HINODESANGYO CO.,LTD

13/FEB 2026

HUMAN RESOURCE DEVELOPMENT AND WATER TREATMENT TECHNOLOGY TRANSFER

FOR ACHIEVING THE SDGS

Diverse Approaches: Their Backgrounds, Outcomes, and the Road Ahead

A way to connect with the World

About Us

VIDEO

HINODE SANGYO - UNIDO ITPO Tokyo (youtube.com)

About HINODESANGYO

About Hinode Sangyo Co., Ltd

Our mission

We consistently aim for new technologies and contribute to environmental conservation through water treatment.

Vision

To contribute to a sustainable recycling-oriented society through water treatment

Our Business

Manufacturing and Sales of Manufacturing and Sales of Drainage Treatment Chemicals

Drainage Treatment Chemicals

Elbic series

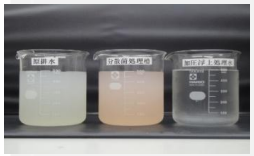
Design, Construction, and Maintenance of Drainage Treatment Facilities and Equipment

HMB

HMBS

i-HABS

Neo system

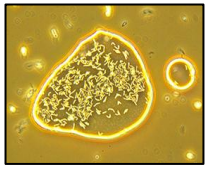


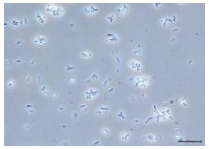
Measurement Services and Water/Sludge Analysis

Sludge volume reduction

Physico-chemical treatment processes

Biological treatment processes





Microbial Analysis and Development of Microbial Agents

Development of new products and technologies

Discovery and development of new microbial strains

Next-Generation Human Resource Development and Overseas Expansion

Internship programs for international students

Overseas projects in Morocco, the Philippines, India, and other regions

HMB Video

HINODE MB movie (youtube.com)

HMB VIDEO (JAPANESE)

Benefits of Introducing Hinode Sangyo's technology

- Easy to maintain
- Odor-free operation
- Compact system suitable for urban areas
- Compliant with water quality standards in many countries
- Lower total cost of ownership due to fewer operational issues
- Accelerated commercialization through technology transfer and joint development

Why Should Small and Medium-Sized Enterprises (SMEs) Pursue Overseas Expansion?

Japan's domestic market is undergoing a change.

As an environmental leader, what should Japan's water treatment business look like in the future?

Traditional approaches are no longer sufficient for entering overseas markets.

So, what is the path forward?

Direct investment? Joint ventures? Licensing agreements? And what about the risks associated with exports?……

How should Japan, an environmental leader, approach water treatment business?

Our LONG&WINDING ROAD

◆**Formulating a Management Vision**

➢ CSR　BCP, Diversity & Inclusion

➢ Health Management　Work–Life Balance Management

◆**Research & Development**

Expanding R&D to Global Markets
SBIR

◆**Intellectual Property Strategy**

Yokohama City Intellectual Property Mirai Enterprise
WIPO GREEN Partner Company

◆**Market Research & Public Support Programs**

Yokohama City / JETRO / JICA / UNIDO

◆**Hiring International Talent**

Internal resources alone are not sufficient

WIPO | GREEN
The Marketplace for Sustainable Technology

Yokohama Chizai Mirai Enterprise
横浜知財みらい企業

YOKOHAMA
地域貢献企業

Yokohama Good Balance
2024.1.1～2025.12.31

2024
横浜健康経営
★★★

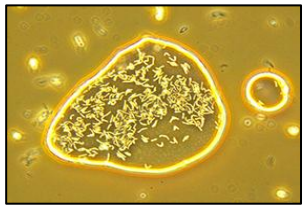
Approach 1:

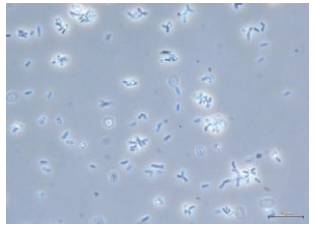
HOW SMES CAN DEVELOP, PROTECT, AND LEVERAGE THEIR R&D AND INTELLECTUAL PROPERTY

Outlook of Current Industrial Property Rights (Patent)

No.	特許件数（含出願中）		出願日	名称		実績	
1	特許出願番号	2009-49868	2009年2月9日	静菌剤入り濃縮培地	国内特許	第5574317号	
	特許公開番号	2010-178728					
2	特許出願番号	2009-01399	2009年3月27日	親水性高分子コロイド物質の排水処理	国内特許	第5728662号	
	特許公開番号	2010-227922					
3	特許出願番号	2012-53981	2013年2月28日	新規バチルス属微生物およびその利用	国内特許	第6105553号	
					ベトナム特許	第25211号	
	国際出願番号	PCT/JP2013/055504	2014年2月28日	PCT出願	22/07/2020		
	国際公開番号	WO2013/137010		出願国： タイ、ベトナム	タイ特許	第83588号	
					2019/7/21		
4	特許出願番号	2015-544835	2014年7月29日	マイクロバブル形成方法及び	国内特許	第6384765号	
	国際公開番号	W2015/064159		マイクロバブル形成装置	中国特許	特許査定ナシ	
		PCT中国		出願国： 中国			
5	特許出願番号	2016-538353	2015年7月28日	生物処理方法及び生物処理装置	国内特許	第6512559号	
	国際出願番号	PCT/JP2014/069931		PCT出願	ベトナム特許	第30580号	
					23/11/2021		
	国際公開番号	WO2015/04159		出願国： タイ、ベトナム	タイ		
6	特許出願番号	2015-210210	2015年10月8日	含油排水の処理システム及び方法	国内特許	第6344743号	
	特許公開番号	2017-70938					
7	特許出願番号	2015-252285	2015年12月24日	廃油処理方法及び廃液処理システム	国内特許	第6443320号	
	特許公開番号	2017-113707					
9	特許出願番号	2017-87650	2017年4月11日	微細気泡形成装置	国内特許	第7218016号	
	特許公開番号	2018-176145					
分割出願	特許出願番号	2021-153850	2021年　9月22日		国内特許	第7014391号	
	特許公開番号	2018-176145					
10	特許出願番号	2018-247431	2018年12月28日	炭化水素処理剤、炭化水素の処理方法、	国内特許	第7088510号	
	特許公開番号	2020-103219		及び炭化水素処理剤の製造方法	日本大学／日之出産業		
11	特許出願番号	2021－215586	2021年12月28日	包括固定化酵素及び微生物			
	特許公開番号						
分割出願	特許出願番号	2025-20299	2025年2月10日				
	特許公開番号	2025-65445					
12	特許出願番号		2024年　11月6日	被処理水処理方法、被処理水処理用界面活性剤			
	特許公開番号						

Patent Applications: 12
Patents Granted: 10
Foreign Patents Granted: 3
Trademarks: 3
  Domestic: 1
  Foreign: 2





WIPO Global Awards 2022 Finalist

Approach 2:

POTENTIAL OF SDGS-ORIENTED TECHNOLOGIES
GREEN TECHNOLOGY
WHERE CAN IT BE APPLIED?

Challenge and Solution

Understanding Reciprocity of Diverse Technology and Innovation Mechanism

Thinking Open Innovation and Future Missions

Sharing Challenges

Environmental Security and Water Risks

What challenges can we help solve?

- **Stress region on a rapid surge**

WATER RESOURCES (GLOBAL)

A) Population increase

B) Global warming

C) Increase in use of water by emerging and developing countries

CHALLENGES

A) Drinking water in developing countries and lack of agricultural water

B) Change in rainfall (torrential rains and desertification)

C) Water Contamination (eutrophication and chemical contamination)

Where Can Our Technology Be Applied…?

PHILIPPINES
&
MOROCCO

OVERSEAS CASE STUDY 1

Cooperate with strict water quality standards through technology transfer.

JICA Feasibility study&

Dissemination Demonstration Study

in the Republic of the Philippines

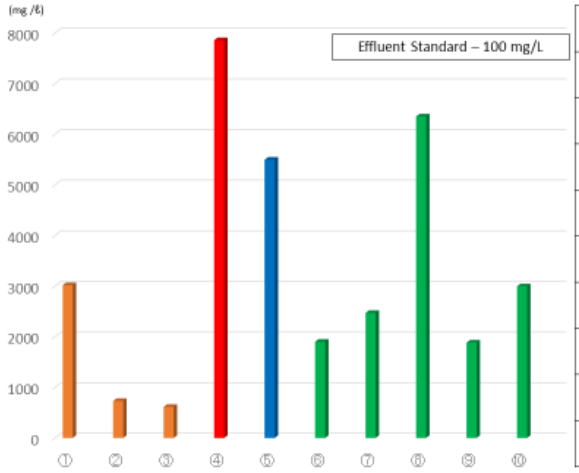
To provide adapted solutions to the insufficiency in the wastewater treatment sector and respond to the new water quality standards in the Philippines

demonstration test：Hotel

Project location: fish market

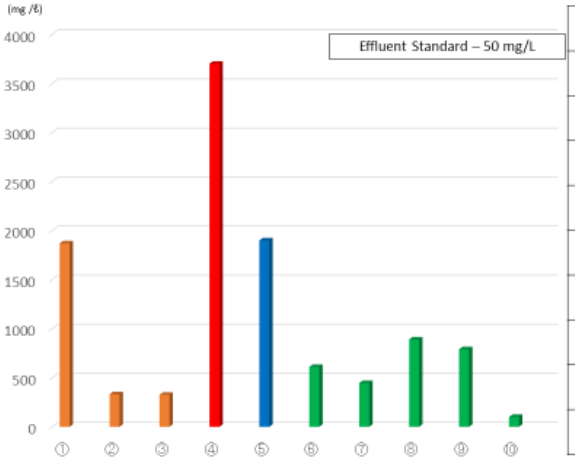
Results and Challenges

Result of Water Quality Test: COD (Chemical Oxygen Demand)



①	7/19 10:25AM Raw Water
②	7/19 10:25AM Control Area
③	7/19 10:25AM HMBS Side
④	7/20 PM Raw Water
⑤	7/21 3:00PM Raw water + HMB Water
⑥	7/21 5:00PM HMB Water
⑦	7/22 1:30PM Test 1 HRT(3hours)
⑧	7/20 4:00PM Test 2 HRT(6hours)
⑨	7/22 10:00AM Test 3 HRT(12hours)
⑩	7/21 5:00PM Test 4 HRT(24hours)

Result of Water Quality Test: BOD (Biological Oxygen Demand)



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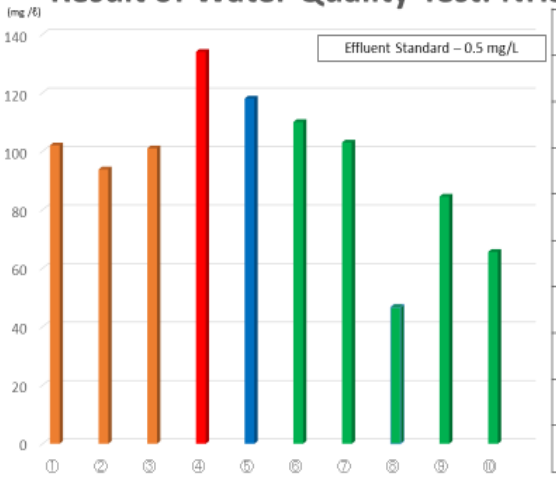
Result of Water Quality Test: NH3-N (Ammonia-Nitrate)



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JICA project in the Philippines
From Project Formulation Survey to Verification and Dissemination Survey

Purpose

To address lack of hygiene system and improve dysfunctions in the city of Cagayan de Oro in Mindanao

Solution

-Greatly reduced BOD, COD, SS

-Still a challenge in meeting the requirement for NH4 and phosphorous

Way forward

Use existing water treatment facility; and introduce a system that can be maintained by the local users and that meet the new standard

Stakeholders

JICA

CITY OF CAGAYAN DE ORO PHILIPPINES City of Golden Friendship

A2O → AOAO System
+ HMB System
i -HABS

3 すべての人に健康と福祉を

6 CLEAN WATER AND SANITATION

11 住み続けられるまちづくりを

A New System Compliant with Philippine Water Quality Standards

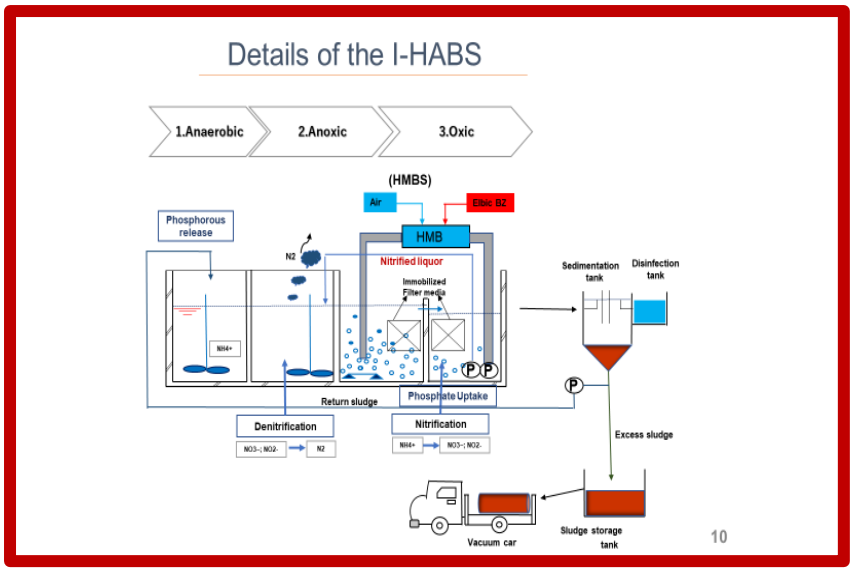
Introducing i-HABS

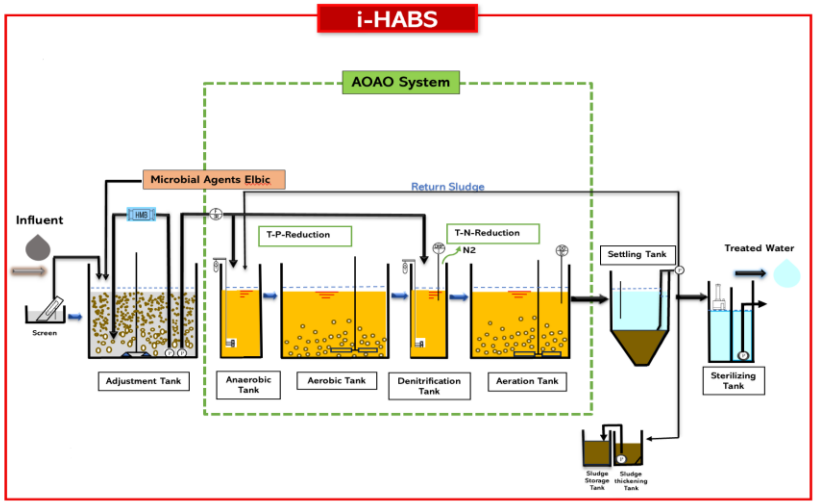
HMB System

Microorganism formulation Elbic BZ
+ microbubbles generator HMB

A2O System → AOAO System
Anaerobic–Anoxic–Oxic Method

Simultaneous Removal of Phosphorus and Nitrogen





Expected Outcomes

Approach to Development Needs (Business Model)

- Categorize needs into new installations, rehabilitation, and treatment-capacity enhancement
- Sell to both B2G (government demand) and B2B (private-sector demand)
- Establish a joint venture with a local partner to enable local production and sales through local distributors
- Use public markets as showrooms to promote the product

Expected Results for Target Countries (Development Impact)

- Transfer of technology and know-how
- Dissemination of equipment and technologies that meet new wastewater regulations
- Securing human resources and establishing operational structures
  Within the C/P, establish a structure for dissemination and O&M, enabling continuous management.
- **Job creation**


UNIDO ITPO Tokyo's
STePP
Sustainable Technology Promotion Platform
Overseas Case Studies2
UNIDO STEPP project
Decentralized Wastewater treatment facility
at Douar Boughanim,
Tazart Commune, province Al Haouz, Morocco

STePP Demo Result in Morocco

Technology Demonstration

Transfer of the HMBS Decentralized Wastwater Treatment System in Morocco

日之出産業株式会社
HINODE SANGYO CO.,LTD

Domestic wastewater treatment system in Morocco

Objective

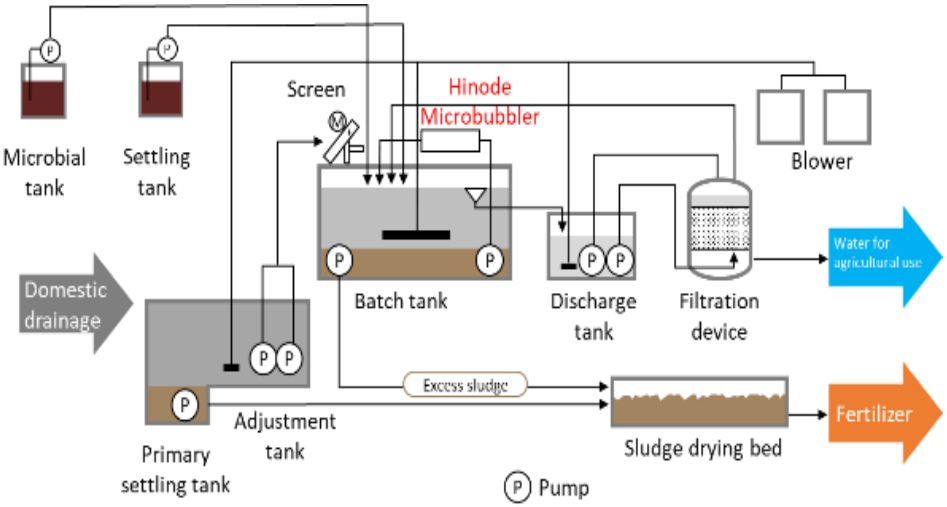
To improve health, sanitary and hygienic environment to fight against COVID-19 and other infectious diseases through technology demonstration and transfer from Japan

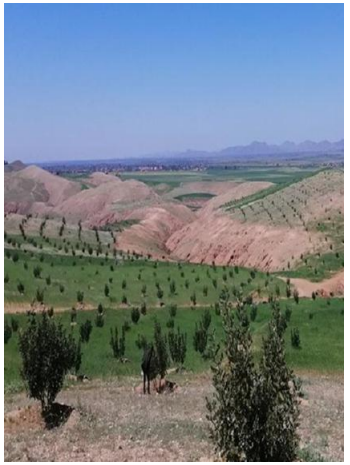
Stakeholders

UNIDO UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

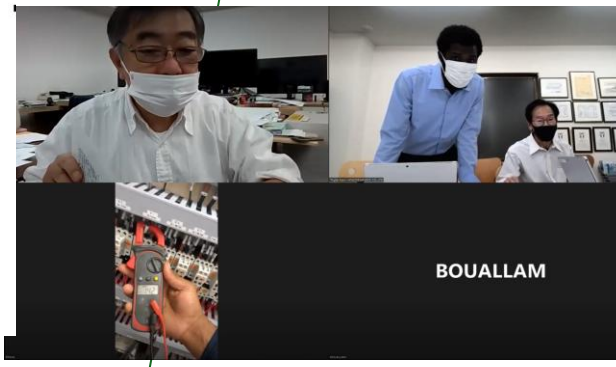
Commune de Tazart, ALHAOUZ

Association Boughanime pour le développement agricole





OUR PROJECT



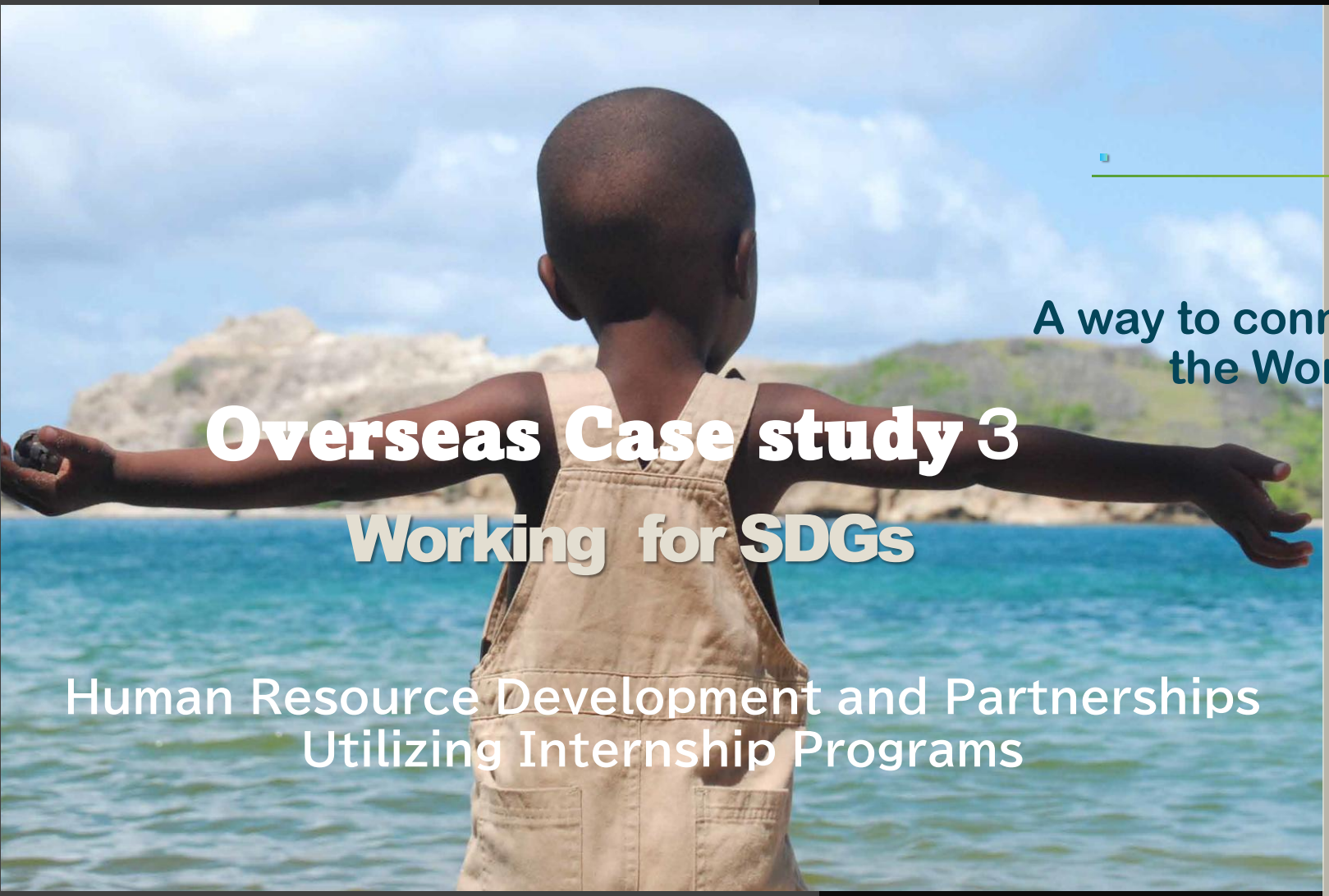







Project expected outcomes

- Prevention of water resource contamination and infectious diseases
- Reuse of treated water
- Job creation within the local community
- Technology transfer and training for local residents
- Women's empowerment
  (over 40% of the WWTP operation and maintenance team)
- A wastewater treatment facility model for small communities
- Contribution to agricultural development



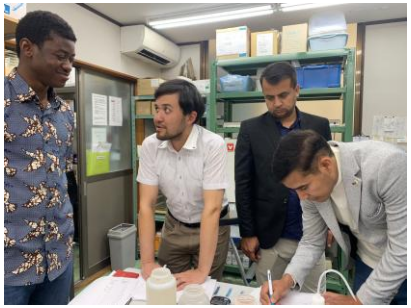
A way to connect with the World

Overseas Case study 3

Working for SDGs

Human Resource Development and Partnerships Utilizing Internship Programs

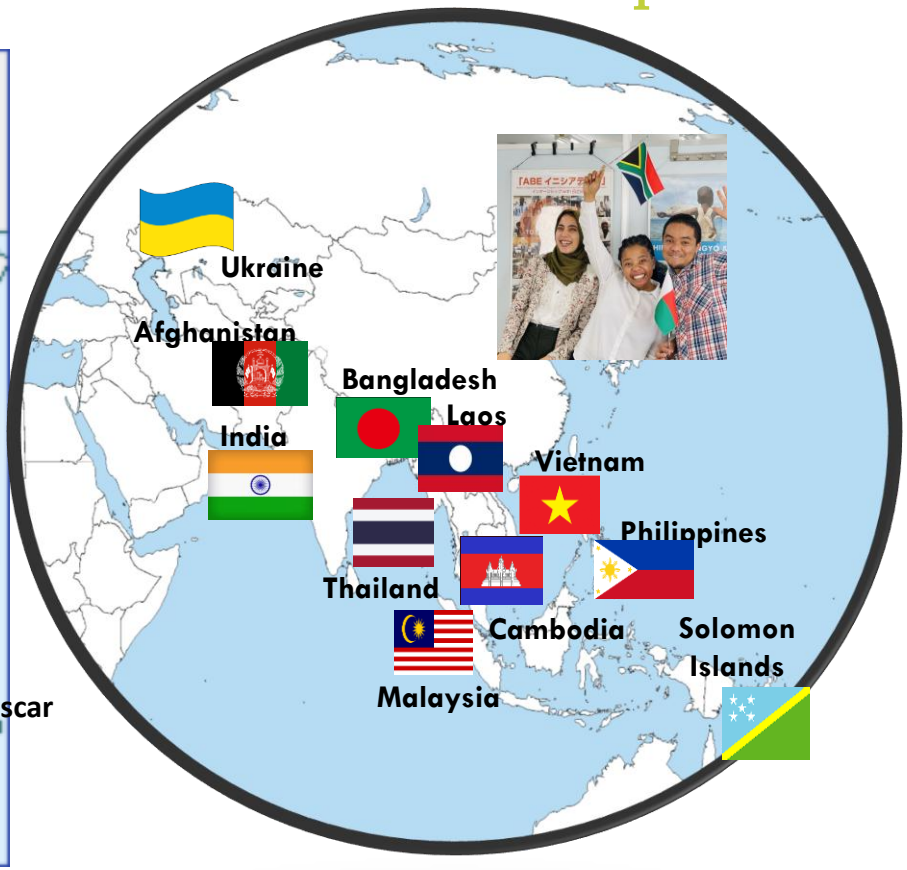
ABE &SDGs Innovative Asia PEACE internship program



2016-2026 internship trainees (100>):HINODE FAMILY

From Africa

From Asia & Europa



Internship Plan and Objectives

1. Learn the fundamental principles of Japan's water treatment.
2. Participate in hands-on training at industrial and municipal drainage treatment facilities.
3. Develop an action plan for implementing the knowledge in participants' home countries.

Capacity-building supported by UNIDO, JOGMEC, and UNDP

With the cooperation of the City of Yokohama
— International Affairs Bureau / Environmental Planning Bureau (Sewerage & River Department)

Strengthening the Network Among Trainees

Produce videos and create manuals using a platform that enables projects to be passed on to the next group of trainees.

Collaborative Work with Students from Diverse African and Asian Countries

Water Conditions and Water Environment in Four Major African Countries

Egypt	Water consumption is expected to increase by over 20% by 2020, exacerbating water shortages. Approximately 90% of the country's water originates from the Nile River. Industrial wastewater is the largest source of pollution. Most wastewater is discharged into the Nile River. In Alexandria, 60% of wastewater is discharged into the Mediterranean Sea, contributing to marine pollution.
Senegal	Faces sanitation challenges due to water shortages caused by an aging distribution network, anthropogenic pollution, leakage, and damaged pipelines. Limited government attention and insufficient technical support hinder improvement efforts. Around one-third of wastewater in the Dakar area is discharged into the sea. Although treatment plants are being constructed to address sanitation issues, the current capacity remains inadequate.
Nigeria	Approximately 80% of wastewater remains untreated. Major cities have final treatment facilities, but their benefits reach only a limited portion of the population. Industrial effluents often fail to comply with discharge standards. Untreated wastewater is discharged into and mixes with rivers.
South Africa	Major cities are gradually developing adequate sewerage systems, but significant challenges remain in both urban and rural areas.

Challenge from ABE Initiative member ① Agricultural wastewater and sludge treatment

Problems faced by wastewater treatment

・Issues in the Treatment of Excess Sludge

1. Incineration
2. Landfilling
3. Pollution of rivers, lakes, and oceans

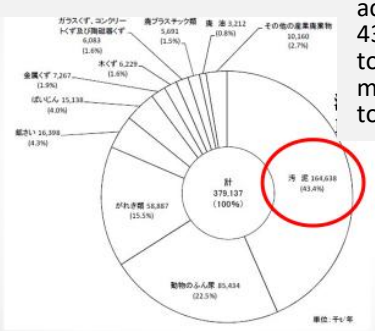
Toward the SDGs

Eco-friendly and resource-recycling technologies

HMB+Neo System Resource circulation system

Discharge of industrial wastes

Sludge accounts for 43.4% of total 1.6 million tons/year



Challenge from the ABE Initiative member
② Treatment of mine wastewater and environment pollution

With support from the UNIDO ITPO Tokyo, we visited the JOGMEC Matsuo Mine Pollution Control Office and its neutralization treatment facility to share Japan's experience in managing mine wastewater.

The share of Africa's mineral resources in the world

Platinum – 79%: South Africa, Zimbabwe
Cobalt – 71%: DR Congo, Madagascar, Morocco
Chromium – 40%: South Africa
Titanium – 32%: South Africa, Kenya, Senegal, Mozambique, Madagascar
Gold – 12%: Ghana, Mali, South Africa, Sudan

Outcomes of the Internship Program
Serving as Partners in Business Development across Africa

- MOUs
- South Africa
- Senegal / Morocco

Joint Ventures

Collaborative Research

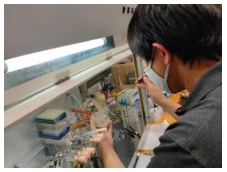
Nagasaki Univ. / Nihon Univ. / Tohoku Univ.
(JICA Project)

A Bridge to Africa

Market Research

Visits to the embassies of Rwanda, Botswana, Malawi, and Morocco.

Research and development for product improvements tailored to African markets; technology transfer and licensing (in/out), with consideration for royalties and local production.



Four ABE Initiative participants were hired as full-time employees to support our overseas business expansion.

Strengthening Human Resource Development

Projects for Business Expansion into Morocco and the Philippines

RECRUITMENT OF INTERNATIONAL TALENT

In Japan, the role of international talent will become increasingly important in the years ahead. Today, I would like us to reflect together on what is truly required—both from the standpoint of companies and from the perspective of international professionals—and to consider the broader societal challenges involved.

How should we achieve the SDGs and promote women’s empowerment within a business-oriented framework?

Hiring International Talent
Merit ・ Demerit ・ Performance

“High-quality talent that is complementary—not substitutable—to domestic capital and labor.”

“Human resources expected to bring innovation to Japanese industries, enhance the development of professional and technical labor markets through healthy competition with Japanese employees, and improve overall labor market efficiency.”

MERIT
- Overseas business development / CSR
- Diversity
- Securing human resources
- Promoting globalization within the company

Demerit
- Concerns about communication
- Risk of early resignation

HOW TO ACHIEVE OUR GOALS

For Companies

・Go one step beyond CSR and diversity.

・Build platforms that keep people connected regardless of location.

・Engage in dialogue until true mutual understanding is reached.

・Never miss opportunities to create new possibilities.

For International Talent

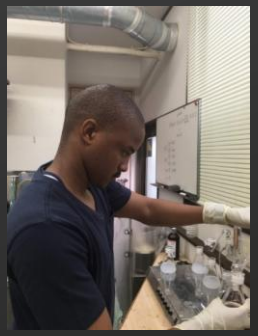
・Develop both short-term and long-term business plans.

・Understand that each country and company has its own culture.

・Be able to commit and follow through.

For Society

・Create mechanisms that truly embrace diversity.



Solutions

How can the program be improved?

What more can be done to strengthen mutual trust in business between your country and Japan through study and employment in Japan?

Collaboration

Encourage dialogue across different industries and areas of expertise.

Research, Development, and Technology Transfer

Propose marketing strategies tailored to each country.

Support women engineers.

Business Development

Provide support programs for joint ventures where students from diverse backgrounds can collaborate.

CASE STUDY 4
Africa Industrial and Vocational Training Program
UNIDO
Africa Industrial Vocational Training Program

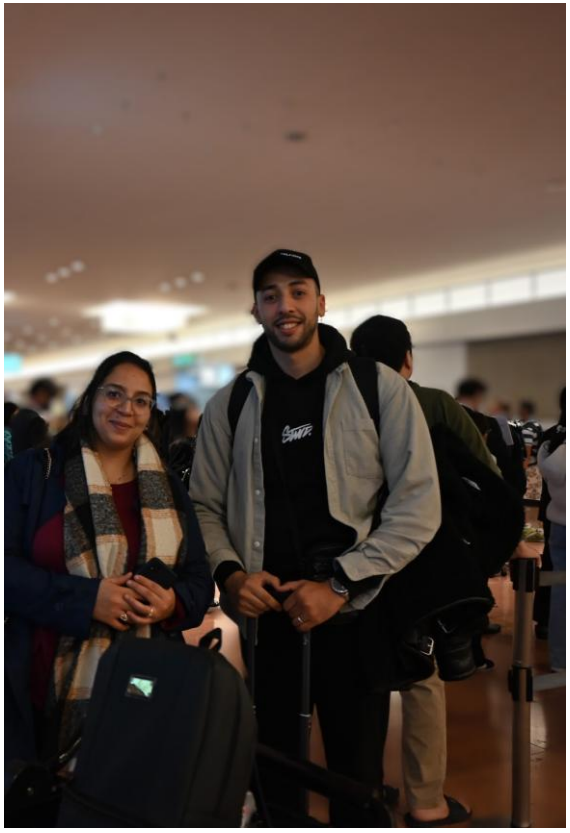
HINODESANGYO CO.,LTD
15~26 April 2024~
in Morocco

Technology Transfer to Africa
Developing Better Skilled Professionals

The Purpose

- **To contribute to the development of human resources and technological innovation necessary to achieve Morocco's urban sewerage development plan**
- **To help reduce regional and social disparities**
- **To support the improvement of basic living infrastructure—especially in the water and public health sectors—in line with the Moroccan government's medium-term goals**
- **To promote business expansion in Morocco through training programs for private companies and young industrial professionals**
- **To foster industrial development and generate employment through water infrastructure development and the promotion of agriculture and fisheries**

In addition, the program includes visits to Japan's wastewater treatment facilities and maintenance operations to encourage improved hygiene practices and behavioral change—serving as a foundation for realizing Morocco's long-term sewerage development plans.



Microflora observation

and

sludge treatment

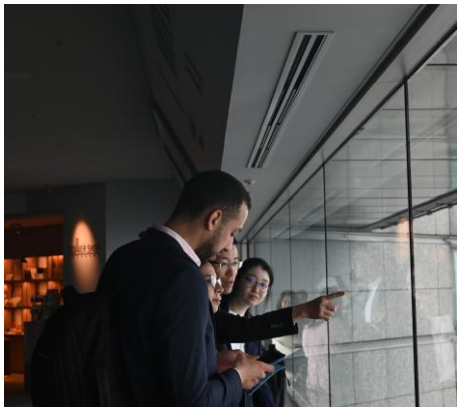
Site visit

Supporting Organizations

City of Yokohama

Global networks Division

International Affairs Bureau



City of Yokohama

Management division

Sewerage and rivers Bureau

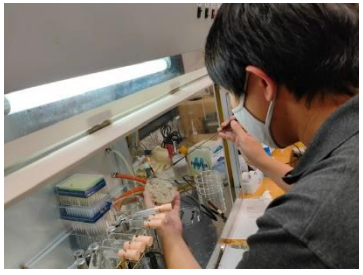
Sinkyou Souen

Social welfare service corporation

NARA

WHAT WE LEARNED

– MOVING TO THE NEXT STAGE



Key Points to Confirm

1. Usefulness
   Practical applicability of the technology for solving local challenges
   Comparative advantages over competing products

2. <u>Current International Context</u>
   Understanding business practices in the partner country (e.g., written contracts may not always be considered absolute)

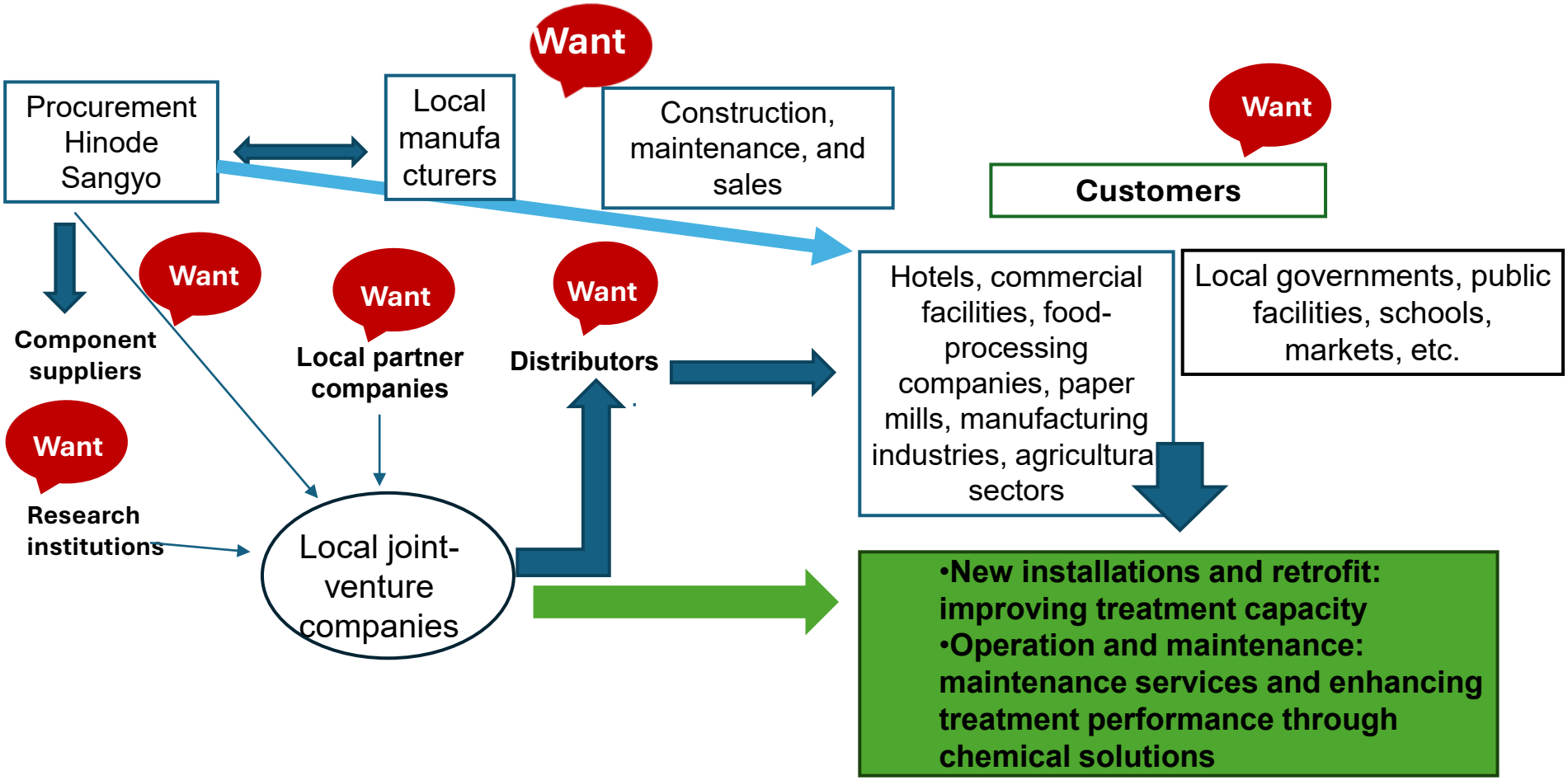
3. <u>Can we build a win-win partnership?</u>

Shared Values – Collaboration – Co-creation

- Technological innovation; securing and developing human resources
- Mutual business opportunities
- Licensing-out and royalties: Can the business be viable both locally and for our company?
- Don't jump in unprepared: Leverage technology and an IP strategy to step beyond the domestic market.

From Asian and African Microorganisms to New Microbial Formulations･･･

Overseas Business Implementation Plan



HINODESANGYOCO.,LTD.

Thank you so much

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