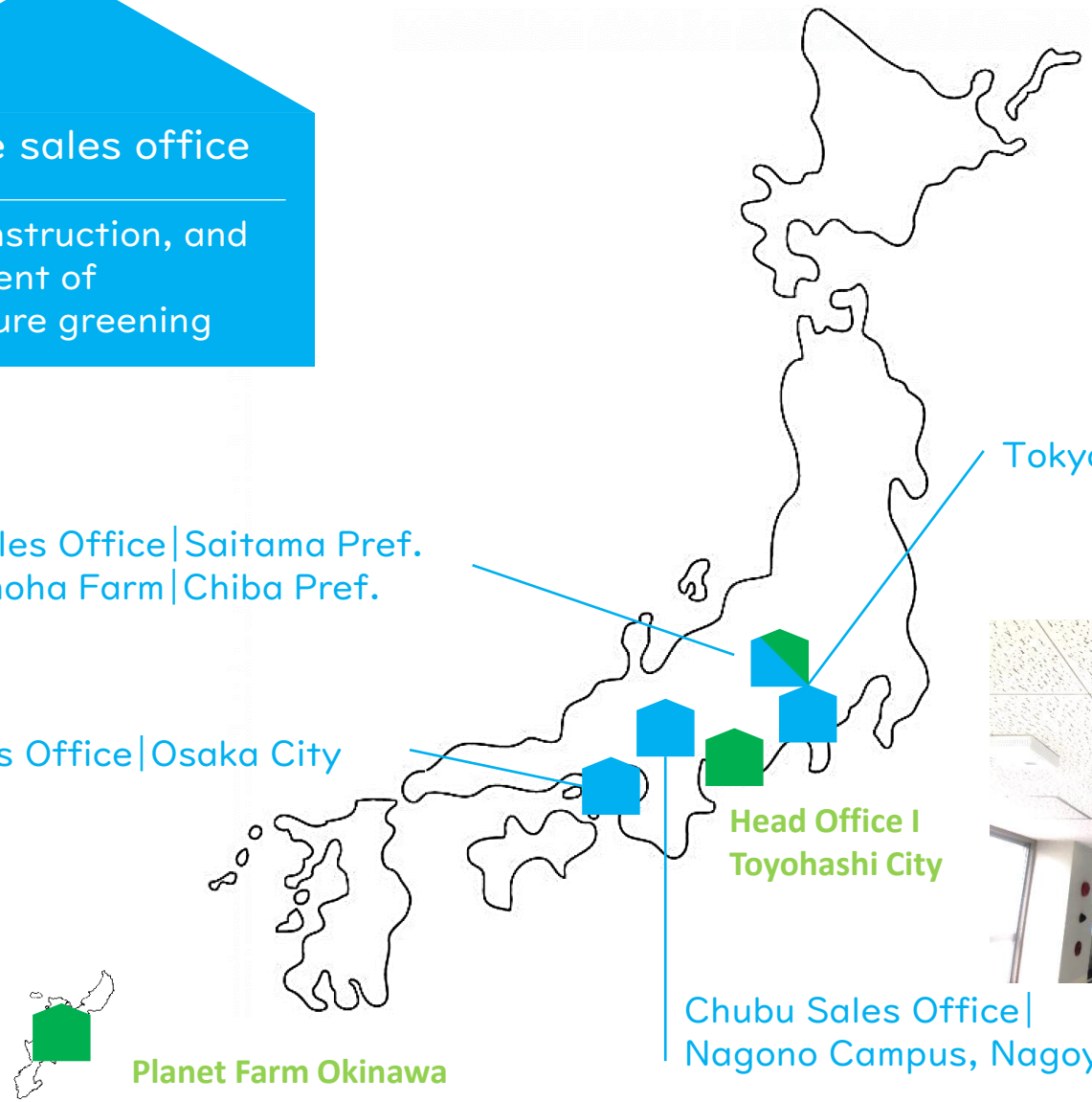
Indoor greening

- production
- sales
- design
- construction
- management

To promote hydroculture in Japan

In-house sales office

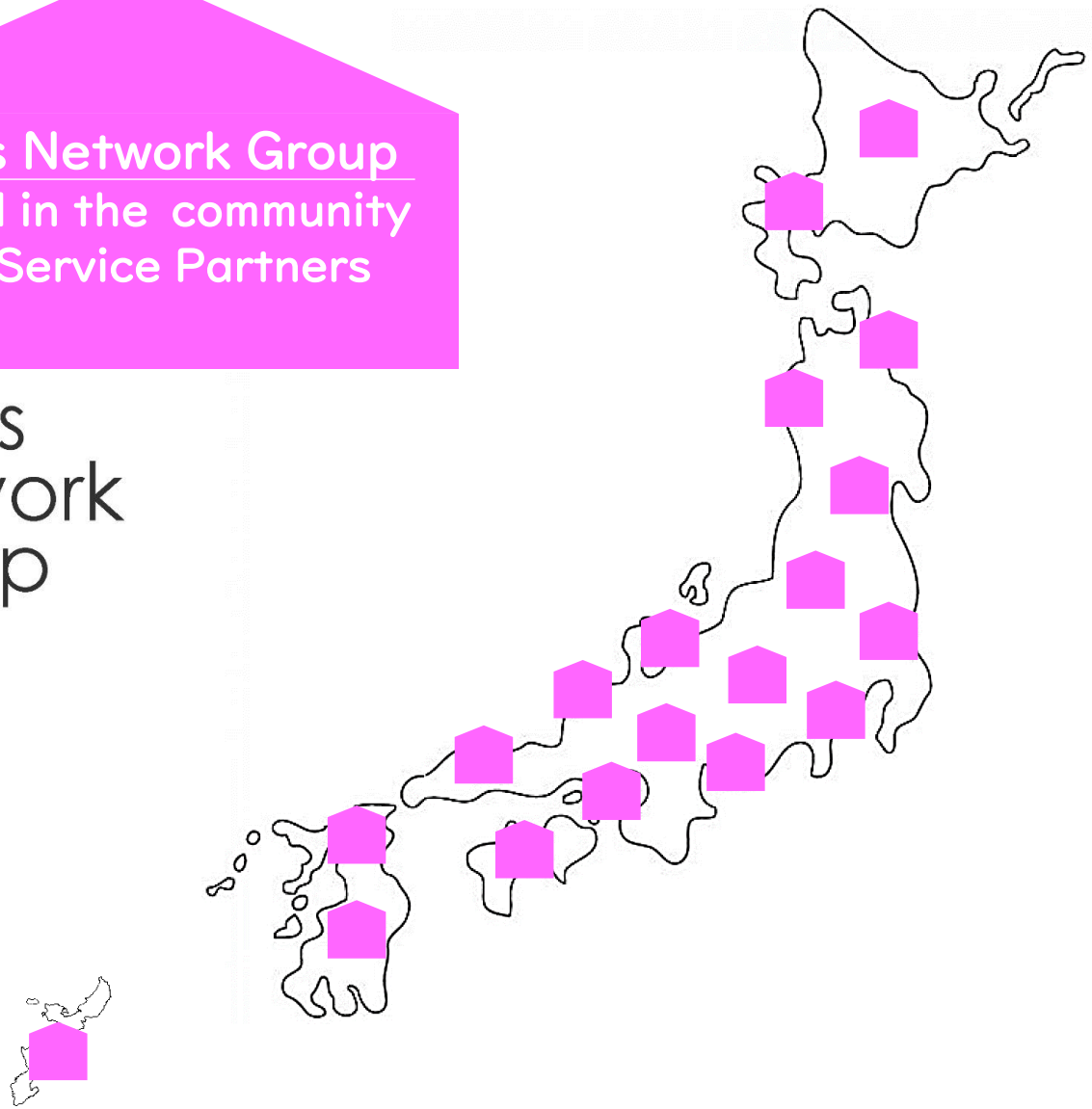
Sales, construction, and management of hydroculture greening



To promote hydroculture in Japan

Plants Network Group
Rooted in the community
Green Service Partners

Plants
Network
Group



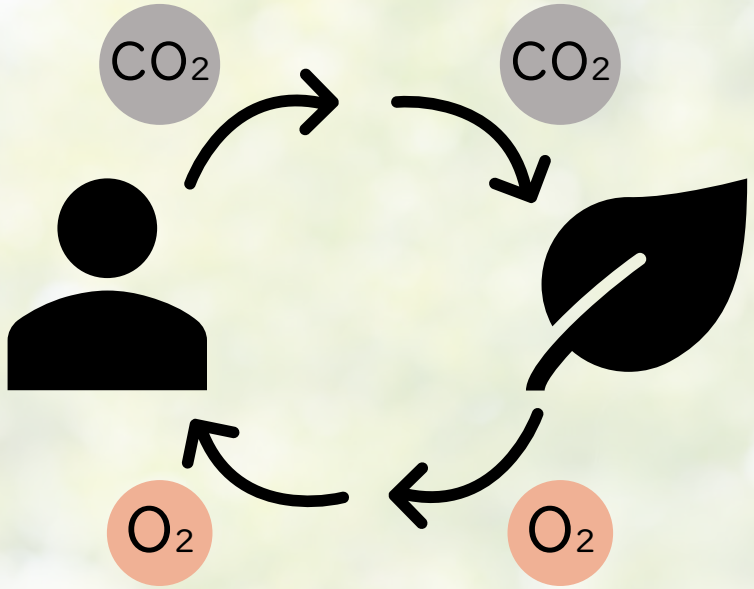
Planet's Business Development

Our mission is to spread the business we have built at Planet to domestic and international markets.

What's good about adding plants?

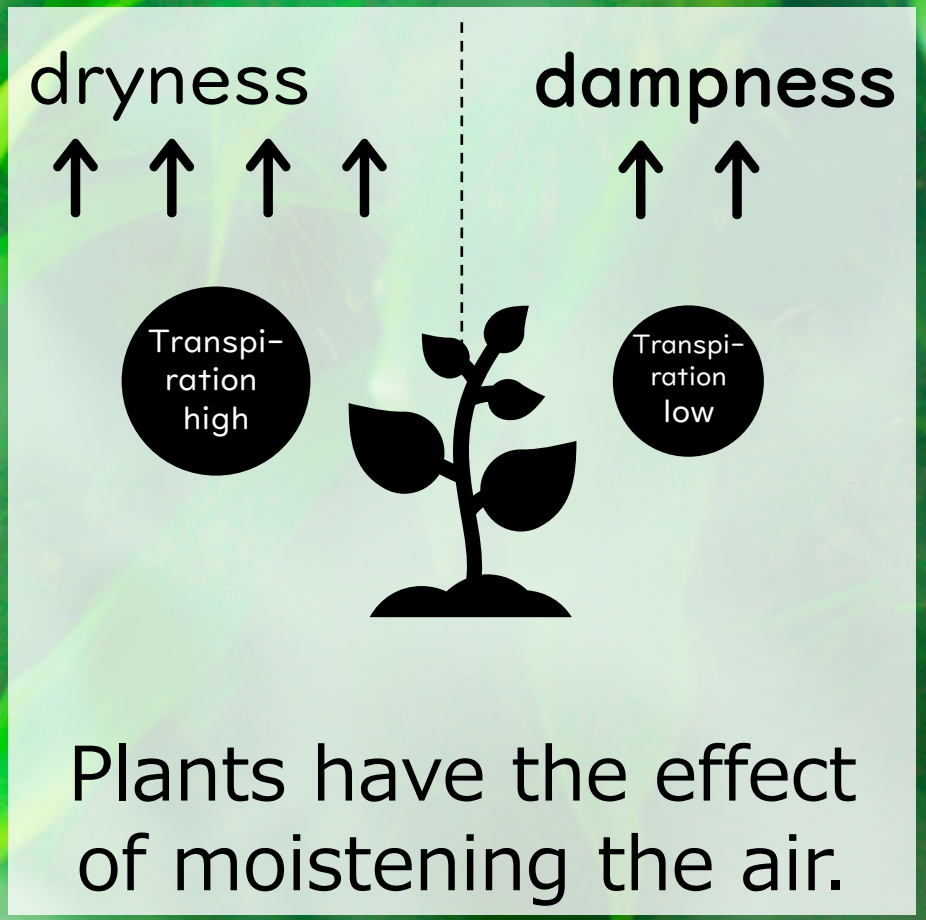
Plants relaxes the mind.

What's good about adding plants?



Plants clean indoor air.

What's good about adding plants?



Plants have the effect of moistening the air.

It is growing "long" in the Planet Greening System!

Nakayama Racecourse|Chiba
At the time of construction 1991

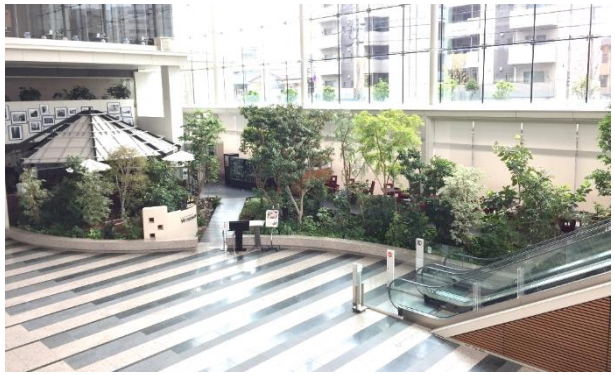
Denso Employees' Club|Aichi
At the time of construction 2002

Beach Tower Hotel|Okinawa
At the time of construction 2004

32 years later

21 years later

19 years later



People spend 90% of their lives indoors.

Ministry of Health, Labour and Welfare
Indoor Environment Standard

- Relative humidity 40% to 70%
- Carbon dioxide Less than 1000ppm
- Formaldehyde Less than 0.08ppm
- Amount of suspended dust Less than 0.15mg/m^3

All the above is improved by the plant!

Planet Biophilia Greening Research Center


Organic fertilizer experiment

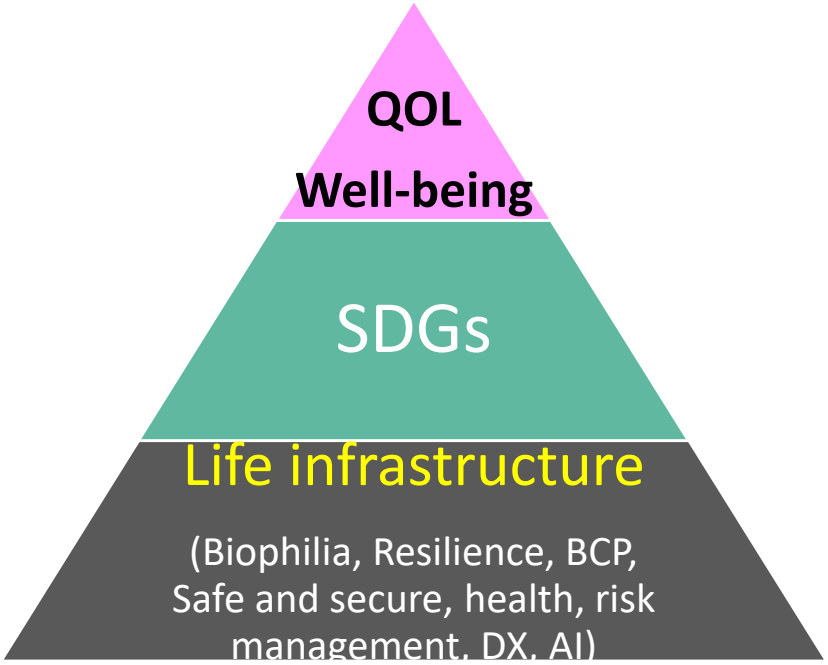

Demonstration test of a new wall greening system


Plant factory experiment


Experimental chamber

Objectives of the Research Center

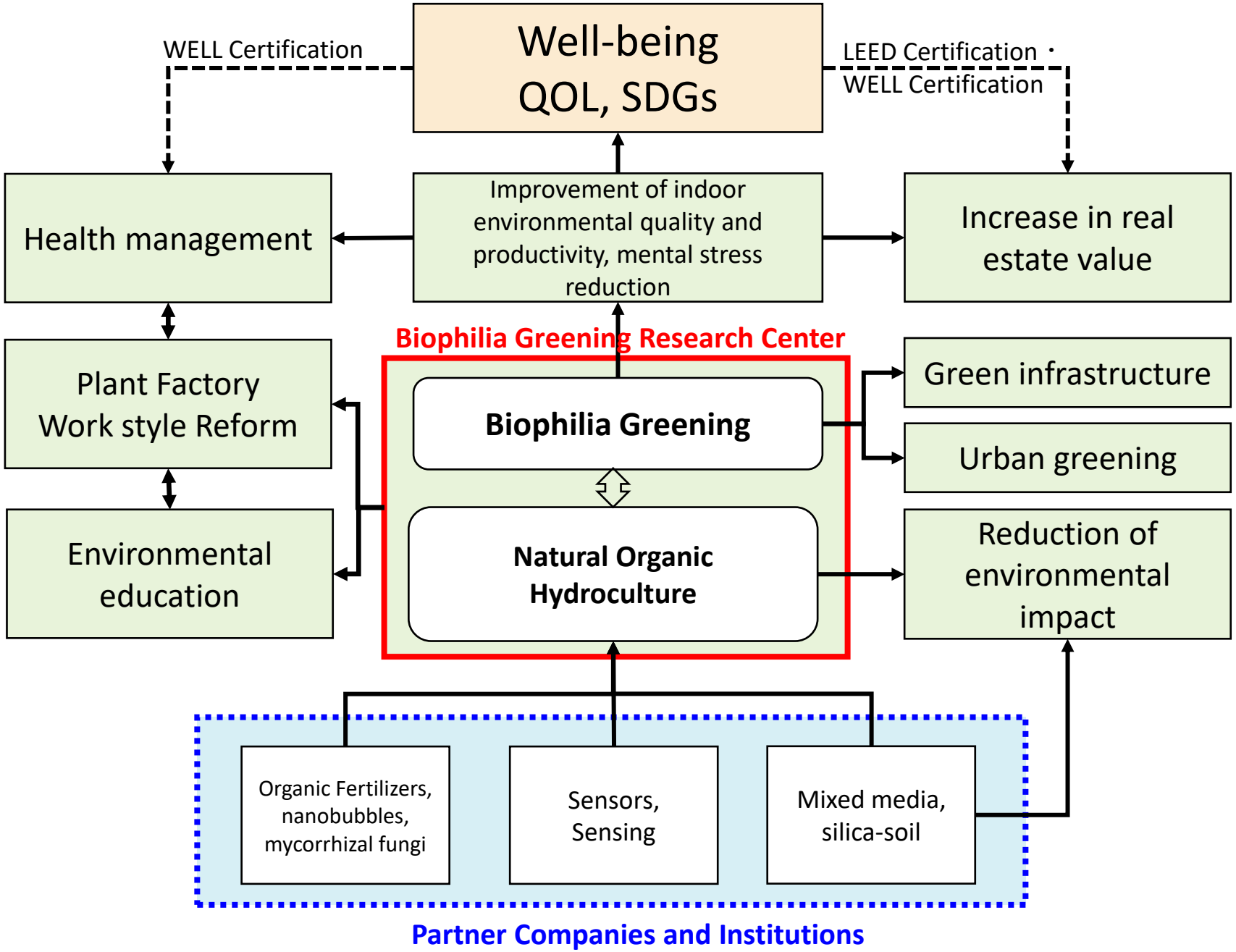
- Biophilia enrichment for living and workplace environments!
  - A workplace that gets the job done
  - Comfortable living/workplace
  - Stress-free indoor environment
  - Greening the City and Restoring Nature's Abundance in the City
  - Greenery connects people with nature and people with each other
- Safe and secure coexistence with plants
  - Indoor greening to stimulate the five senses
  - Clean indoor air with plants
  - Spreading the green amenity effect and biophilia greening
  - Mental Stress Free with Plants



We support the SDGs and provide a good quality of life and well-being.

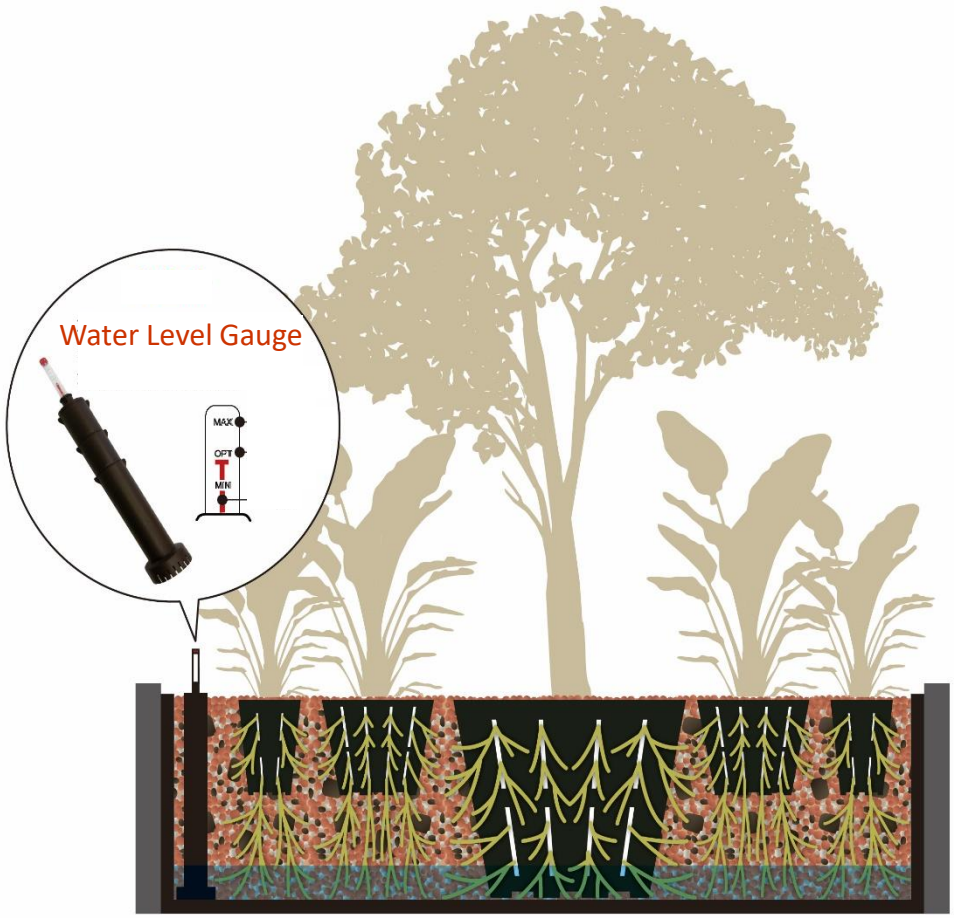
Mission of the Research Center

1. Demonstration tests to quantitatively clarify the green amenity effects of indoor greening
2. Design, construction, management, and evaluation methods for indoor greening that stimulates the five senses
3. Research and development in collaboration with the building industry in the field of biophilic design
4. Development of seamless basic technologies necessary for urban greening as green infrastructure from indoor greening
5. Creation and development of new green businesses through collaboration with a wide range of related companies and partners
6. Development of basic elemental technologies to support various SDGs, such as globalization of indoor greening technology


Well-being
QOL, SDGs
WELL Certification
LEED Certification・
WELL Certification
Health management
Improvement of indoor environmental quality and productivity, mental stress reduction
Increase in real estate value
Biophilia Greening Research Center
Plant Factory
Work style Reform
Biophilia Greening
Green infrastructure
Urban greening
Environmental education
Natural Organic Hydroculture
Reduction of environmental impact
Organic Fertilizers, nanobubbles, mycorrhizal fungi
Sensors, Sensing
Mixed media, silica-soil
Partner Companies and Institutions

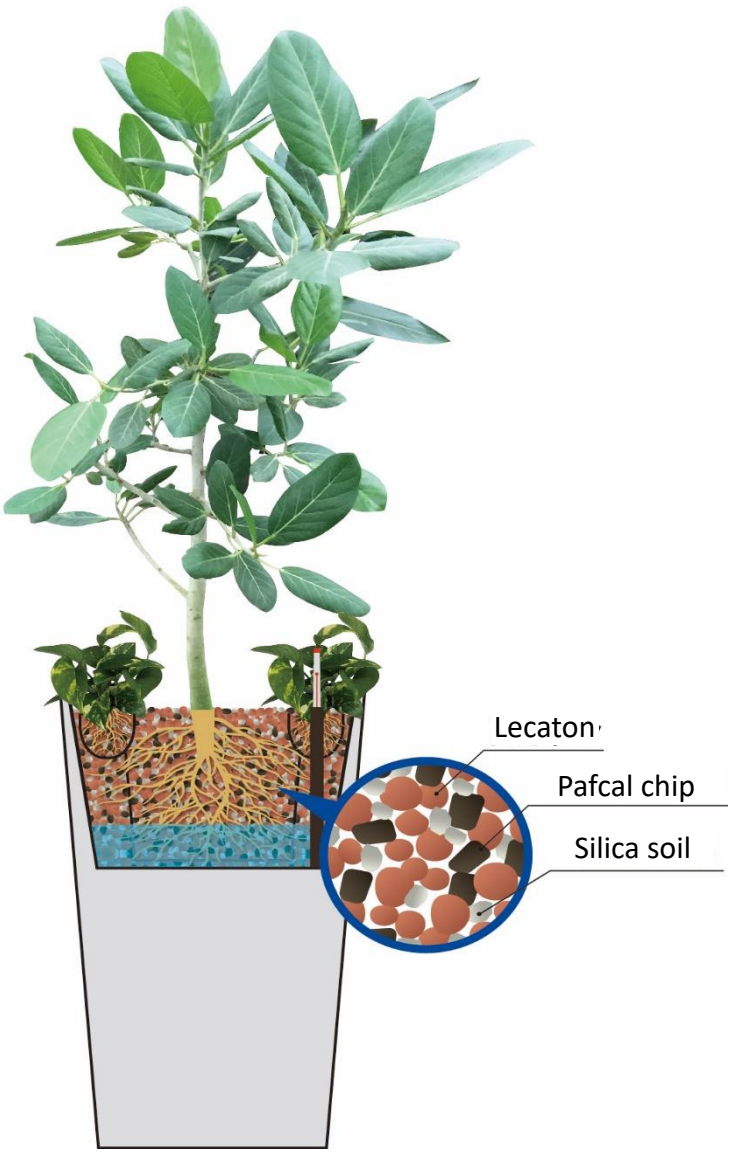
Hydroculture System
Planting Methods in Multiple Planting Greening

- Tall, middle, and lower grasses
- Bulk water supply reduces watering time.
- Low plant exchange rate
- Vigorous evaporation and reduced dust cleaning



Hydroculture Planting

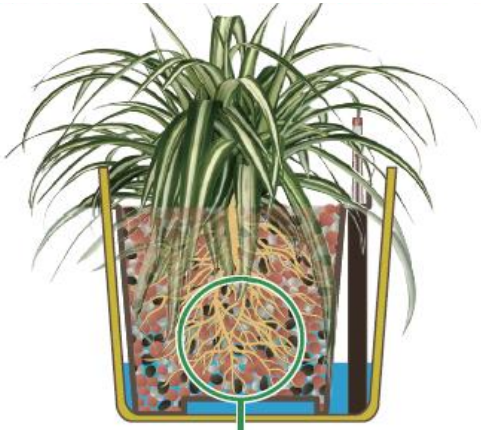
Basic Planet Hydroculture Composition



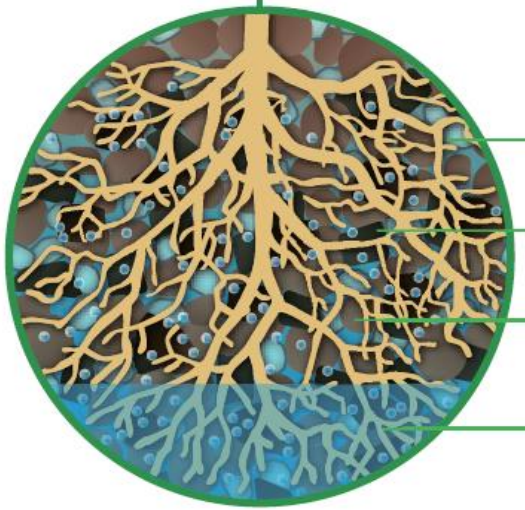
The ability to grow many roots (main roots, lateral roots, and root hairs) is important for air purification, longevity, and disease and insect control.

Outer root from slit in inner container

New Hydroculture



プラネットソイル
Planet Soil
Natural Organic Hydro Culture



Silica soil

Pafcal chip

Lecaton

+

+

Roots grow in search of water in the bottom of the pot. It is difficult for the roots to reach the top, and it takes time for the roots to spread throughout the entire pot. Therefore, it is important to note that the roots are concentrated in the lower part of the pot, the plant is wobbly, and the roots of thin plants tend to break off.

Pafcal chip contains organic fertilizer and works with mycorrhizal fungi to deliver nutrients to the roots of plants. It also improves the moisture balance in the pot, and the roots grow throughout the pot.

This lightweight material is made by crushing waste glass bottles and firing them into foam. Silica (silicic acid) is absorbed by plants as a trace element and thickens the cuticular layer on the surface of plant leaves, making it difficult for pests to attach to plants and increasing their photosynthetic capacity. It also purifies water. Because it is porous, it causes the roots to branch out and the number of lateral roots to increase, thereby increasing transpiration and air purification.

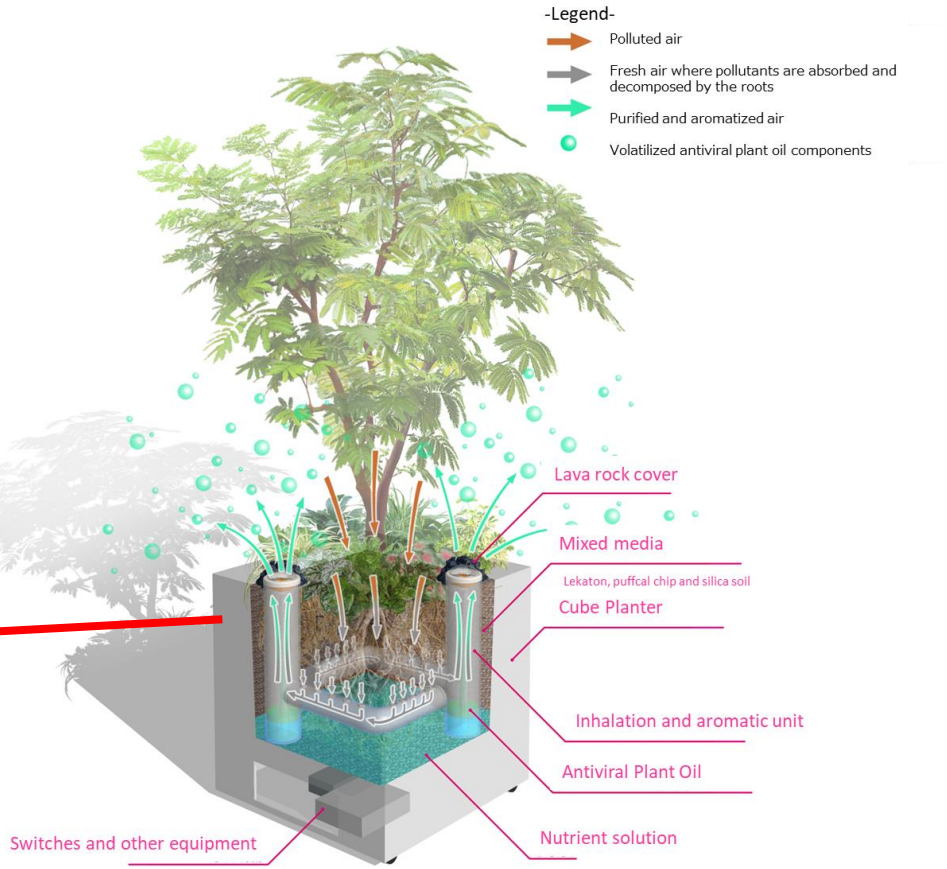
Planet Soil energizes the roots and enhances environmental purification.

Nano Bubble Water

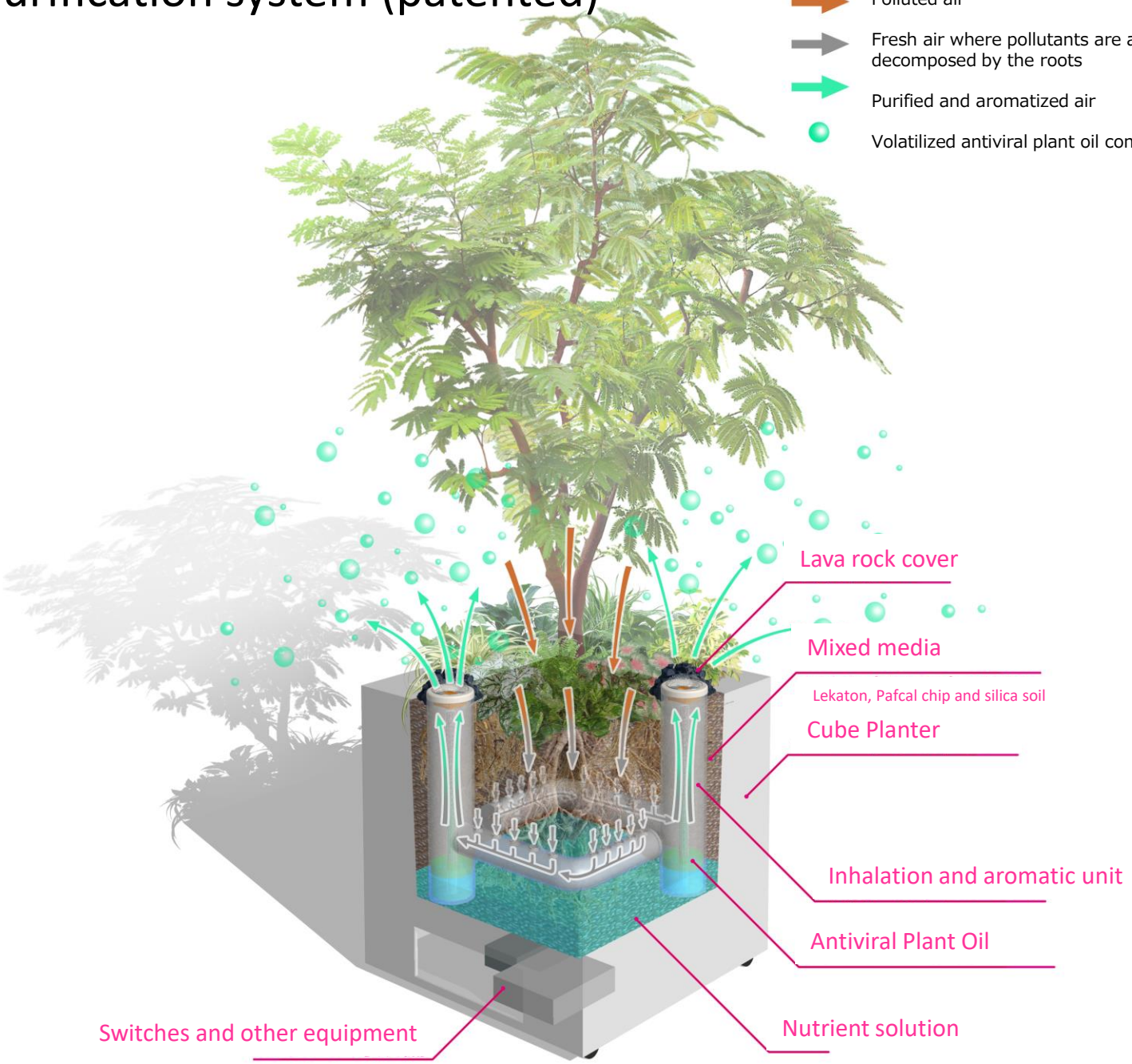
No need to worry if you use nanobubble water with high oxygen content even in deep water!
*Not necessary if properly managed with a water level gauge.

Air purification system (patented)

Installation image



Air purification system (patented)




Lava rock cover
Inhalation and aromatic unit
Pot Receivers
Pipe Planters
Antiviral Plant Oil
In-plant containers
Nutrient solution
Mixed media
Lekaton, Pafcal chip and silica soil
-Legend-
Polluted air
Fresh air where pollutants are absorbed and decomposed by the roots
Purified and aromatized air
Volatilized antiviral plant oil components

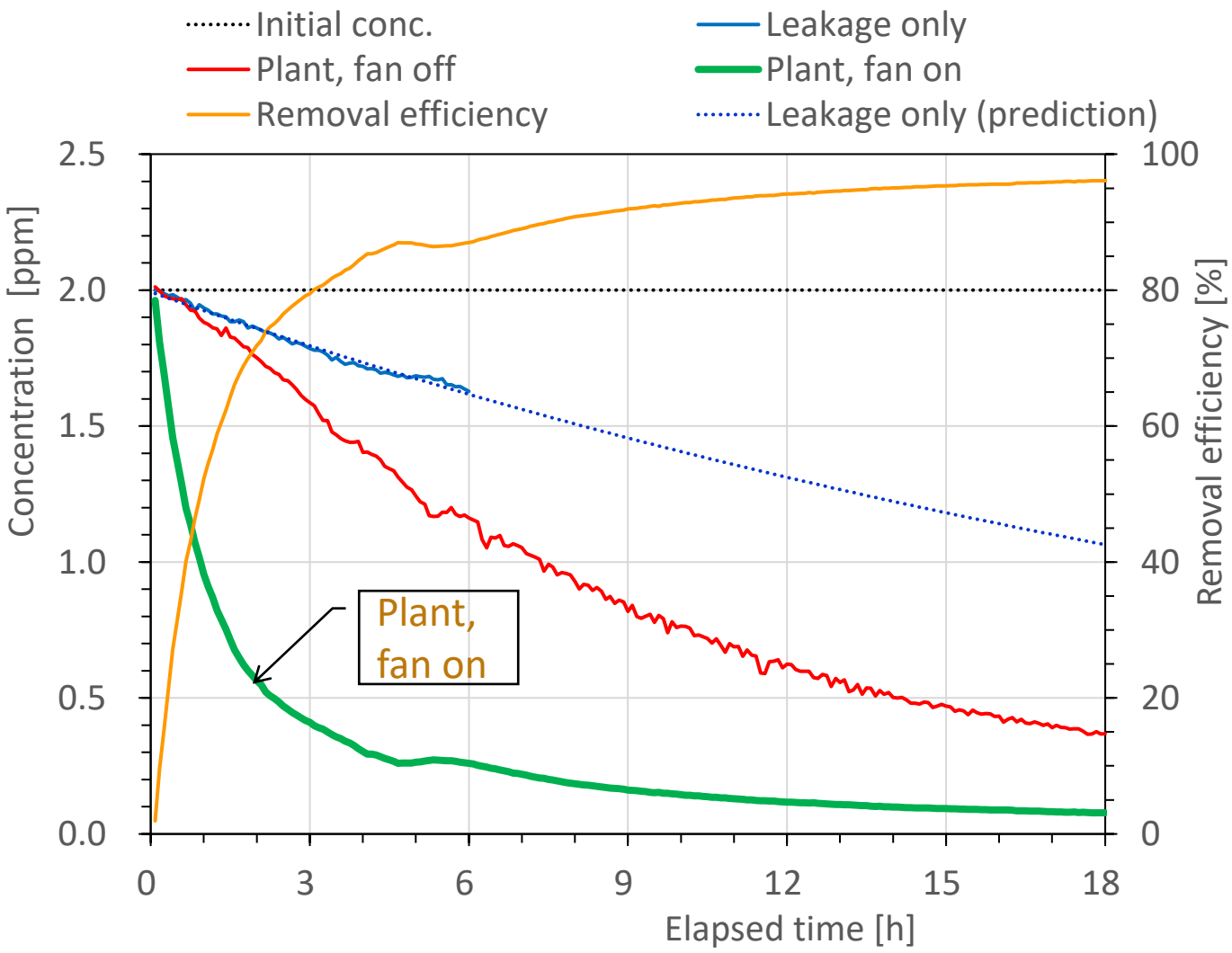
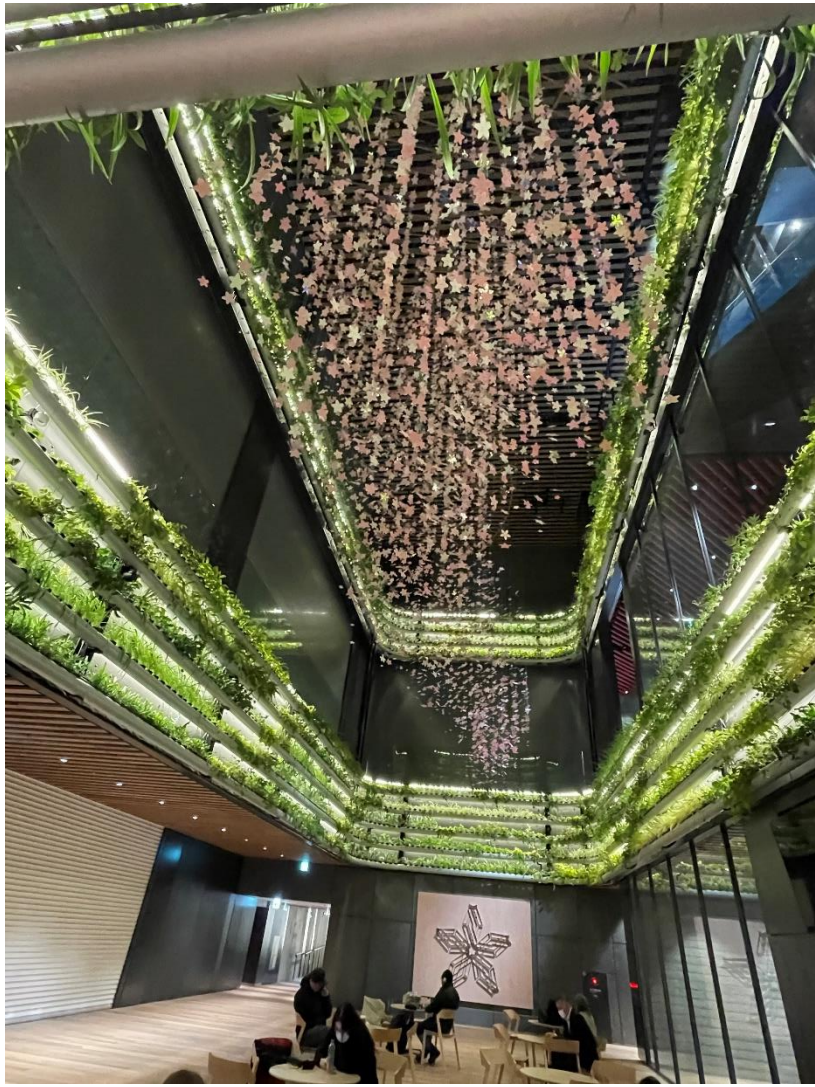


Figure 1 Formaldehyde concentration variation (*Pithecellobium*)



Tokyo Station Yaesu Yanmar Bldg.

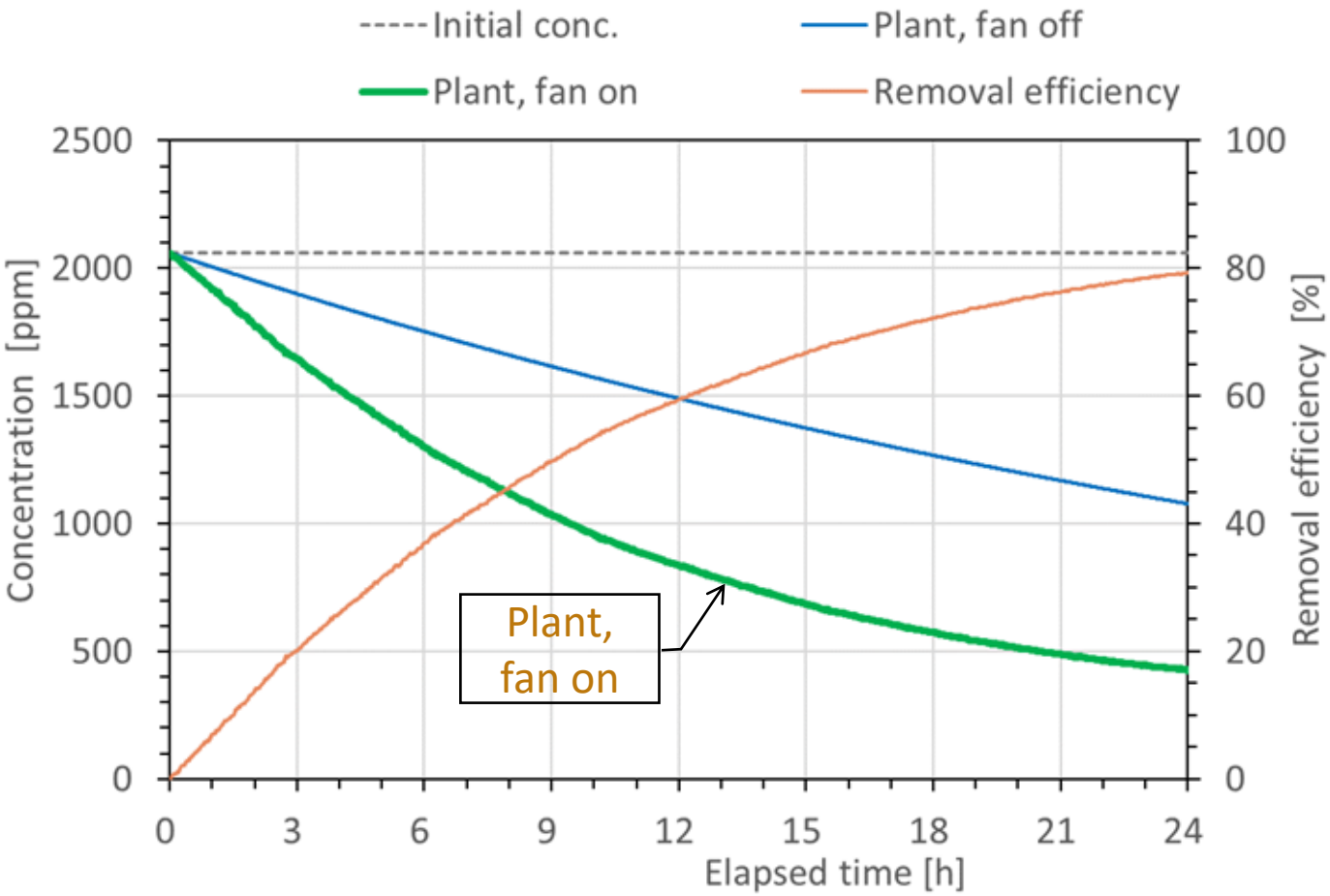


Figure 2 CO_2 variation (*Pithecellobium*)

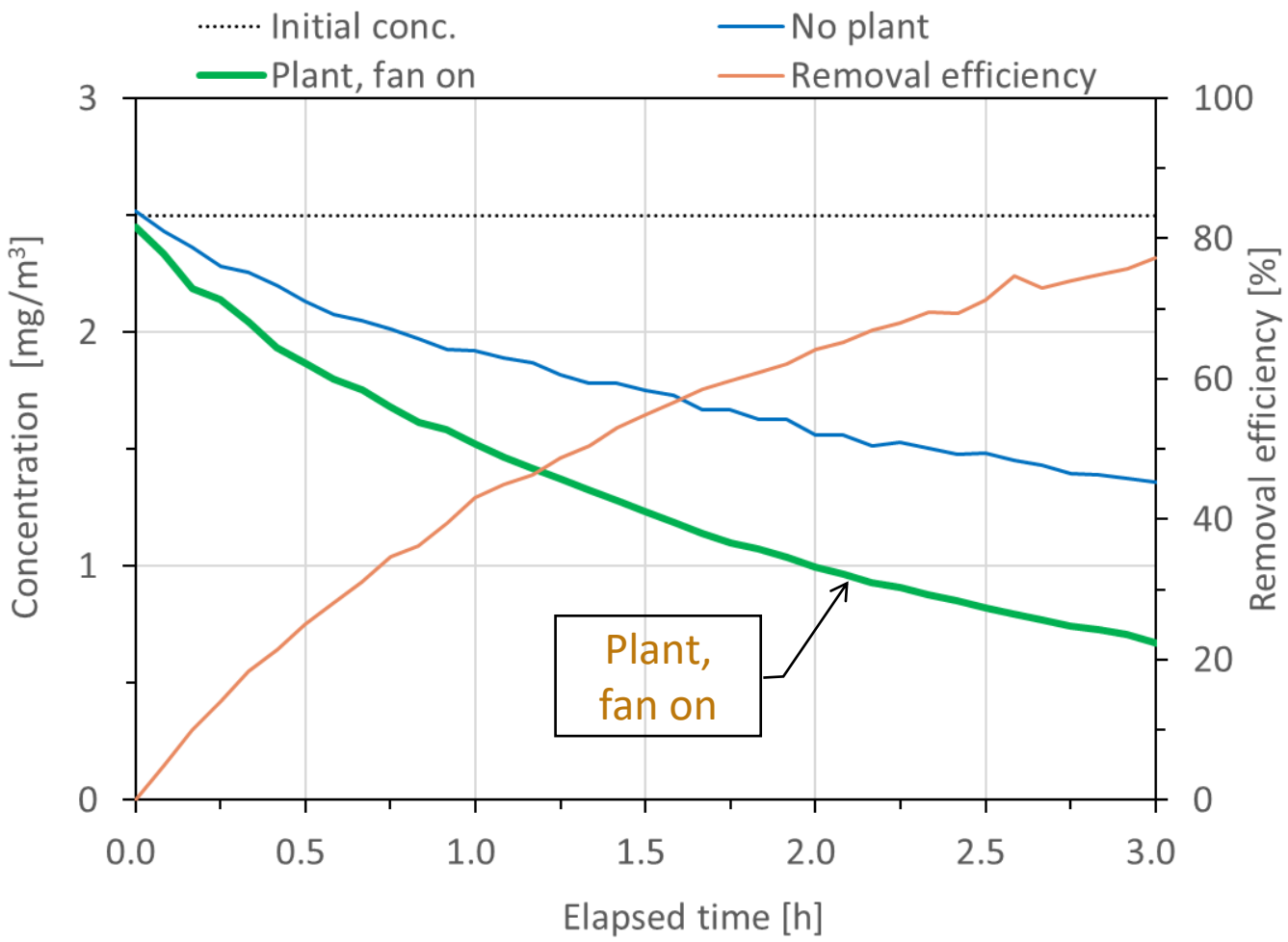


Figure 3 PM concentration variation (*Pithecellobium*)

Organic Fertilizer Manufacturing

Manufacturing License
Organic JAS Certification

Liquid fertilizer

Granule

Natural Organic Hydro Culture

Natural
Organic
Hydro
Culture

The natural world in the wild is growing vigorously without the use of pesticides or chemical fertilizers. Mycorrhizal fungi living symbiotically in the roots and various microorganisms around them select nutrients and produce a strong plant constitution.

Natural organic hydroculture incorporates the mechanisms of the natural world.

Planet's original organic fertilizer (POF), created by pulverizing plants into a fine powder and fermenting them with four types of microorganisms (partner bacteria), is included in the pafcal chip to feed the entire root system.

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Soybean and rice bran powders are added to molasses and manufactured by four types of microorganisms.

1.Bacillus sp.
2.Bacillus thuringiensis
3.Paenib bacillus rhizosphere
4.Pseudomonas sp.

Fresh air contains 79% nitrogen, 20.95% oxygen, and 0.04% carbon dioxide.
*Plants cannot absorb nitrogen from the air, but nitrogen-fixing bacteria such as rhizobacteria, partner bacteria, and Frankia convert nitrogen into amino acids and supply them to plants.

【Partner Bacteria】
- Bacillus sp. 3 types
  Bacillus thuringiensis
  Used as a BT agent (biopesticide)
- Pseudomonas sp. 1 type

【Characteristics of partner bacteria】
❶Nitrogen-fixing ability
❷Phosphorus solubilizing ability
❸Effective against pathogens such as root rot, powdery mildew, gray mold, and anthracnose caused by Fusarium, Pisum, etc.
❹Effective against insect pests such as ladybugs

Natural Organic Types

Natural
Organic
Hydro
Culture

Media: Lekaton, Neocol

Natural Organic Hydroculture

Hydroculture is cultivated using a medium mixed with mycorrhizal fungi and original organic liquid fertilizer absorbed from the bottom.
Main cultivated plants: vegetables, herbs (with roots), houseplants

Natural
Organic
Hydro
Ponics

Media: Urethane, rock wool

Natural Organic Hydroponics

A cultivation method widely used in plant factories in which seedlings are grown by mixing mycorrhizal fungi and soaking their roots in nutrient solution using original organic liquid fertilizer.
Main cultivated plants: vegetables and herbs

Plant Factory Initiatives

Natural
Organic
Soil
Culture

Media：Soil

Natural Organic Soil Culture

Mycorrhizal fungi are mixed into the soil, and the plants are grown in open fields and planters with organic liquid fertilizer.
Main cultivated plants: vegetables, herbs, outdoor plants

Natural
Organic
Garden

Media：Soil

Natural Organic Garden

NOSC Gardening (Garden)
Main cultivated plants: Outdoor landscaping, etc.

Production greening


Farmmilö


eco green
Planet
Hydroculture
NATURAL ORGANIC HYDROCULTURE