添付資料

現地ワークショップ資料

1. アジェンダ
2. 日本工営発表資料（英）
3. SOGEC/大阪ガス発表資料（英）
4. ユアサ商事ベトナム発表資料（英）
5. 遠藤照明ベトナム発表資料（英）
6. SMTPFC/BSL 発表資料（英）
7. 日本工営発表資料（英）
8. Space Shift 発表資料（英）

現地ワークショップ資料

1. アジェンダ

令和 6 年度大阪市ホーチミン市都市間連携
脱炭素社会実現のための技術ワークショップ

●2024 年 11 月 13 日 (水) 14:00～16:00 (ベトナム時間)●

Liberty Central Saigon Riverside Hotel (Address : 17 Ton Duc Thang Street, Ben Nghe Ward, District 1, Ho Chi Minh City)

言語　　：日越同時通訳
司会　　：日本工営
参加者　　：DONRE、大阪市、ベトナム民間企業、都市間連携参加企業

プログラム

時間	プログラム内容	登壇者（敬称略）
2:00-2:15	開会挨拶	ホーチミン市天然資源・環境局
2:15-2:25	都市間連携の実績紹介、ベトナムにおけるカーボンクレジット制度の展望	日本工営
2:25-2:35	カーボンニュートラルに向けたエネルギーソリューションの紹介	大阪ガス
2:35-2:45	ユアサ商事によるカーボンニュートラル達成に向けたご提案	ユアサ商事ベトナム
2:45-2:55	高効率 LED 照明技術および導入事例の紹介	遠藤照明ベトナム
2:55-3.05	ベトナムにおけるリース事業の紹介と JCM の活用方法	SMTPFC/BSL
3:05-3:20	休憩	―
3:20-3:30	自治体・民間企業向け SDGs 診断 Web ツールの紹介	日本工営
3:30-3:40	都市域の脱炭素化推進するデジタル技術の紹介	Space Shift
3.40-3.55	質疑応答	–
3.55-4.00	閉会挨拶	大阪市環境局

以上

現地ワークショップ資料

2. 日本工営発表資料（英）

Achievement of the City-to-City Collaboration Project
Thành tựu của Dự án hợp tác giữa các thành phố

- History of the City-to-City Collaboration Project
- Organization Structure in FY2024
- GHG emission reduction technologies for Cities (Examples)
- Achievement of JCM Project Formulation

History of the City-to-City Collaboration Project
Lịch sử của Dự án hợp tác giữa các Thành phố

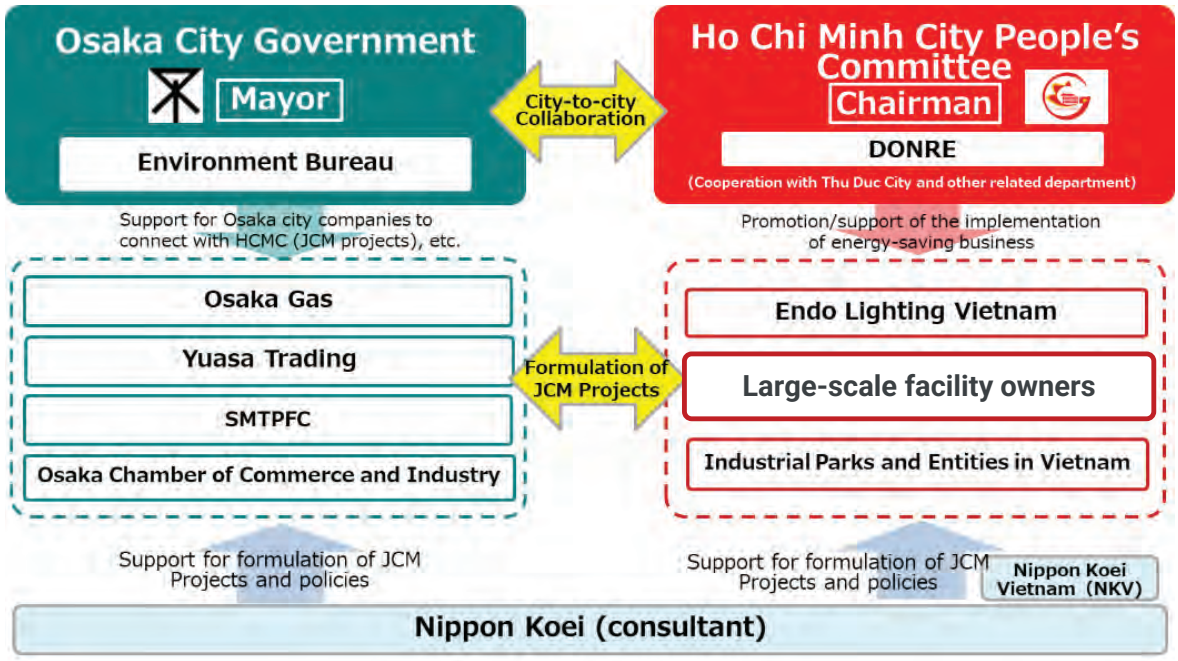
Month/Year	Major Activities
Oct. 2013	**Conclusion of MOU** on "Formulation of Law-carbon City in HCMC" (3 years)
Sep. 2016	**Update of MOU** on "Formulation of Law-carbon City in HCMC" (4 years)
2019-2021 **Phase-I**	**City-to-City Collaboration Project** between HCMC and Osaka City supported by MOEJ (Phase 1 for 3 years)
Mar. 2021	**Update of MOU** between HCM and Osaka City on "Formulation of Zero/low-carbon City in HCMC" (5 years)
2022-**2024** **Phase-II**	**City-to-City Collaboration Project** between HCMC and Osaka City supported by MOEJ (Phase 2 for 3years)

JCM THE JOINT CREDITING MECHANISM

- **7 JCM projects** were formulated by partner companies under the City-to-City collaboration
- 7 dự án JCM được các công ty đối tác xây dựng theo sự hợp tác giữa các Thành phố

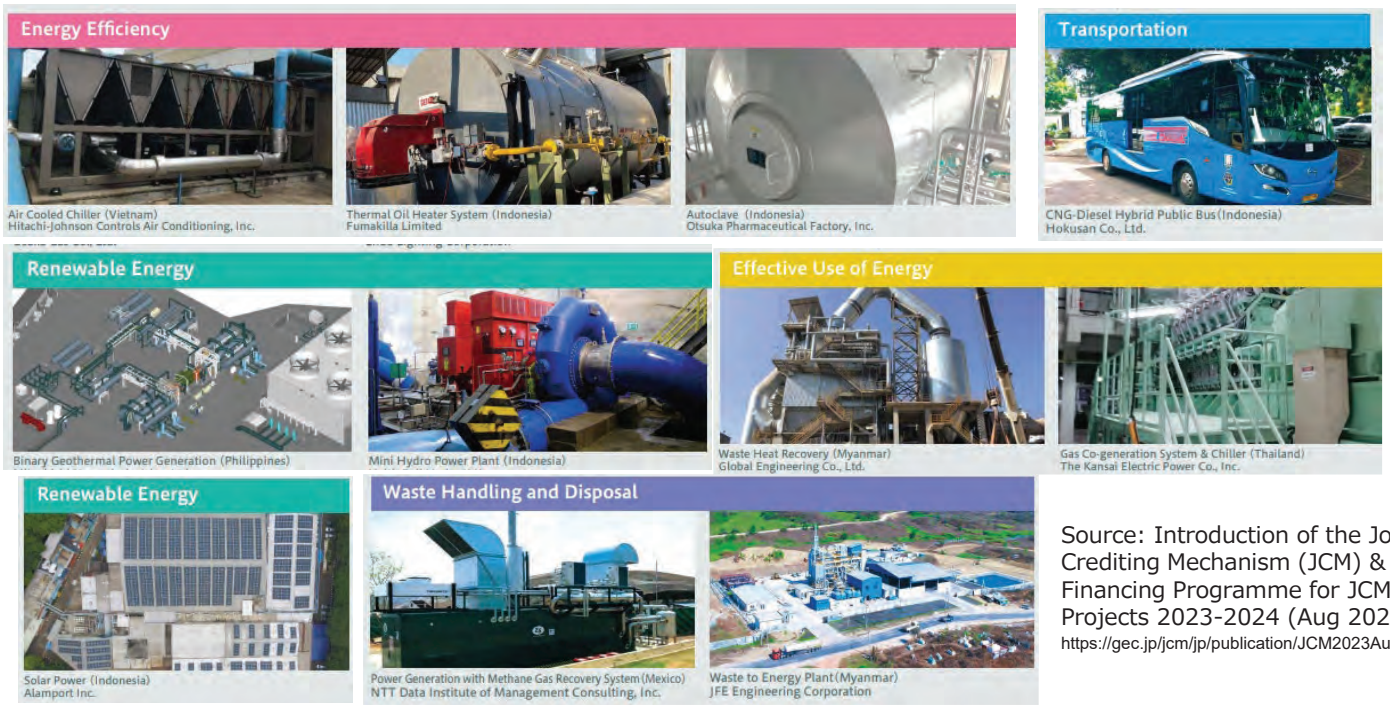
Organization Structure of the City-to-City Collaboration Project

Cấu trúc tổ chức của Dự án hợp tác giữa các thành phố



GHG emission reduction technologies for Cities (Examples)

Công nghệ giảm phát thải KNK cho các thành phố (Một số ví dụ điển hình)



Source: Introduction of the Joint Crediting Mechanism (JCM) & Financing Programme for JCM Model Projects 2023-2024 (Aug 2023)
https://gec.jp/jcm/jp/publication/JCM2023Aug_Web.pdf

Achievement of JCM Project Formulation

Thành tựu của việc xây dựng Dự án JCM

NIPPON KOEI

#	Fiscal Year	Sector	Project Name	Planned GHG Emission Reductions (tCO2/y)
1	FY2019	Energy Efficiency	Introduction of high-efficiency air conditioner (Variable Refrigeration Flow, VRF) and air-cooled chiller to hotels and office buildings	1,823
2	FY2020	Energy Efficiency	Introduction of High Efficiency Boiler System to Food Factory	7,631
3	FY2020	Energy Efficiency	Introduction of High Efficiency Air-conditioning System to Hotel in Ho Chi Minh City	184
4	FY2021	Energy Efficiency	Introduction of High Efficiency LED Lighting with Dimming and Tunable Function to Office Building in Ho Chi Minh City	197
5	FY2021	Energy Efficiency	Introduction of High Efficiency Chiller and High Efficiency LED Lighting with Dimming Function to Shopping Center	726
6	FY2021	Renewable Energy	Introduction of 9.8 MW Rooftop Solar Power System in Industrial Park	4,312
7	FY2022	Energy Efficiency	Introduction of 0.4MW Rooftop Solar Power System to Aluminum Wheel Manufacturing Factory *JCM Eco lease project	156
			TOTAL	**15,029**

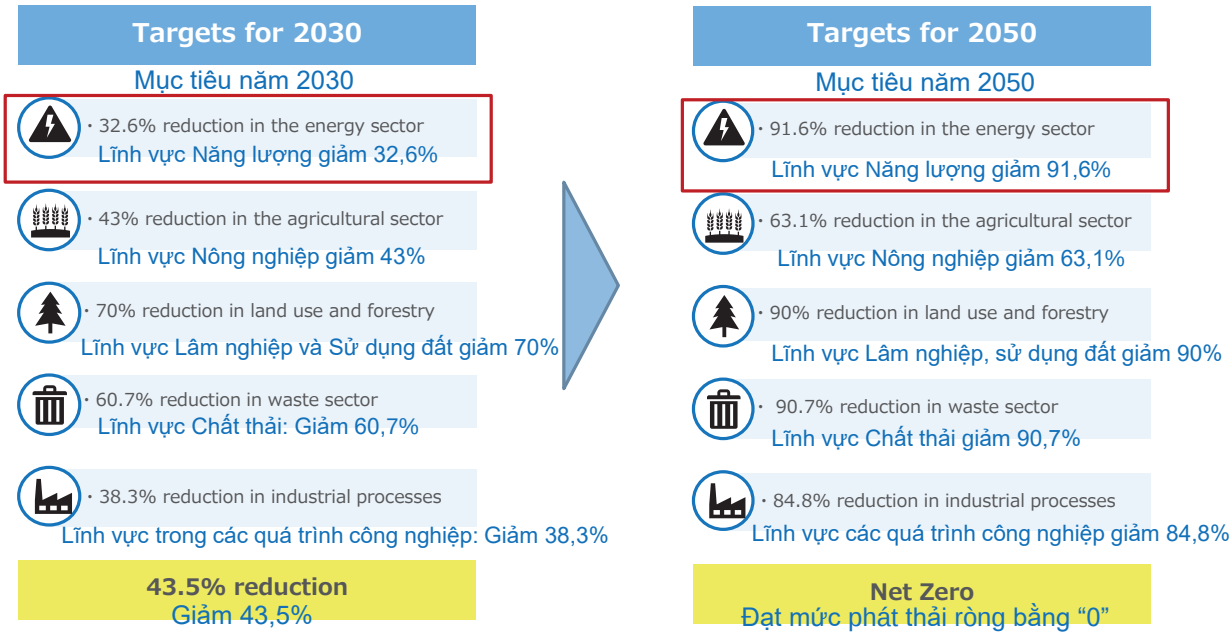
NIPPON KOEI

Introduction of Carbon Credit Scheme

Giới thiệu về Cơ chế Tín chỉ Carbon

- National climate change strategy towards 2050 in Viet Nam
- Types of carbon credits
- The volume of carbon credit issuances by category (2018-2022)
- Trend of carbon credit market in Asian countries

National climate change strategy towards 2050 in Viet Nam
Chiến lược quốc gia về biến đổi khí hậu đến năm 2050 tại Việt Nam



Source : Prepared by Nippon Koei based on Decision 896/QD-TTg
Nguồn: Biên soạn bởi Nippon Koei dựa trên Quyết định số 896/QĐ-TTg

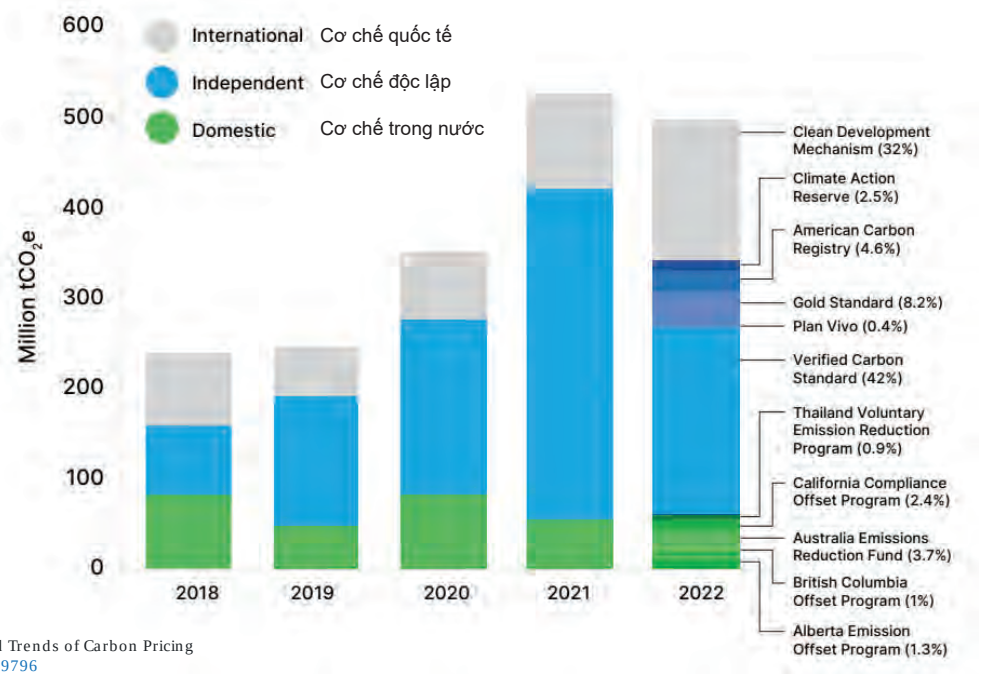
Types of carbon credits
Các loại tín chỉ carbon

Carbon credits have become popular since the Kyoto Protocol, and their trading volume has been increasing with the rise of global climate change measures, but it decreased slightly in 2022. Carbon taxes and emissions trading systems (ETS) account for 23% of global GHG emissions, with 475 million tons of credits issued in 2022.
Tín chỉ carbon trở nên phổ biến kể từ sau Nghị định thư Kyoto và khối lượng giao dịch tăng lên nhờ những nỗ lực về các biện pháp chống lại hiện tượng gia tăng về biến đổi khí hậu toàn cầu, mặc dù có sự giảm nhẹ về tín chỉ vào năm 2022. 23% lượng phát thải KNK toàn cầu được chi trả bởi thuế Carbon và Hệ thống giao dịch phát thải (ETS), với 475 triệu tấn tín chỉ được phát hành vào năm 2022.

Category/ Loại tín chỉ			Applications/ Phương thức áp dụng
Governments & international organizations Chính phủ·và các Tổ chức quốc tế	United Nations(UN) Liên Hiệp Quốc	Credit under the Kyoto Mechanism Tín chỉ theo Cơ chế Kyoto (JI,CDM)	Achieving the Kyoto Protocol Goals Đạt được các mục tiêu của Nghị định thư Kyoto
	Bilateral Scheme Cơ chế song phương	Join Crediting Mechanism(JCM) under the Paris agreement Cơ chế Tín chỉ chung (JCM) theo thỏa thuận Paris	Achieving NDC Thành tựu đạt được NDC
	Domestic System Hệ thống trong nước	J-Credit (Japan) / (Nhật Bản) T-VER (Thailand) / (Thái Lan) CCTS（India） etc./ (Ấn Độ)	Regulations of each country (Global Warming Act, ETS regulations, etc.) Quy định của từng quốc gia (Luật về sự nóng lên toàn cầu, quy định của ETS)
Private Voluntary Credit Tín chỉ tư nhân tự nguyện		VCS、Gold Standard、CCB Standard、ACR、CAR	Voluntary use by private companies Các công ty tự nguyện sử dụng

Source: Mizuho R&T

The volume of carbon credit issuances by category (2018-2022)
Lượng tín chỉ carbon phát hành theo từng hạng mục cơ chế (2018-2022)



Source : "World Bank. 2023. State and Trends of Carbon Pricing 2023. © http://hdl.handle.net/10986/39796

Trend of carbon credit market in Asian countries (1/2)
Xu hướng thị trường tín chỉ carbon ở các nước châu Á

Thailand has had a carbon credit market in operation since 2014. Indonesia and Vietnam have announced policies toward establishing domestic credit mechanisms, which are currently being developed.

Tại Thái Lan, thị trường tín chỉ carbon bắt đầu hoạt động từ năm 2014. Indonesia và Việt Nam cũng đã công bố các chính sách hướng tới hình thành cơ chế tín chỉ trong nước và hiện đang được phát triển.

Country Các nước	Climate Change Goals Mục tiêu biến đổi khí hậu	Domestic credit market Thị trường tín chỉ trong nước	Credit Trends Xu hướng tín chỉ
Japan Nhật Bản	2050 Net Zero 2050 - Mức phát thải ròng bằng "0"	J-Credit Scheme, Joint Crediting Mechanism (JCM) GX League Cơ chế tín chỉ J, Cơ chế tín chỉ chung (JCM), GX League, v.v.	1,134 J-Credits and 246 JCM credits (50 in Vietnam) have been registered (As of July 2024). JCM issued credits are 87,560 t-CO2. 1.134 tín chỉ J và 246 tín chỉ JCM (trong đó 50 tín chỉ tại Việt Nam) đã được đăng ký. (tính đến tháng 7 năm 2024). Tín chỉ theo cơ chế JCM phát hành là 87.560 t-CO2.
Thailand Thái Lan	Carbon neutral by 2050 & net zero emissions by 2065 Năm 2050 đạt trung hòa Carbon, năm 2065 đạt mức phát thải ròng bằng "0"	Thailand Voluntary Emissions Reduction Program (T-VER) Chương trình giảm phát thải tự nguyện của Thái Lan (T-VER)	426 projects have been registered, with 12.86 million t-CO2 credits issued (as of June 2024). Tổng cộng có 426 dự án đã được đăng ký, với 12,86 triệu t-CO2 tín chỉ được ban hành (tính đến tháng 6 năm 2024)
Indonesia Indonesia	2060 Net Zero 2060 Mức phát thải ròng bằng "0"	The policy is set out in Presidential Decree No. 98 of 2021 of October 2021. *In preparation. Các chính sách được quy định tại Nghị định số 98 năm 2021, của Tổng thống Indonesia ban hành vào tháng 10 năm 2021. *trong giai đoạn chuẩn bị.	Announced the launch of an emissions trading scheme for the electricity sector in February 2023, with an expected emissions reduction of 500,000 t-CO2 by the end of 2023, and the emissions trading market (IDXCarbon). Vào tháng 2 năm 2023, đã công bố triển khai cơ chế mua bán khí thải cho ngành điện, với mức giảm phát thải dự kiến là 500.000 t-CO2 vào năm 2023. Và Công bố triển khai thị trường mua bán khí thải (IDXCarbon).

Source : Prepared by Nippon Koei

Trend of carbon credit market in Asian countries (2/2)
Xu hướng thị trường tín dụng carbon tại các nước châu Á

Country Các nước	Climate Change Goals Mục tiêu biến đổi khí hậu	Domestic credit market Thị trường tín chỉ trong nước	Credit Trends Xu hướng tín chỉ
Malaysia Malaysia	45% reduction compared to 2005 by 2030 Giảm 45% so với năm 2005 vào năm 2030	Undeveloped Chưa hoàn thiện	Bursa Carbon Exchange (BCX), has successfully carried out its inaugural auction of renewable energy certificates (RECs) on June 2024. Bursa Carbon Exchange (BCX), đã thực hiện thành công phiên đấu giá đầu tiên của chứng chỉ năng lượng tái tạo (REC) vào tháng 6/2024.
Singapore Singapore	2050 Net Zero 2050 Mức phát thải ròng bằng "0"	Undeveloped Chưa hoàn thiện	In 2019, "Air Carbon Exchange" and in 2022, "Climate Impact X", two international exchanges for carbon trading, have been set up. Năm 2019, "Air Carbon Exchange" và năm 2022, "Climate Impact X", hai sàn giao dịch quốc tế về giao dịch carbon, đã được thiết lập.
India Ấn Độ	Reduce emission intensity by 45% below 2005 levels by 2030 Net Zero by 2070 Giảm cường độ phát thải xuống 45% so với mức năm 2005 vào năm 2030 Đạt mức phát thải ròng bằng "0" vào năm 2070	Indian Carbon Market (ICM) *transactions will begin around 2025 Thị trường Carbon Ấn Độ (ICM) *giao dịch sẽ bắt đầu vào khoảng năm 2025	Under the Carbon Credit Trading Scheme (CCTS), obligated entity will be required to achieve Energy Intensity Targets imposed by the government. Theo Chương trình giao dịch tín chỉ carbon (CCTS), các tổ chức có nghĩa vụ sẽ phải đạt được Mục tiêu cường độ năng lượng do chính phủ đặt ra.
Philippine Philippines	75% reduction compared to BAU by 2030 Giảm 75% so với Kịch bản phát triển thông thường BAU vào năm 2030	Undeveloped Chưa hoàn thiện	Currently developing a Carbon Credit Accounting, Verification and Certification System (CAVCS) for forest-derived carbon credit creation projects. Hiện đang phát triển Hệ thống kiểm kê, xác minh và chứng nhận tín chỉ carbon (CAVCS) cho dự án tạo tín chỉ carbon rừng.

Source : Prepared by Nippon Koei

Example of J-Credit System (Japan)
Ví dụ về Hệ thống tín chỉ J-Credit (Nhật Bản)

Sector /Ngành	Number of projects / Số lượng dự án		Example of Methodologies/ Ví dụ về phương pháp luận
	Ordinary projects / Dự án thông thường	Programmatic projects / Dự án theo chương trình	
Energy Saving / Tiết kiệm năng lượng	152	99	EN-S-001 (Introduction of high efficiency boilers), EN-S-002 (Introduction of high efficiency heat pumps), etc.
Renewable Energy / Năng lượng tái tạo	121	117	EN-R-001 (Fuel switch from fossil fuel or grid power to biomass solid fuel), EN-R-002 (Introduction of solar power generation), etc.
Industrial processes / Quy trình công nghiệp	2	0	IN-001 (Switch cover gas in casting magnesium from SF6 to lower GWP gases), etc.
Agriculture/ Nông nghiệp	2	18	AG-001 (Abatement of N2O emissions from pig and broiler excreta disposal by utilizing low-protein feed), etc.
Waste / Chất thải thông thường	1	1	WA-001 (Reduction of fossil fuel for incineration by reducing volume of sludge utilizing microbially-activated solvent), etc.
Forest / Tài nguyên rừng	154	0	FO-001 (Forest management activity), FO-002 (Afforestation activity), FO-003 (Reforestation Activity)

Basic procedure of Carbon Credit system based on project (sample) / Quy trình cơ bản của hệ thống tín chỉ Carbon theo dự án (mẫu)

Source : Prepared by Nippon Koei

現地ワークショップ資料

3. SOGEC/大阪ガス発表資料（英）

1. About Daigas group (Osaka Gas)

Outline of Daigas group

Upstream investment

Upstream investment in 5 countries

- Acquired 100% of the outstanding shares of Sabine Oil & Gas Corporation in July 2019
- First time that a Japanese company purchases a U.S. based shale gas developer

LNG transportation

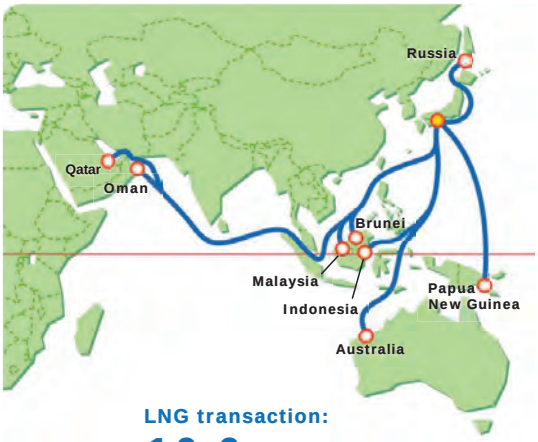
8 vessels
Our own group carriers

LNG receiving terminals

2 locations
Number of LNG terminals

- Apoximately 50 years of operational experience

LNG procurement



LNG transaction:
10.6 million tons

Gas transmission and distribution*

Approx. 63,600km

Equivalent to 1.5 times the circumference of the globe
Total length of pipeline extensions

*operated by
OSAKA GAS NETWORK CO.,LTD

Gas marketing

Approx. 5.0 million customers

Number of gas supply customers

- Residential cogeneration systems(engines, fuel cells)

Power business

Approx. 4.8GW

Power sources owned by the group

- Power plants in 5 countries
- Approx. 1.7 million electiricty supply customers in Japan
- Approx. 3.9 GW owned by Daigas Group in Japan

Our target for Carbon Neutral

- 2050: Carbon Neutral through decarbonization of Natural Gas/Electricity realized by innovation, and provision of solutions to achieve sustainable society.
- FY2030: As a milestone, aggressive target for CO_2 reduction with extension of our strong capability. (Energy saving, Advanced utilization of Natural Gas, Renewables)

Ⅰ Striving to become carbon neutral in our group business through innovation

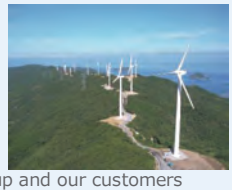
2050

Carbon Neutral

Ⅱ Contributing to the reduction of CO_2 emissions throughout society

FY2030

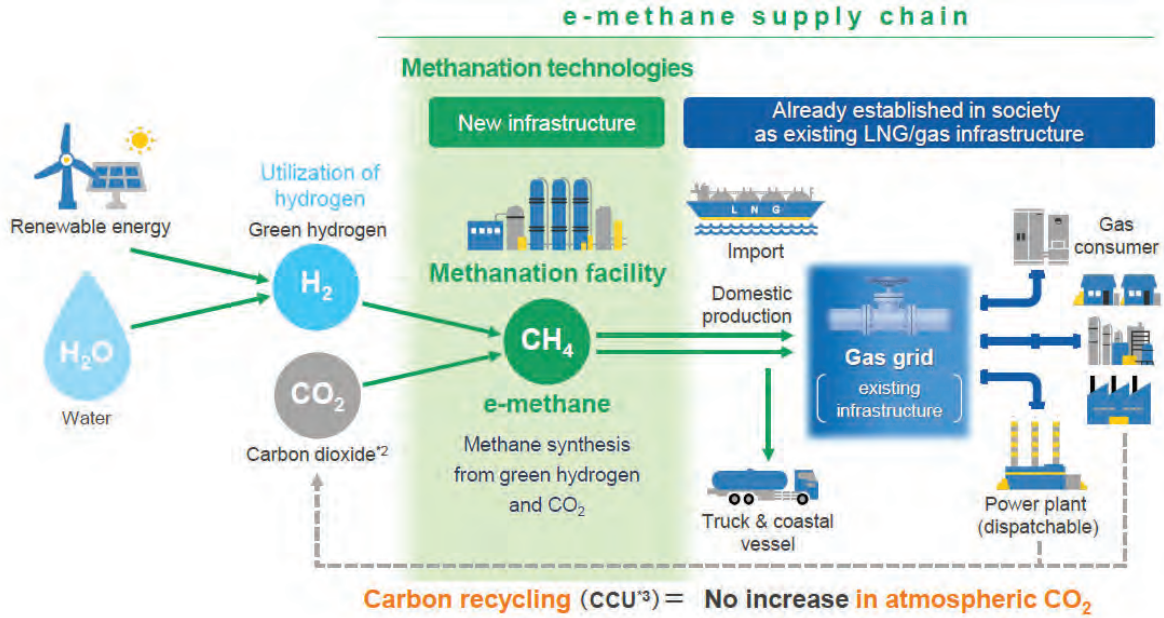
- 5 GW of renewables development contribution on a global basis
- Nearly 50% of our power portfolio in Japan consisting of renewables*1
- 10 million tons/year*2 of CO2 emissions reduction contribution



*1 Including power sources applicable to the feed-in tariff (FIT) system such as solar, wind, and biomass
*2 Equivalent to approximately one-third of the current CO2 emissions (approximately 33 million tons/year) of our group and our customers

e-methane: key carbon neutral energy carrier

- e-methane is a carbon neutral hydrogen carrier*1 synthesized through methanation using CO_2 captured from emissions.
- Working on Phased transition to minimize the social costs for energy conversion, especially in the thermal energy field.



*1 Hydrogen compounds that achieve efficient storage, transport, and utilization of hydrogen, which cannot be stored and transported over long distances efficiently in its gaseous state
*2 Biogenic CO_2 and possibly DAC(Direct Air Capture) might be utilized in the future.
*3 Carbon dioxide Capture and Utilization

CO_2 emissions reduction with natural gas utilization

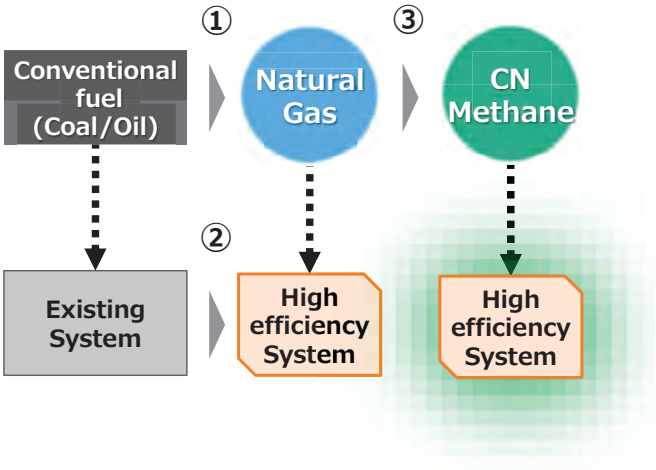
- **Practical and sustainable steps to energy transition are essential in Asia.**
- **Reducing emissions with energy-saving technologies besides fuel conversion.**
- **Seamless transition by using natural gas/e-methane in existing equipment as is.**

Three steps for energy transition for CN

①Fuel conversion
Switching from conventional fuel (coal, fuel oil, diesel oil, etc.) to Natural Gas can drastically reduce carbon emissions.

②Installing High-efficiency System
Converting to natural gas can open the door to select highly efficient systems and replacing the existing system can significantly reduce energy consumption.

③Switching to Carbon Neutral Methane
In the future, there might be an option to switch the Natural Gas to Carbon Neutral Methane for further carbon reduction.

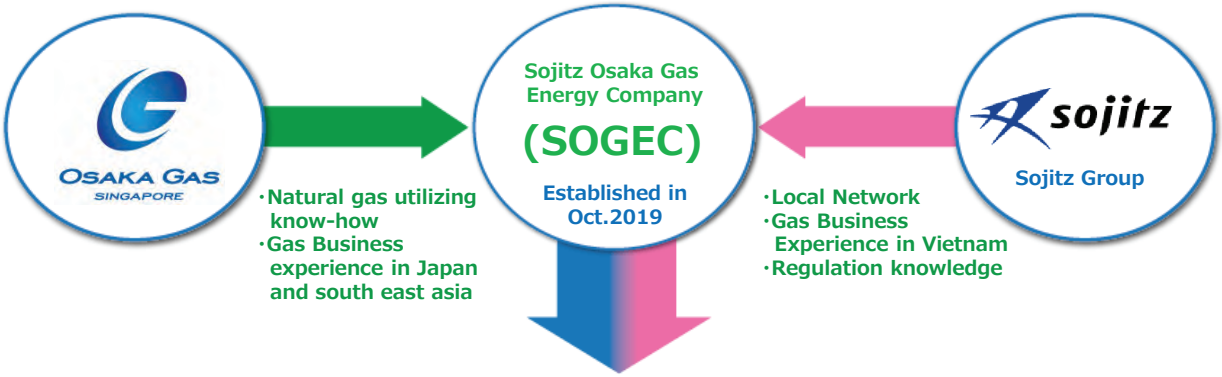


2. Our businesses in Vietnam

SOJITZ OSAKA GAS ENERGY COMPANY （SOGEC）

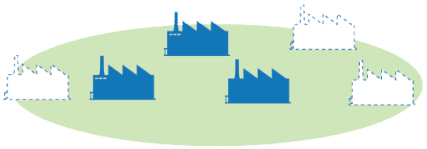
Natural gas retail business with energy savings

SOGEC sales natural gas to industrial customers by pipeline in Phu My 3 specialized industrial park and by CNG in other area



Gas supply station

Phu My 3 S.I.P.
(Pipeline supply)



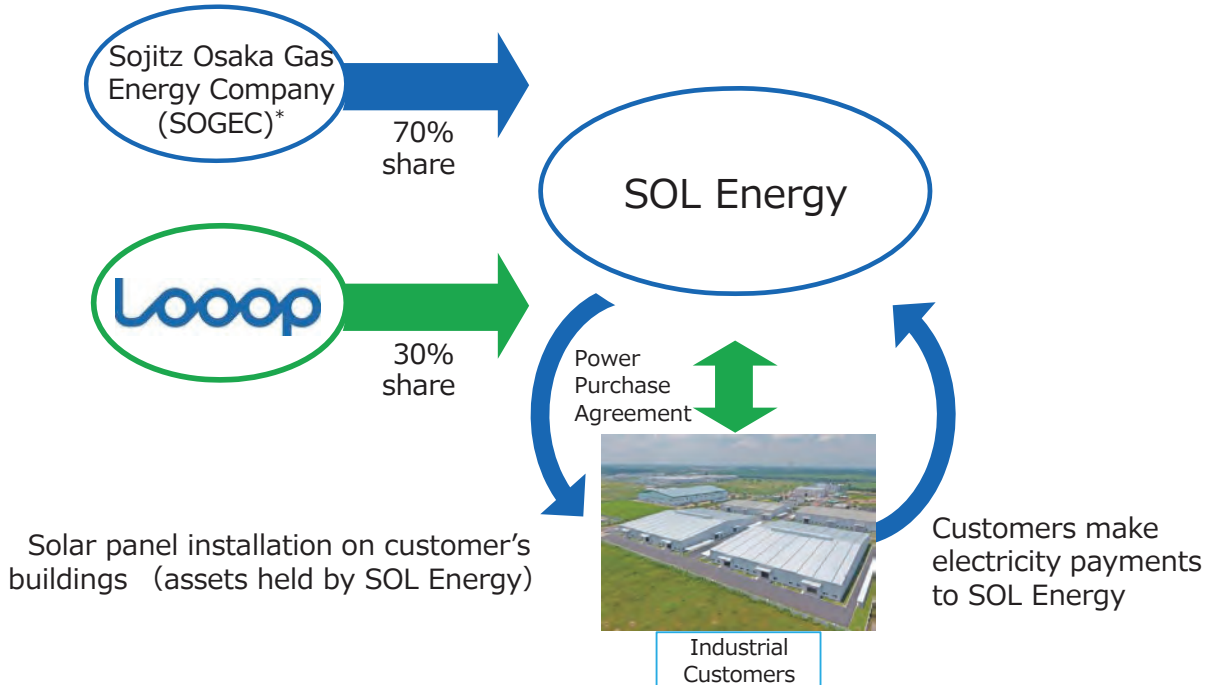
Individual industrial customers
(CNG supply)

SOL Energy Company Limited （SOL）

Solar power business

Recent activity

SOL Energy plans to install rooftop solar panel that can provide over 10MW of solar power to customers at the Sojitz-operated Long Duc Industrial park in Southern Vietnam's Dong Nai province



*Equity ownership of Sojitz Osaka gas Energy Company Ltd. : Sojitz group 51%, Osaka Gas Singapore Pte. Ltd. 49% （Osaka Gas Singapore Pte. Ltd. is a fully owned subsidiary of Osaka Gas Co., Ltd.

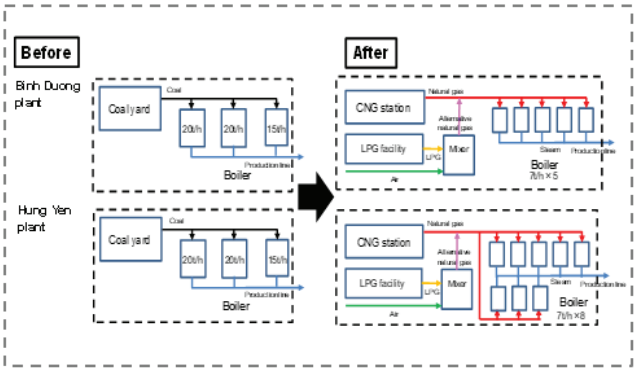
Introduction of High Efficiency Boiler System to Food Factory

➢ This project reduces energy consumption by the boiler operations and contributes to greenhouse gas (GHG) emissions reductions in Vietnamese industry sector

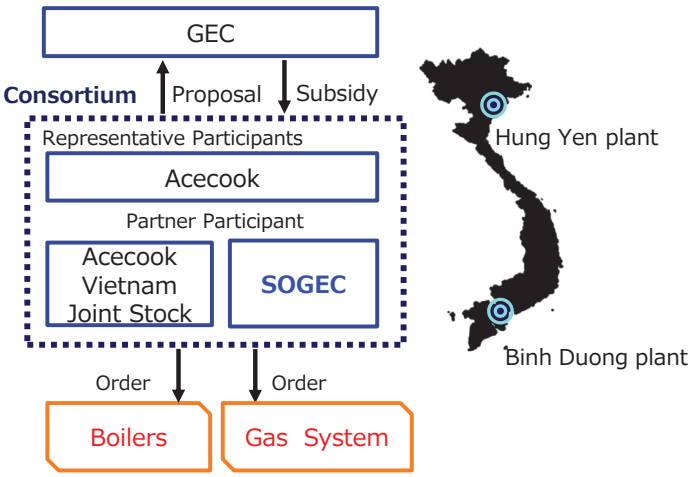
Outline of GHG Mitigation Activity

- This project replaces existing coal boilers at the Binh Duong plant and Hung Yen plant operated by Acecook Co., Ltd. with high-efficiency once-through boilers and also converts fuel from coal to CNG and LPG. The boiler system flexibly responds to fuel market trends and reduces greenhouse gas (GHG) emissions.

System



Outline of the project



Expected GHG Emission Reductions
7,631 tCO2-eq./year

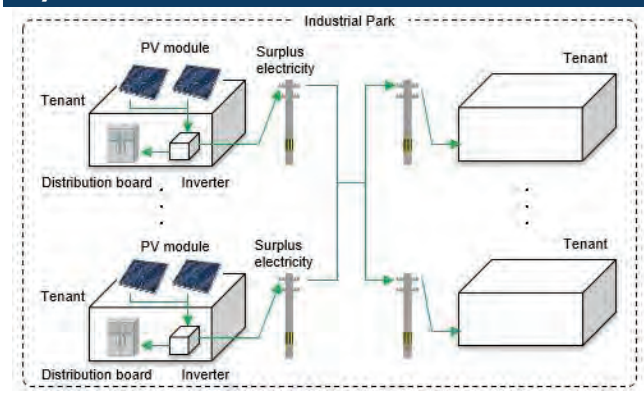
Introduction of 9.8 MW Rooftop Solar Power System in Industrial Park

➢ This project contributes to the Power Development Plan 8 which plans to expand with spread of renewable energy in Vietnam.

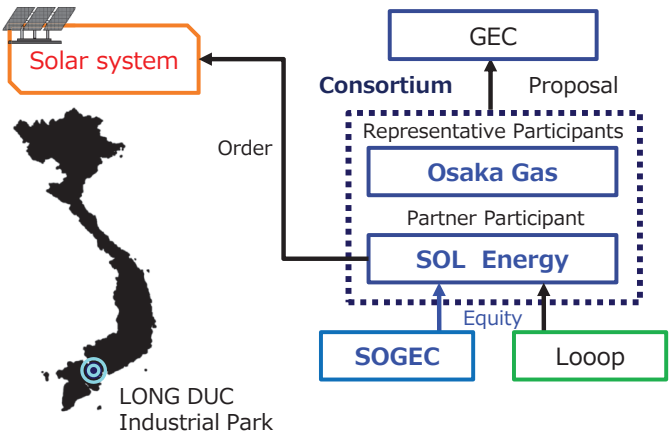
Outline of GHG Mitigation Activity

- 9.8 MW solar power system is introduced on the rooftops of 8 tenants in Long Duc Industrial Park (LDIP) in Dong Nai province. The generated electricity is self-consumed by each tenant and surplus electricity is supplied to the LDIP management. The generated electricity is fully utilized, which reduces GHG emission.

System



Outline of the project



Expected GHG Emission Reductions
4,312 tCO2-eq./year

現地ワークショップ資料

4. ユアサ商事ベトナム発表資料（英）

Proposals for achieving carbon neutrality by Yuasa

Đề xuất hỗ trợ đạt được trung hòa carbon của Yuasa

YUASA TRADING VIETNAM.,LTD.

https://www.yuasa.co.jp/

Service Integrated Shosha Group
(複合専門商社グループ)

November 13, 2024

Company profile – Established
Hồ sơ công ty - Được thành lập

Founded in 1666 – in KYOTO

by Mr. SHOKURO YUASA

Company profile – YUASA TRADING CO.,LTD.

Giới thiệu Tập đoàn Yuasa

Company Name Tên công ty	YUASA TRADING CO.,LTD. CÔNG TY TNHH THƯƠNG MẠI YUASA
Established Thành lập	March 1666 Tháng 3 năm 1666
Address of Head Office Địa chỉ trụ sở chính	7, Kanda-Mitoshirocho, Chiyoda-ku, Tokyo 101-8580, Japan
Capital Vốn	20,644 million 20,644 triệu yên
Consolidated Net Sales Doanh thu thuần hợp nhất	504,806 million 504,806 triệu yên
Offices Văn phòng	31 locations in Japan, 23 locations in 10 countries overseas 31 địa điểm ở Nhật Bản, 23 địa điểm ở 10 quốc gia khác.
Group of Yuasa Trading Công ty liên kết	23 domestic group companies, 12overseas group companies 23 công ty trong nước, 12 công ty ngoài nước thuộc tập đoàn
Employees Nhân viên	2,533(Consolidated) 1,103(Non-Consolidated) 2,533 nhân viên (Toàn tập đoàn) 1,103nhân viên (Yuasa Nhật Bản)

(at the time of March 31, 2023)

For Achieving Carbon Neutrality – Concrete measures

Các biện pháp cụ thể để đạt được trung hòa carbon

Combining energy saving, renewable energy, and offsetting proposals

We aim to achieve carbon neutrality.

YUASA TRADING will propose the best combination for each customer.

Kết hợp tiết kiệm năng lượng, năng lượng tái tạo và các đề xuất bù đắp. Chúng tôi mong muốn đạt được trung hòa carbon.

YUASA TRADING sẽ đề xuất sự kết hợp tối ưu nhất cho từng khách hàng

Energy saving

Reduction of CO2 emissions by updating to energy-saving equipment

Tiết kiệm năng lượng

Giảm lượng khí thải CO2 bằng cách cập nhật lên thiết bị tiết kiệm năng lượng

Renewable energy

Installation of self-consumption solar power generation systems

Năng lượng tái tạo

Lắp đặt hệ thống phát điện tự tiêu thụ từ năng lượng mặt trời

Offset

Purchase of credits and certificates admitting the company's reduction in CO2 emissions

Bù đắp

Mua tín dụng và chứng chỉ thừa nhận giảm phát thải CO2 của công ty

0%

For Achieving Carbon Neutrality — Energy-saving and CO2 reduction potential analysis

Để đạt được tính trung hòa carbon — Phân tích tiềm năng tiết kiệm năng lượng và giảm CO2

✓ **Proposals for equipment renewal based on energy saving and CO2 reduction potential analysis**
Đề xuất đổi mới thiết bị cụ thể dựa trên tiết kiệm năng lượng và chẩn đoán tiềm năng giảm CO2

✓ **Proposal of various types of financial contracts such as leasing**
Đề xuất các loại hợp đồng tài chính như cho thuê

Energy-saving and CO2 reduction potential analysis
Chẩn đoán tiết kiệm năng lượng và tiềm năng giảm CO2

Prehearing
Diễn giải
▶
Field survey
Khảo sát thực địa
▶
Analysis Results Report
Báo cáo chẩn đoán

◪ Analysis items
Chẩn đoán

✓ Proposal for equipment renewal
Đề xuất đổi mới thiết bị

✓ Proposal for potential of renewable energy introduction
Đề xuất tiềm năng giới thiệu năng lượng tái tạo

✓ Preparation of improvement effect simulation
Tạo mô phỏng cải tiến

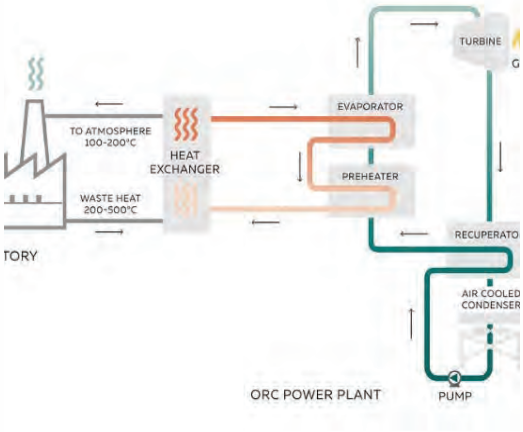
◪ Main Equipment
Các loại thiết bị chính

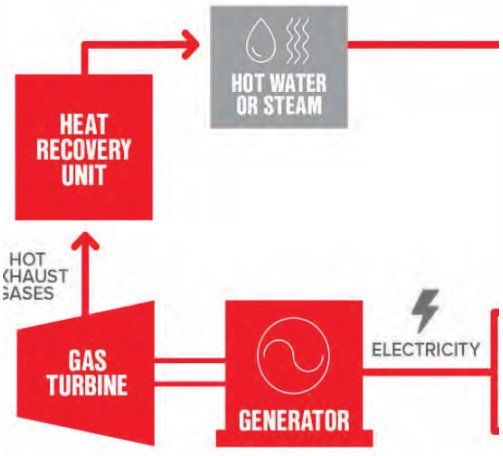
Air conditioning
LED Lighting
Refrigerating and freezing equipment
Compressor
Boiler
Chiller

◪ Scenes from analysis
Hiện trường chẩn đoán tiết kiệm năng lượng


Co2 Reduction Potental Situation

Tình hình tiềm năng giảm CO2





ORC System

ORC systems use waste heat from industrial processes to generate electricity, particularly effective in industries with high-temperature exhaust gases.

Hệ thống ORC sử dụng nhiệt thải từ quy trình công nghiệp để tạo ra điện, đặc biệt hiệu quả trong các ngành công nghiệp có khí thải ở nhiệt độ cao.

Solar Power System

Solar power systems convert sunlight into electricity, ideal for buildings and large-scale power generation.

Hệ thống điện mặt trời chuyển đổi ánh sáng mặt trời thành điện năng, rất lý tưởng cho các tòa nhà và phát điện quy mô lớn.

Cogeneration System

Cogeneration systems produce electricity and heat from a single fuel source, highly efficient for industries requiring both.

Hệ thống sản xuất điện và nhiệt từ một nguồn nhiên liệu duy nhất, có hiệu quả cao cho các ngành công nghiệp yêu cầu cả hai.

JCM Achievements in Vietnam
Thành tựu JCM tại Việt Nam

JCM THE JOINT CREDITING MECHANISM

Global Environment Centre Foundation | Access | Contact | Search | Japanese

Overview | Call for Proposals | Projects | News | JCM Global Match | Publi

Introduction of High Efficiency Centrifugal Chiller to Rubber Products Factory

Giới thiệu máy làm lạnh ly tâm hiệu quả cao cho nhà máy sản xuất cao su

Representative Participant

YUASA TRADING CO., LTD

Partner Participant: VIETNAM NOK CO., LTD.

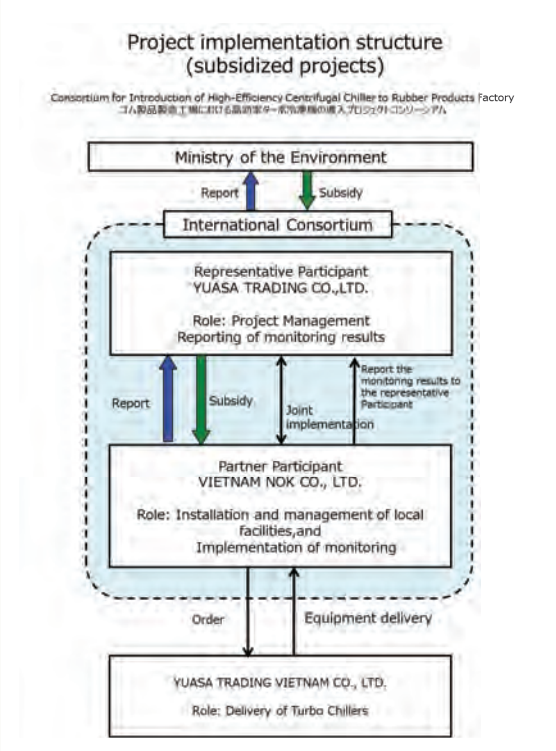
Host Country	Vietnam
Selected Year	2017
Type	JCM Model Project
Sector	Energy Efficiency

Outline of GHG Mitigation Activity

This project aims for saving energy by introduction of high efficiency centrifugal chiller to rubber products factory which is producing oil seals for engines and motors.

Electricity consumptions as well as CO2 emissions will be reduced by installation and operation of high efficiency centrifugal chiller.

Nhắm mục tiêu vào các nhà máy sản xuất các sản phẩm cao su như phốt dầu được sử dụng trong động cơ ô tô và động cơ giảm tốc, các thiết bị làm lạnh hiện có sẽ được thay thế bằng máy làm lạnh ly tâm hiệu quả cao.
Giới thiệu máy làm lạnh ly tâm hiệu quả cao để giảm tiêu thụ điện năng và phát thải CO2



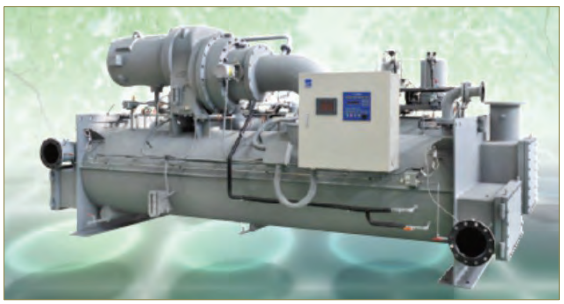
JCM Achievements in Vietnam
Thành tựu JCM tại Việt Nam

Expected GHG Emission Reductions

289 tCO2-eq./year

Mức giảm phát khí thải nhà kính (Greenhouse Gas) dự kiến

289 tấn CO2/năm



Related photos

VIETNAM NOK CO., LTD.


High efficiency centrifugal chiller


Working environment

http://gec.jp/jcm/projects/17pro_vie_02/

現地ワークショップ資料

5. 遠藤照明ベトナム発表資料（英）

Technical Workshop

High-efficiency LED lighting technology and case study

13. NOV 2024

1. Company Overview
2. Daibiru Corner stone building
3. Product benefits
4. Case Study
5. What ENDO VN can do

ENDO LIGHTING CORP.

1. Company Overview

ENDO LIGHTING CORP.

Name	ENDO Lighting Corp.
Founded	September, 1967
Established	August, 1972
Capital	¥5,155 million
Businesses	• Planning, design, manufacture, and sale of light fixtures • Sale of interior furnishings and supplies
Fiscal year	March 31
Revenue	¥45.7 billion (consolidated basis, fiscal year ended March, 2022)
Employees (consolidated)	1,552 employees (As of March 31, 2022)

1. Company Overview

②Pune / India
ENDO LIGHTING ACCESSORIES (INDIA) PVT.LTD

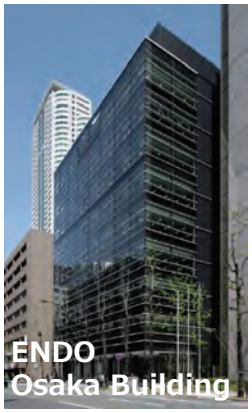
③Bangkok / Thailand
ENDO LIGHTING (THAILAND) PUBLIC CO.,LTD

④Singapore / Singapore
ENDO LIGHTING SE ASIA PTE.LTD

⑤⑥Ho chi minh City, Hanoi / Vietnam
ENDO LIGHTING VIETNAM CO.,LTD

⑦Manila / Philippines
ENDO LIGHTING (THAILAND)PUBLIC CO.,LTD
Philippine Rep. Office

⑨Beijing / China
ENDO TRADE (BEIJING) CO.,LTD



2.Daibiru Corner Stone Building

Replaced from High efficiency fluorescent

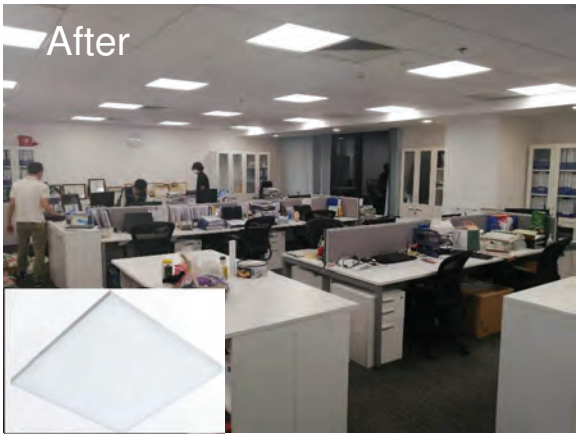
To High efficiency LED with SmartLEDZ

Without JCM Subsidy Scheme. ALL Lighting 3,000 pcs

■ High efficiency fluorescent

Electricity
50% Down
Total10years
6,300M.VND
Reduce cost

■ High efficiency LED with SmartLEDZ



3. Product Features

Tunable
調光調色
LEDZ

Wide lineups and High efficiency

Market standard:110lm/w ENDO:**150-200lm/w**

lm=Amount of light　W=Wattage

Daylight to warm color adjustable

Wireless control by smartphone

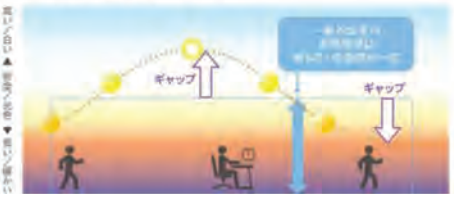
Easy to use

3. Product Benefits①

Working in an office with constant color lighting can disrupt your body's rhythms and cause sleep disorders.

Increases awakening and focus during the day and relaxation at night.

体内リズムの乱れは眠気ホルモン(メラトニン)の分泌に影響を及ぼし、睡眠障害などの健康被害の原因になると知られています。調光調色により室内の照明環境と自然光とのギャップを少なくし、体内リズム調整をサポートします。



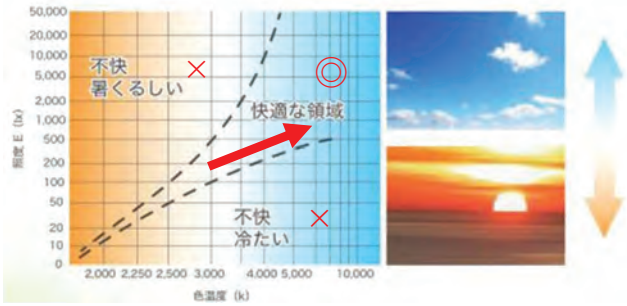
3.Product Benefits②

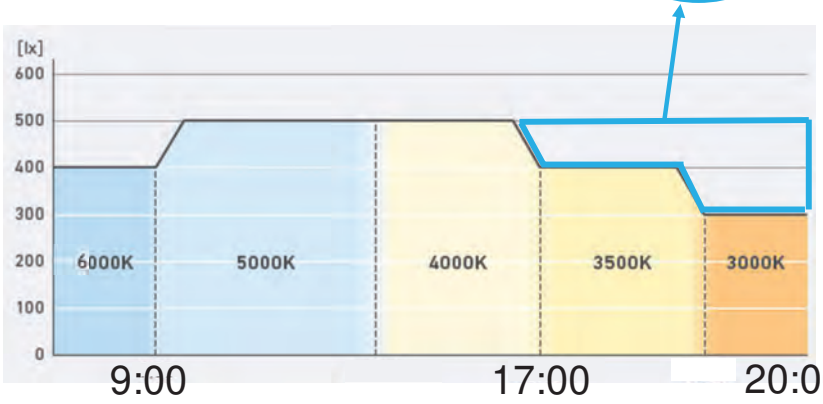
There is a favorable correlation between light color and brightness.

When you use a low color temperature, brightness is low became savi... ...y.

Energy
12%
Saving

クルーゾフ効果 Kluzov effect





3. Product Benefits③

Changing color depending on the purpose of your work can lead to productivity.

High color temperatures improve concentration,

while medium color temperatures increase communication.

Low color temperatures are suitable for creative work.

High Color Temperature	Middle Color Temperature	Low Color Temperature
		

4.Case Study

If **50pcs** are replaced from fluorescent

Cost simulation

■ Conditions

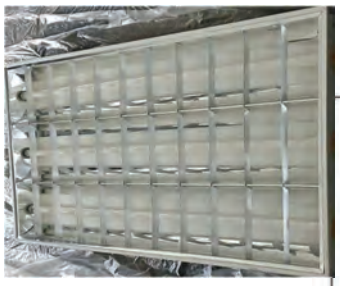
Total initial cost 88M.VND

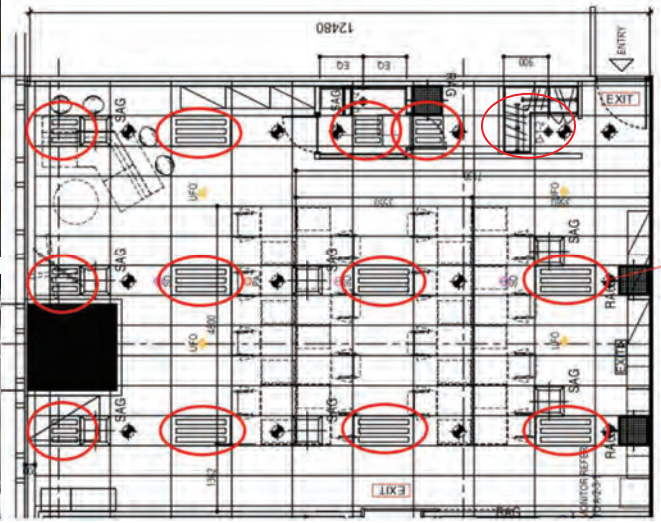
Before:54W×50pcs＝**2.7kW**

After:36W×45%Dim×50pcs＝**0.8W**

Energy **70%** Saving

Before





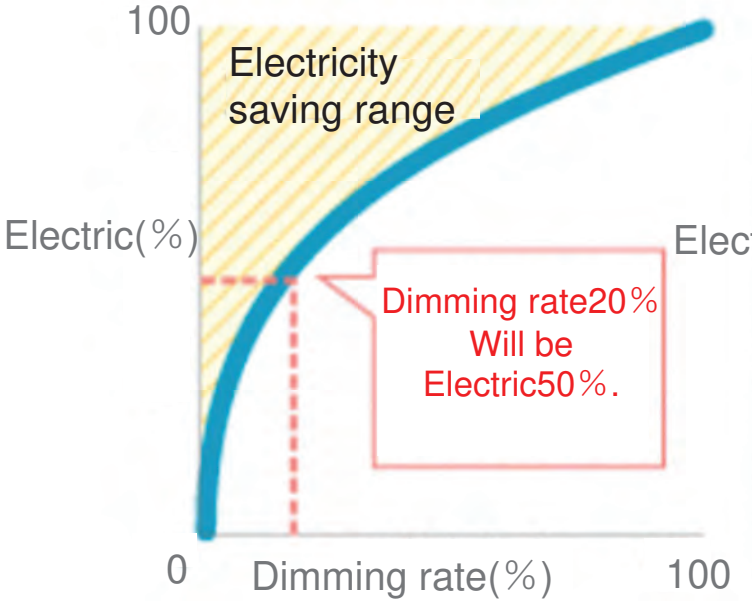
After

Tunable 調光調色 LEDZ

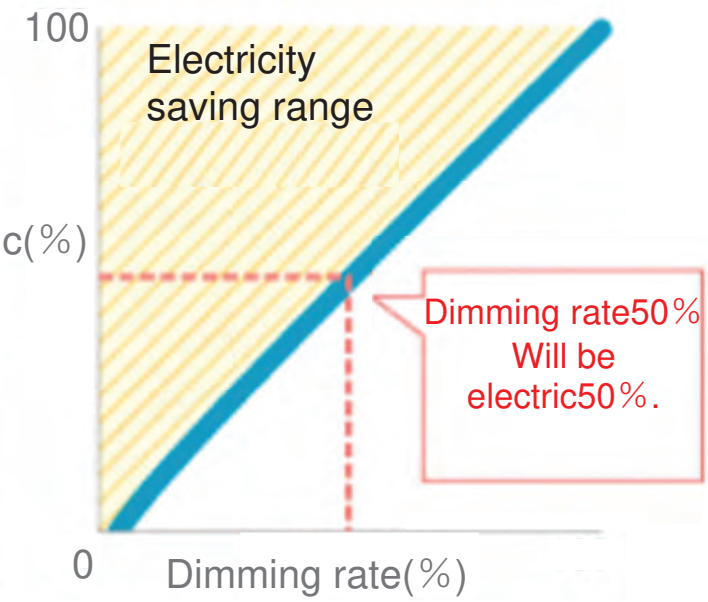
4.Case Study

■ Reduce electricity consumption by dimming

In case of fluorescent



In case of LED



Copyright(C) ENDO Lighting Corporation. All rights reserved.

If 50pcs are replaced from fluorescent Cost simulation

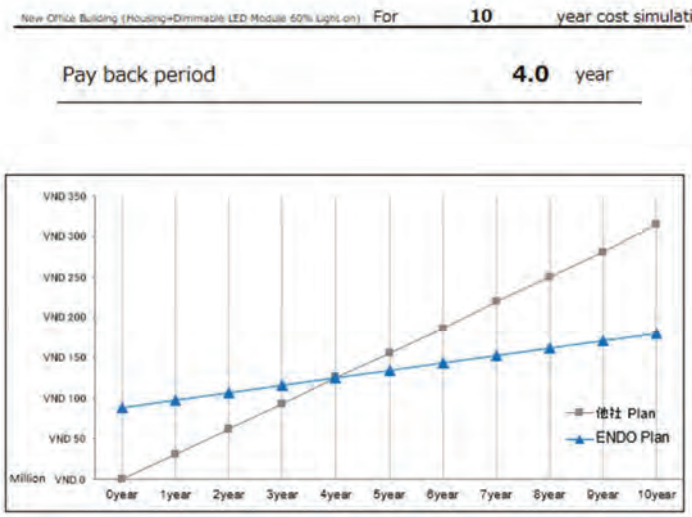
■ In case of using 10years

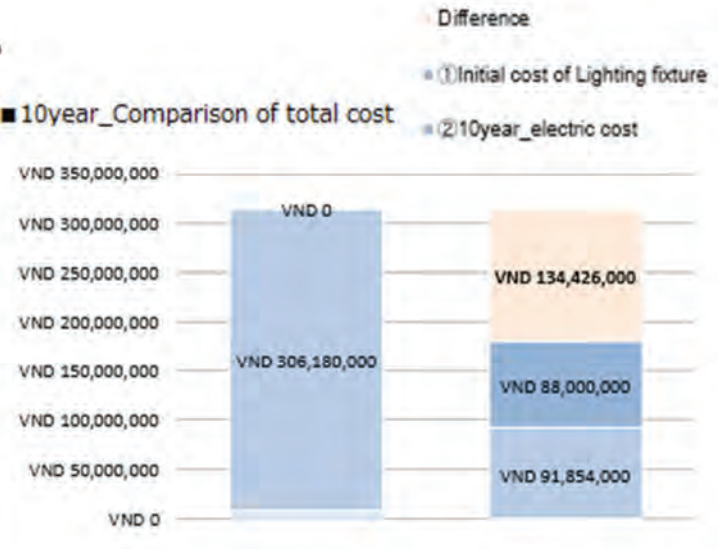
250day×12hour×10year×

3,300VND×1.9W＝**100M.VND**

Lamp maintenance cost **34M.VND**

Total 10years 134M. VND reduce



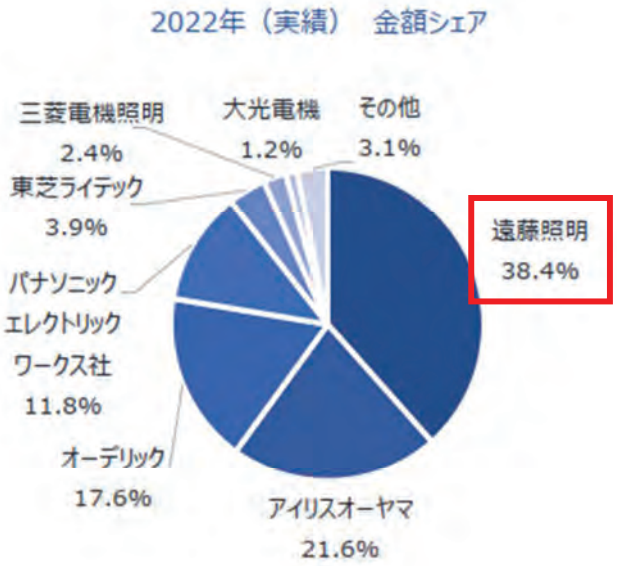


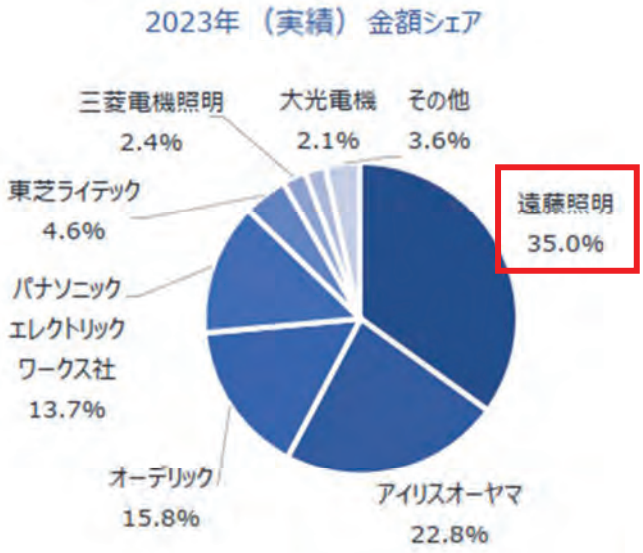
Smart LEDZ® SYSTEM

We have a track record of over 30,000 site.

This is the system that creates a comfortable space and more saving energy.

Smart LEDZ SYSTEM





Wireless Dimming system

share No.1 in Japan.

Fuji Keizai
Marketing Research & Consulting Group

Smart LEDZ SYSTEM

Value Up

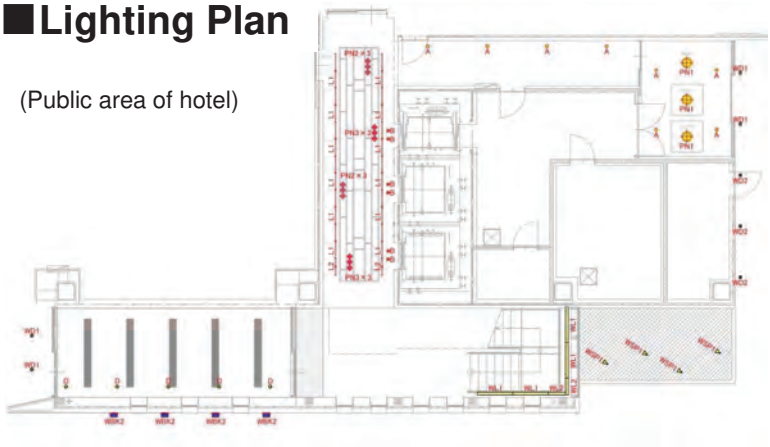
EDGE

Carbon neutral

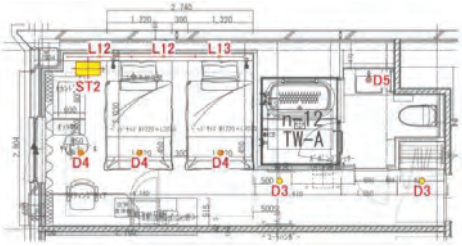
5. What ENDO VN can provide

■Lighting Plan

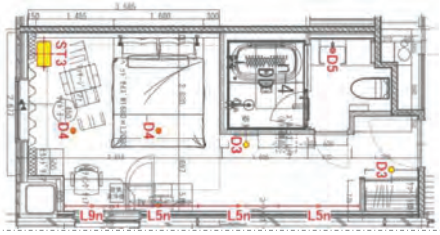
(Public area of hotel)



(Guest room A)



(Guest room B)

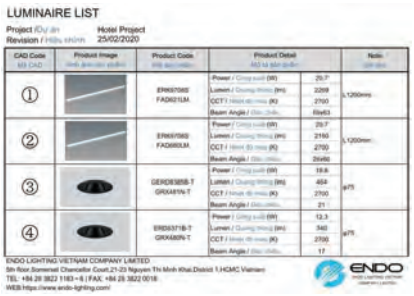


■3D Rendering Image

(Simulation when proposing)

(Actual photo at site)

■Luminaire List

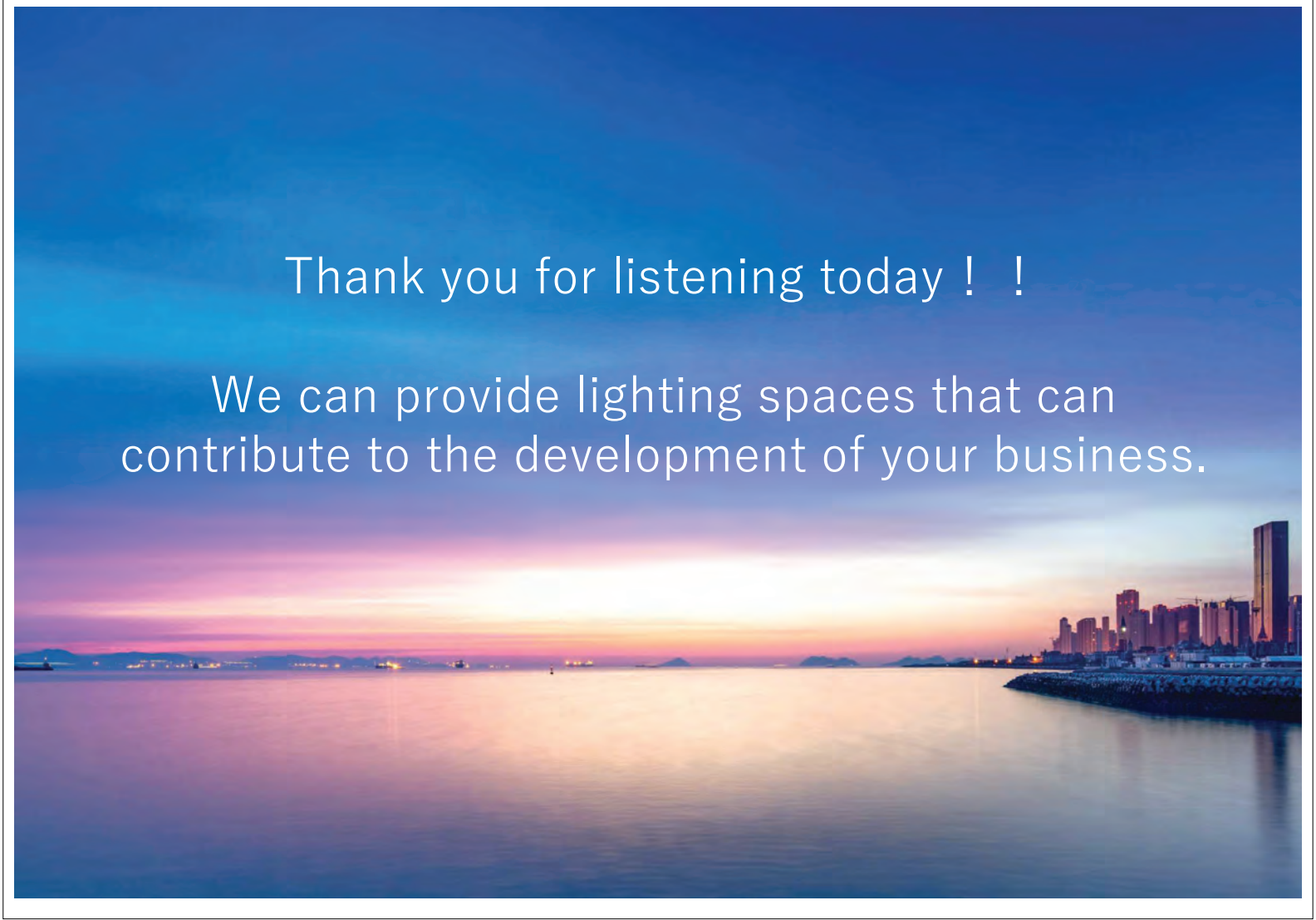


LUMINAIRE LIST

Project /Dự án: Hotel Project
Revision / Hiệu chỉnh: 25/02/2020

CAD Code	Product Image	Product Code	Product Detail	Note
①			Power / Công suất (W): 20.7 Lumen / Quang thông (lm): 2269 CCT / Nhiệt độ màu (K): 2700 Beam Angle / Góc chiếu: 60x63	L1200mm
②			Power / Công suất (W): 20.7 Lumen / Quang thông (lm): 2160 CCT / Nhiệt độ màu (K): 2700 Beam Angle / Góc chiếu: 36x96	L1200mm
③			Power / Công suất (W): 19.8 Lumen / Quang thông (lm): 464 CCT / Nhiệt độ màu (K): 2700 Beam Angle / Góc chiếu: 21	φ75
④			Power / Công suất (W): 13.3 Lumen / Quang thông (lm): 340 CCT / Nhiệt độ màu (K): 2700 Beam Angle / Góc chiếu: 17	φ75

ENDO LIGHTING VIETNAM COMPANY LIMITED
5th floor,Somerset Chancellor Court,21-23 Nguyen Thi Minh Khai,District 1,HCMC Vietnam
TEL: +84 28 3822 1183~6 | FAX: +84 28 3822 0018
WEB:https://www.endo-lighting.com/



現地ワークショップ資料

6. BSL/三井住友トラスト・パナソニックファイナンス発表資料（英）

FY 2024 City-to-City Collaboration Project between Ho Chi Minh City and Osaka City Supported by Ministry of the Environment, Japan

BIDV-SuMi TRUST Leasing Company., Ltd.

COMPANY PROFILE

Business Activities in Vietnam

BIDV-SuMi TRUST Leasing Company., Ltd (BSL)

SHAREHOLDERS

BIDV 50%

SuMi TRUST 49%

895.6Bil VND

ESTABLISHMENT

2017

LOCATIONS

Ha Noi

Da Nang

Ho Chi Minh City

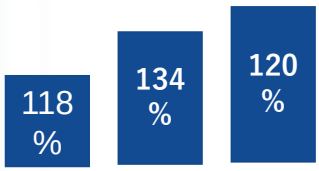
NUMBER OF EMPLOYEES
(as of October, 2024)

169

BUSINESS

FINANCE LEASE

PERFORMANCE



Profit grew strongly from 2021 to 2023

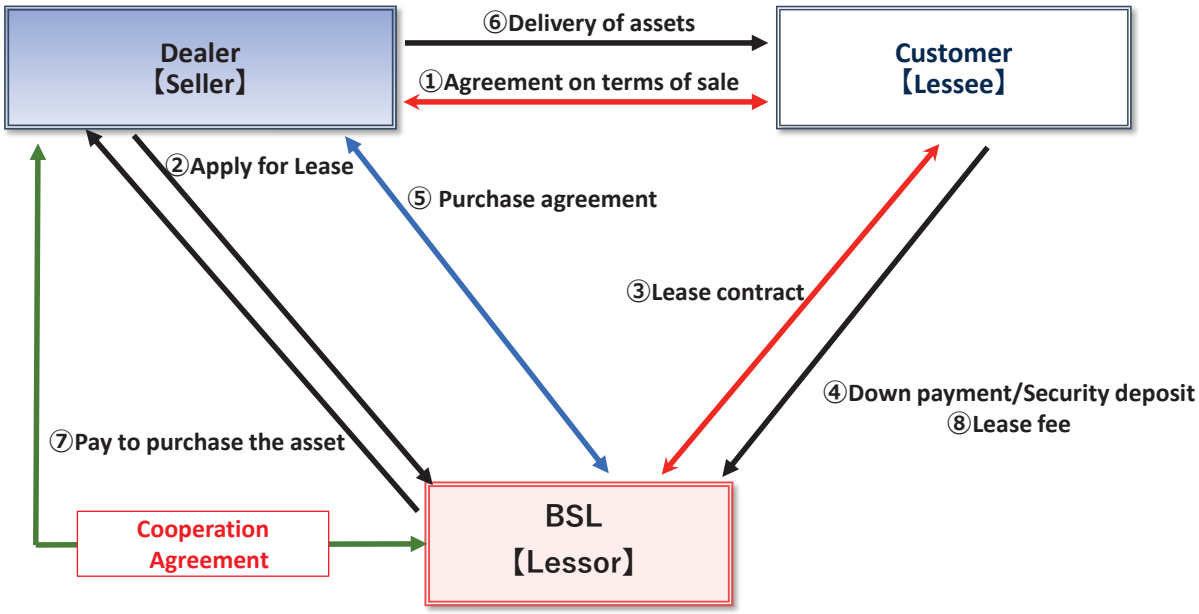
FINANCE LEASE

A finance lease is mid-long-term financing under a financial leasing contract.

Finance lease is one of the methods of capital mobilization of enterprises, where the Lessor (the financial leasing companies) grants mid and long term credit to the Lessee (individuals, enterprises) through the lease of assets on the basis of financial leasing contracts.

FINANCE LEASE

Model of Finance Leases



It is the model where Lessor collaborates with dealers, then dealers will, on behalf of Lessor, do the sales and marketing activities to their customers and introduce customers to Lessor so that Lessor can provide lease to customers buying machinery and equipment of suppliers (Dealers will separately sign a cooperation agreement with Lessor).

FINANCE LEASE

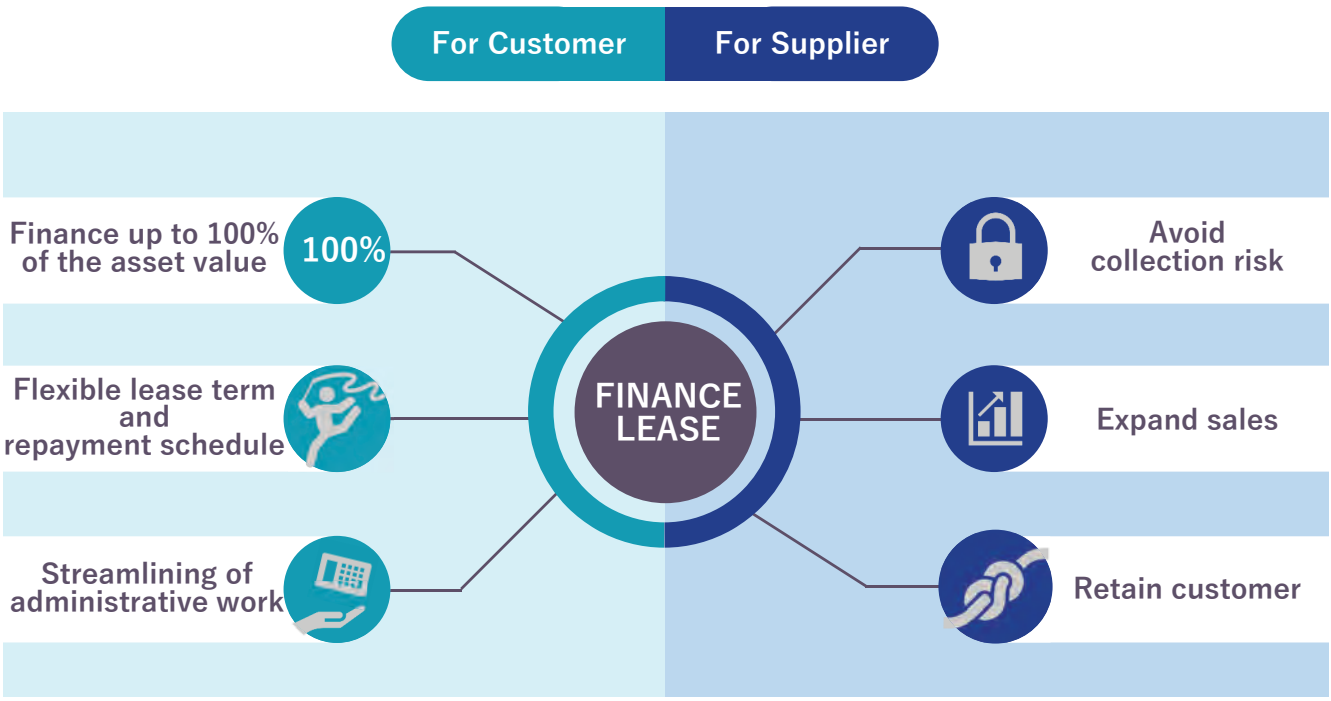
What differences with Bank loan

	Finance lease	Traditional loan
Method of financing	Via lease of assets	In money
Ownership towards asset	Lessor	Borrower
Contract term	Negotiable based on the assets' legal depreciation term/ the useful economic life and Lessee's finance capability	Based on finance capability of Borrower and bank's regulations
At the expiry of the contract	3 flexible ways: 1. Transfer the ownership of the asset (from Lessor to Lessee) 2. Lessee returns the asset to Lessor 3. Lessee continues to lease the asset	Borrower fulfills repayment obligations and liquidates the loan contract
Financing ratio	Normally up to 80-90% of assets' value Can be up to 100% of assets' value including expenses associated with the assets *	Maximum 70-80% of assets' value excluding expenses associated with the assets
Collateral	Basically, no need *	Is required in all cases
Accounting bookkeeping	1. Lessee records the leased assets as financial leasing fixed assets; 2. Depreciate under regulations of Ministry of Finance; or 3. Quick depreciation by the lease term if Lessee commits not the take the ownership of the leased assets at the expiry of the lease term	Borrower records assets as fixed assets and depreciates such assets by the regulations of Ministry of Finance
Use purpose of financed capital	Ensure the right purpose of use of the capital and balance of cashflow	Possibility of wrong use of capital, leading to the unbalance of cashflow

(*): depending on the Lessee's credit rating

MERITS of FINANCE LEASE

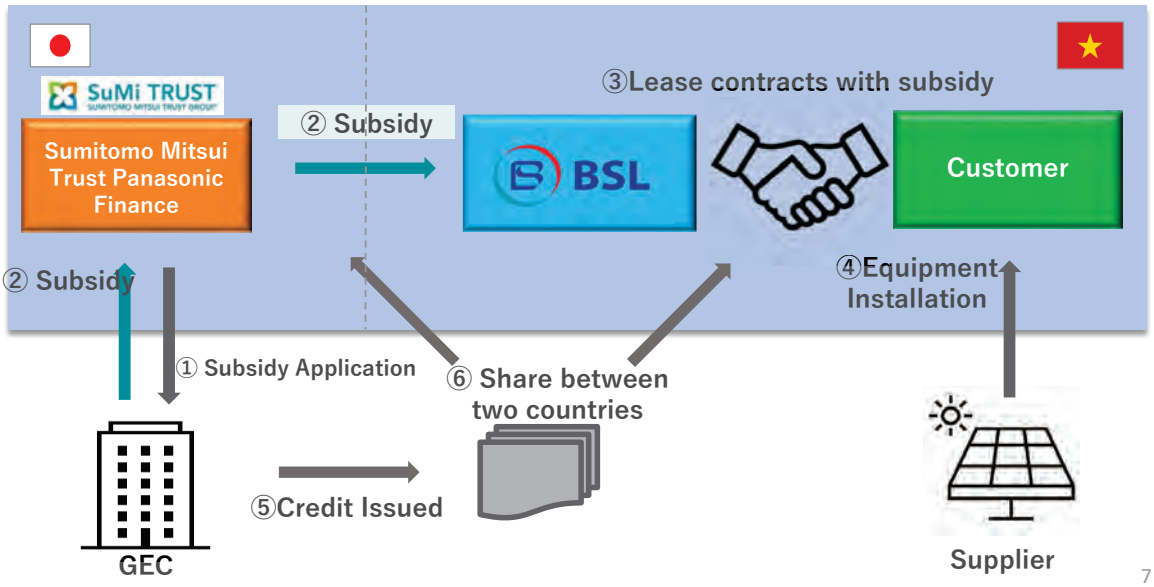
A finance lease is a very useful finance product for customers and suppliers.



JCM Eco-Lease

Decarbonization schemes in which Japan establishes and implements the Joint Crediting Mechanism

JCM Eco-Lease is a subsidy program that supports the development of decarbonization technologies through cooperation between Japanese leasing companies and leasing companies in partner countries. The operating entity is the Global Environment Centre (GEC) under the Ministry of the Environment.
BIDV-SuMi TRUST Leasing is providing JCM Eco Lease in Vietnam in cooperation with Sumitomo Mitsui Trust Panasonic Finance co., ltd.



JCM Eco-Lease

BSL registered the first JCM Eco-Lease project with ENKEI in Vietnam

JCM subsidy program is implemented by the Japanese Ministry of the Environment.

10%

A subsidy of 10% of the total lease payment helps reduce the investment cost.

Important for the relationship between BSL (VIETNAM) and SMTPFC (JAPAN).

Advertising effectiveness in contributing to the SDGs on the GEC website.

Requires 1 year of preparation from application to lease contract.

Sourced from BSL news release

Vietnam has the first JCM Eco Lease scheme project successfully registered under the Joint Crediting Mechanism (JCM)

BSL News 01/08/2022

Recently, "Introduction of 0.4MW Rooftop Solar Power System to Aluminum Wheel Manufacturing Factory (JCM Eco Lease Scheme)" of BIDV-SuMi TRUST Leasing (BSL) and Sumitomo Mitsui Trust Panasonic Finance (SuMi TRUST Bank) was selected by the Ministry of the Environment, Japan for Financing Programme for JCM Model Projects (JCM Eco Lease scheme) under the JCM between Vietnam and Japan.

THANK YOU

With a nationwide network and a management team with many years of experience in the Vietnamese and Japanese financial markets, SMTPFC and BSL have constantly endeavored and will continue to initiate, innovate, and develop diversified, flexible, and competitive services, ensuring the goal of providing customers with superior financial products.

https://www.smtpfc.jp/

https://bslease.com.vn/

現地ワークショップ資料

7. 日本工営発表資料（英）

～Supporting the acceleration of efforts to achieve the SDGs～

Introduction of SDGs digital assessment tools for local governments and private companies

TSUMUGI@
From your city to the world

KIBOH 2030
Sustainability Business Navigation

NIPPON KOEI CO., LTD.

Today's Agenda

1. **Introduction of SDGs**

2. **Introduction of TSUMUGI@ "Online assessment tool of SDGs initiatives for local governments"**
   - 2-1 Background of TSUMUGI@ development
   - 2-2 Function of TSUMUGI@
   - 2-3 Operation of TSUMUGI@
   - 2-4 Values to be added by TSUMUGI@

TSUMUGI@
From your city to the world

3. **Introduction of KIBOH2030 "Online assessment tool of Sustainability and ESG initiatives for private companies"**
   - 3-1 Background of KIBOH2030 development
   - 3-2 Features of of KIBOH2030
   - 3-3 Operation of KIBOH2030
   - 3-4 Values to be added by KIBOH 2030

KIBOH 2030
Sustainability Business Navigation

Introduction of SDGs

SDGs:

Sustainable Development Goals

United Nations General Assembly
September 2015

DECADE OF ACTION

Background of TSUMUGI@ development

We want to strengthen initiatives and projects for local communities based on the perspective of the SDGs.

We want to strengthen the implementation system to promote the SDGs.

We want to work on the promotion of SDGs for citizens.

We want to manage and monitor progress toward achieving the SDGs.

We want to disseminate the SDGs to the entire municipality and each department.

We want to understand the advantages and challenges of local governments in achieving the SDGs.

Background of TSUMUGI@ development

Japanese governments have issued the "Sustainable Development Goals (SDGs) Implementation Guidelines" and expect local governments to promote the SDG.

Local governments are expected to establish a cross-departmental promotion organization, promote the development of an executive system, reflect SDG elements in various plans, **establish governance methods to manage progress**, **accurately measure their efforts to achieve the SDGs** by disseminating information and sharing results, promote collaboration with stakeholders, both domestic and international, and set local indicators.
Sustainable Development Goals (SDGs) Implementation Guidelines Revised (December 2023)

We have developed an online application that can easily diagnose the status of SDGs initiatives in local governments, and it is being used by local governments in Japan.

TSUMUGI@
From your city to the world

TSUMUGI@™
from your city to the world

Online assessment tool of SDGs initiatives for local governments
- Supporting to accelerate their efforts to achieve the SDGs

Easy operation on website

The respondents selected online answer multiple-choice questions by clicking.

Assessment from two aspects

About 50-60 questions

①Framework Check — Assessment of the maturity of implementation structure for local governments to promote SDGs

About 170 questions

②Action-phase Check — Assessment of the status of local government's initiatives for 17 goals

Visualization of the results - Strengthens and Weakness -

The results are visualized online with easy-to-understand charts and scores.

By visualization, local government can analyze its strengths and weakness that should be more focused on.

Monitoring of your initiatives

This tool can be used as monitoring tool and progress of the implementation status can be compared.

TSUMUGI@

- Information
- Issuance of the account for local municipality
- Issuance of the account for department
- Question distribution
- **Framework Check**
- Action-phase Check
- Results
- Setting of basic information

1. Understanding SDGs ❯ **2. Arrangement of the implementation structure** ❯ 3. Implementation of action plans and setting of targets ❯ 4. Proceeding of plans/projects/ actions ❯ 5. Follow-up Implementation

2.1 Leadership of the leader and Governance

F2-1: Does your local government promote SDGs initiatives by declarations on SDGs under the leadership of the mayor?

○ Working on well ○ Working on but need to improve ○ In the planning ○ Under consideration ○ No plans to implement

F2-2: Does your local government have been building a collaborative relation with the Congress to promote SDGs?

○ Working on well ○ Working on but need to improve ○ In the planning ○ Under consideration ○ No plans to implement

F2-3: Do the mayor and managers of the relevant departments share necessary information on SDGs, and decide the policy of each department for SDGs action?

○ Working on well ○ Working on but need to improve ○ In the planning ○ Under consideration ○ No plans to implement

F2-4: Is information on the SDGs shared among multiple departments within the local municipality?

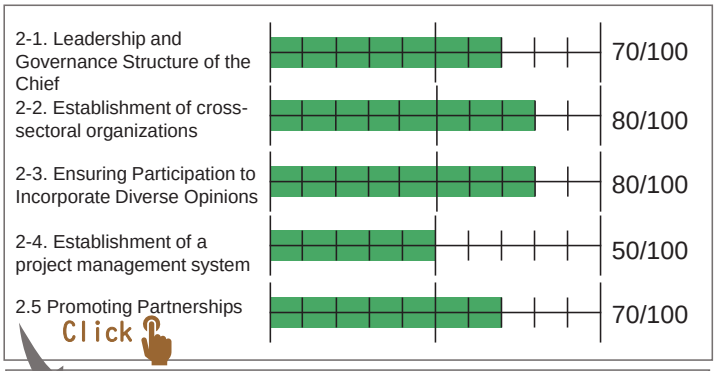
○ Working on well ○ Working on but need to improve ○ In the planning ○ Under consideration ○ No plans to implement

4/8

Back | Save (temporal) | Next

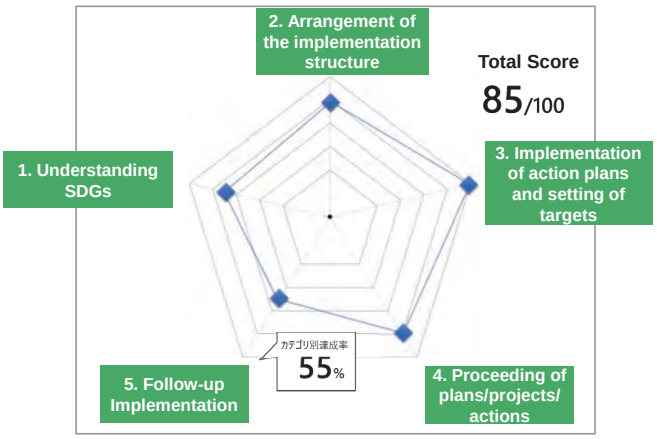
Chancel | Completion

Results of the Assessment – Framework Check



Questions	Score
Has a mechanism been established in which a diverse range of stakeholders, such as residents and local companies, participate in the process of formulating top-level plans for local governments and plans related to SDGs?	5/10
Does your local government have a system in place that enables cooperation with the divisions in charge to promote SDGs?	8/20

Framework Check: Full score of 100



- Scoring in each question to calculate the total score (out of 100 points).

TSUMUGI@

- Information
- Issuance of the account for local municipality
- Issuance of the account for department
- Question distribution
- Framework Check
- Action-phase Check
- Results
- Setting of basic information

Department of Environment

Please answer the following questions.

A13-5: Has your municipality published a policy for climate change action and decarbonization, and are you working accordingly?

○ Working on well ○ Working on but need to improve ○ In the planning ○ Under consideration ○ No plans to implement

A13-7: Are your municipality planning, implementing, and monitoring specific measures to mitigate global warming in order to achieve a decarbonized society?

○ Working on well ○ Working on but need to improve ○ In the planning ○ Under consideration ○ No plans to implement

A13-9: Are your municipality effectively working to deliver correct knowledge about climate change mitigation and adaptation measures to residents and local businesses?

○ Working on well ○ Working on but need to improve ○ In the planning ○ Under consideration ○ No plans to implement

F17-2: To promote the SDGs, are you actively working to build partnerships with the private sector to solve social issues??

○ Working on well ○ Working on but need to improve ○ In the planning ○ Under consideration ○ No plans to implement

4/8

Back | Save (temporal) | Next

Chancel | Completion

Results of the Assessment – Action phase Check

[Scores by each Department/Section]

※If you click Goal 13

CC Department/DD Section

With specific measures for climate change
～Take emergency measures to mitigate climate change and its impacts-

13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

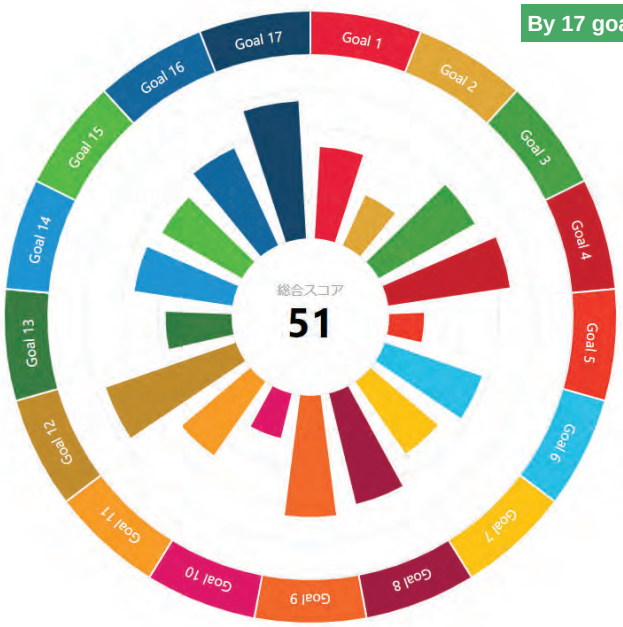
Questions	Score	Related goals
Q13-1: Do implement, and monitor specific measures to mitigate global warming, considering regional characteristics, in order to realize a carbon-free society?	5/5	

13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

Questions	Score	Related goals
Q13-2: Are you working to strengthen collaboration with universities, research institutes, and businesses in order to realize a low-carbon society and create a low-carbon community?	2/5	

Total Goal 13 Scores
7/10

Results of the Assessment – Action phase Check



By 17 goals

Action-phase Check: Full score of 100

51/100

1	50%	7	48%	13	36%
2	30%	8	62%	14	54%
3	60%	9	66%	15	50%
4	67%	10	25%	16	58%
5	19%	11	49%	17	75%
6	56%	12	75%		

- Scoring in each question to calculate the total score (out of 100 points).
- Display in a single bar for each goal

Results of the Assessment – Action phase Check

[Scores by Goal]

Take urgent action to combat climate change and its impacts.

The problem of climate change is becoming more serious every year, and its effects are already manifesting themselves in many forms. In addition to conventional mitigation measures such as reducing greenhouse gas emissions, each municipality is required to consider and formulate adaptation measures to prepare for climate change.

Related goals

Look at the link map for initiatives

Goal 13 achievement rate

	Initiatives and Businesses Contributing to Goal 11	Section in charge	Related Goal	Score Basic	Score Challenge
Details	Realization of optimal intra-regional energy management	Industry Division		10/10	
Details	Establishment of a stable supply system for renewable energy	Urban Planning Division			5/10
Details	Strengthen local disaster response capacity and functional maintenance	Environment Division		3/10	

Results of the Assessment – Monitoring the Score

Assessment Point 1: First Half FY2022

Assessment Point 2: Second Half FY2022

View

	SDGs Goal	First Harf	Second Harf	Trend
	No Poverty	75%	75%	→
	Zero Hunger	70%	70%	→
	Good Health and Well-Being	75%	75%	→
	Quality Education	60%	73%	↗
	Gender Equality	72%	50%	↘
	Clean Water and Sanitation	53%	63%	↗
	Affordable and Clean Energy	40%	48%	↗
	Decent Work and Economic Growth	56%	65%	↗
	Industry, Innovation and Infrastructure	39%	52%	↗
	Reduced Inequalities	59%	63%	↗
	Sustainable Cities and Communities	66%	74%	↗
	Responsible Consumption and Production	45%	59%	↗
	Climate Action	35%	52%	↗
	Life Below Water	50%	75%	↗
	Life On Land	80%	77%	↘
	Peace, Justice and Strong Institutions	69%	69%	→
	Partnerships for the Goals	28%	66%	↗

TSUMUGI@
from your city to the world

Online assessment tool of SDGs initiatives for local governments
- Supporting to accelerate their efforts to achieve the SDGs

Values Provided by TSUMUGI@

01	Internal evaluation and regular progress management of municipal activities related to the SDGs
02	Sharing of current status and issues related to the promotion of SDGs in local municipalities.
03	Creating awareness of the SDGs within the municipalities.
04	Materials to explain the status of the municipality's SDG efforts externally to the community, council, etc.

KIBOH 2030
Sustainability Business Navigation

The private sector also has a need to promote SDGs/ESG(“Environment” ”Social” ”Governance”).

Person in charge of corporate ESG management

I want to promote the disclosure of information related to sustainability and ESG.

I want to know the status of sustainability initiatives of suppliers and business partners.

Person in charge of corporate ESG management

Person in charge of corporate ESG management

I want to avoid SDGs wash and make substantial efforts.

In order to solve these issues, we have developed a system that visualizes the status of sustainability and ESG initiatives of individual companies.

KIBOH 2030
Sustainability Business Navigation

Features of KIBOH2030

KIBOH2030

KIBOH2030 is a tool that visualizes the status of SDGs/ESG initiatives and potential business opportunities of individual companies by answering about 50 multiple-choice questions on the web.

▼Easy operation and quick diagnosis

In "KIBOH2030", you can answer about 50 questions set up on the website and check the results immediately.

▼Reliable Evaluation Criteria

The questions are designed based on interviews with Japanese local governments and regional financial institutions.

Q1 Do your company's businesses, products, and services provide technologies and solutions that contribute to the reduction of greenhouse gases?

○Yes, we do.
○Research and development is underway.
◎Discussions are underway to provide them.
○No, we are not discussing to provide them.
○There is no way to work on it from the viewpoint.

Q 2 Do you have a plan to reduce electricity consumption from a medium- to long-term perspective?

○Yes, we have a reduction plan and are working on it.
◎We are working on it.
○We are considering formulating a plan.
○No, we do not plan to formulate a plan.

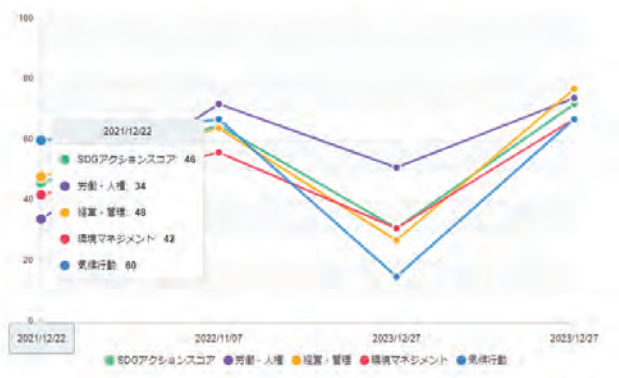
Operation of KIBOH2030

KIBOH 2030
Sustainability Business Navigation

Supporting to accelerate companies efforts to achieve the SDGs

Assessing SDG goals with high business potential

SDG Action Scores by Category



Monitoring of ESG initiatives chronologically

NIPPON KOEI

Values Provided by KIBOH 2030

KIBOH 2030 aims to solve the problems faced by companies and provide opportunities for new business creation

01 From the perspective of sustainability, you can check the status of sustainability initiatives of your company, your business partners, and your suppliers, and you can use it to manage environmental, social, and human rights risks.

02 You can grasp which SDGs targets your company's existing businesses are contributing to.

03 This system visualizes scores, which can be used to create business opportunities.

現地ワークショップ資料

8. Space Shift 発表資料（英）

Company Overview

Company Name	|	Space Shift Inc.
CEO	|	Naruo Kanemoto
Capital	|	¥618 million (including capital reserve)
Established	|	December 11, 2009
Location	|	6th Floor, Otemachi Building, 1-6-1 Otemachi, Chiyoda Ward, Tokyo, Japan
Other Locations	|	Yonago(Tottori Prefecture), USA, Europe (in preparation)
Website	|	https://www.spcsft.com/
Business Acitivities	|	Development of Earth observation satellite data analysis software Various surveys and consulting services related to space business
Number of Employees	|	Total: 25 (4 executives, 15 employees, 6 part-time) Interns: Approximately 50

Mission/ Vision

SpaceShift's Developed Technologies

SPACE SHIFT

Public Space Agencies such as JAXA/NASA

Private Space Transport

Private Satellite Development

SPACE SHIFT

Cloud Services

Public Services

Private Companies

Public Agencies

By **focusing on software development** for satellite data processing, we achieve high-precision analysis

Developing AI analysis technology for SAR satellite data, which is considered difficult to analyze, to extract and provide a wealth of information

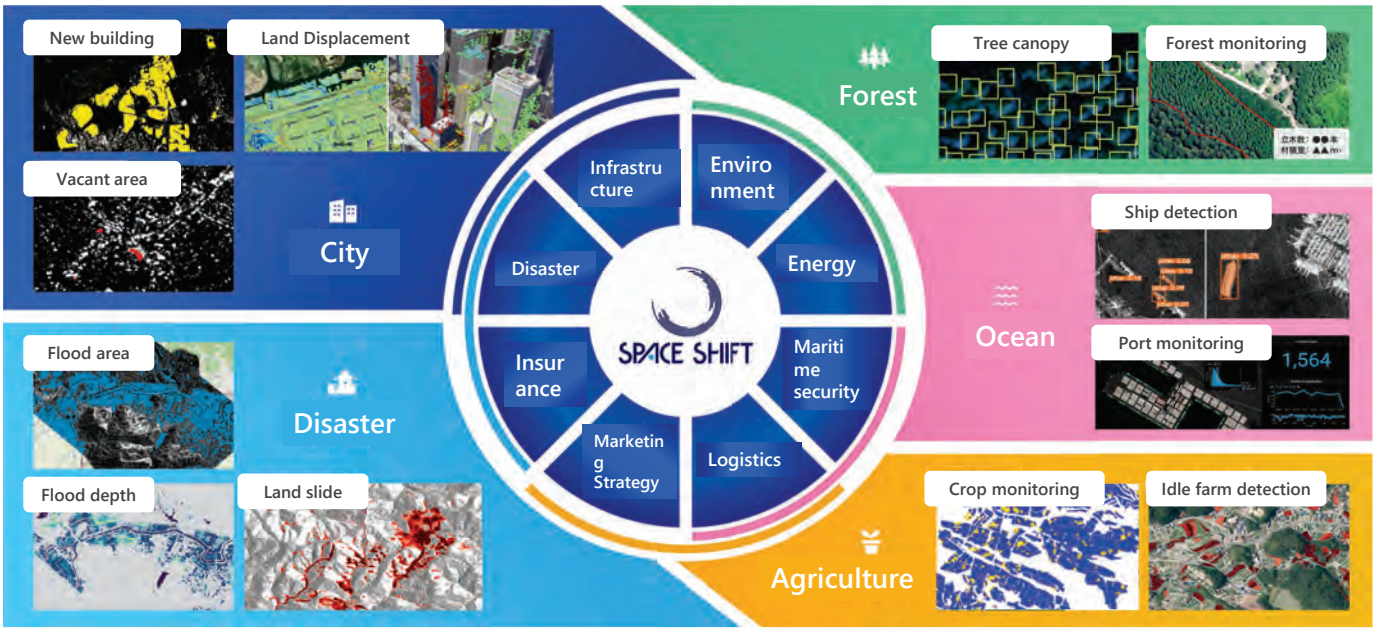
※ SAR： Synthetic Aperture Rader

By creating an environment where satellite data can be used efficiently, we lead the expansion of the satellite data utilization market.

Space Shift's Technologies

SPACE SHIFT

Contributing to various industry domains through satellite data analysis.



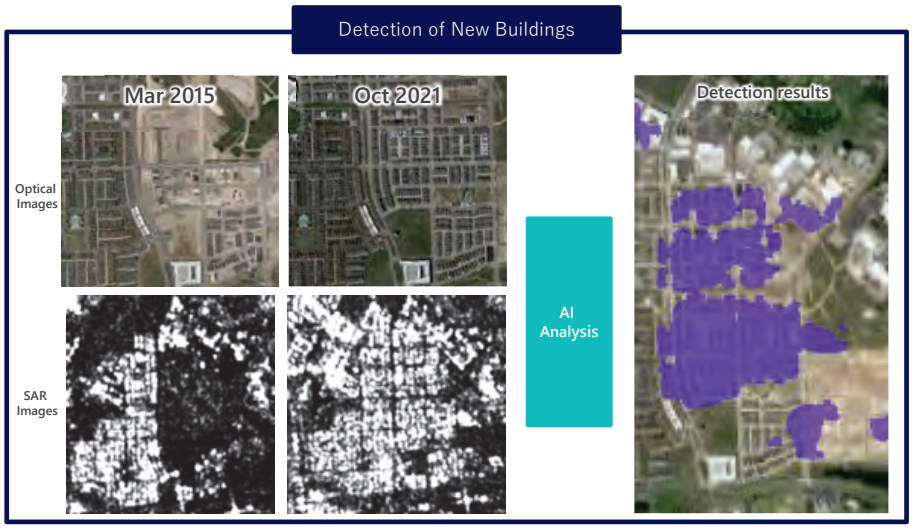
In-house Technology

SPACE SHIFT

Urban Trend Analysis Enabled by Satellite × AI

AI determines changes in buildings to understand urban development conditions.

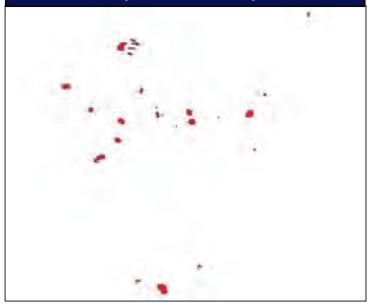
>>> Used for investor decision-making / data updating by map companies.



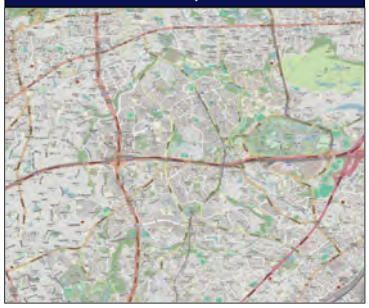
Use Case: Support for updating map data

Our building detection AI can be used to understand the development status of large areas, such as all of Japan. A Japanese mapping company uses this AI to update map data more efficiently.

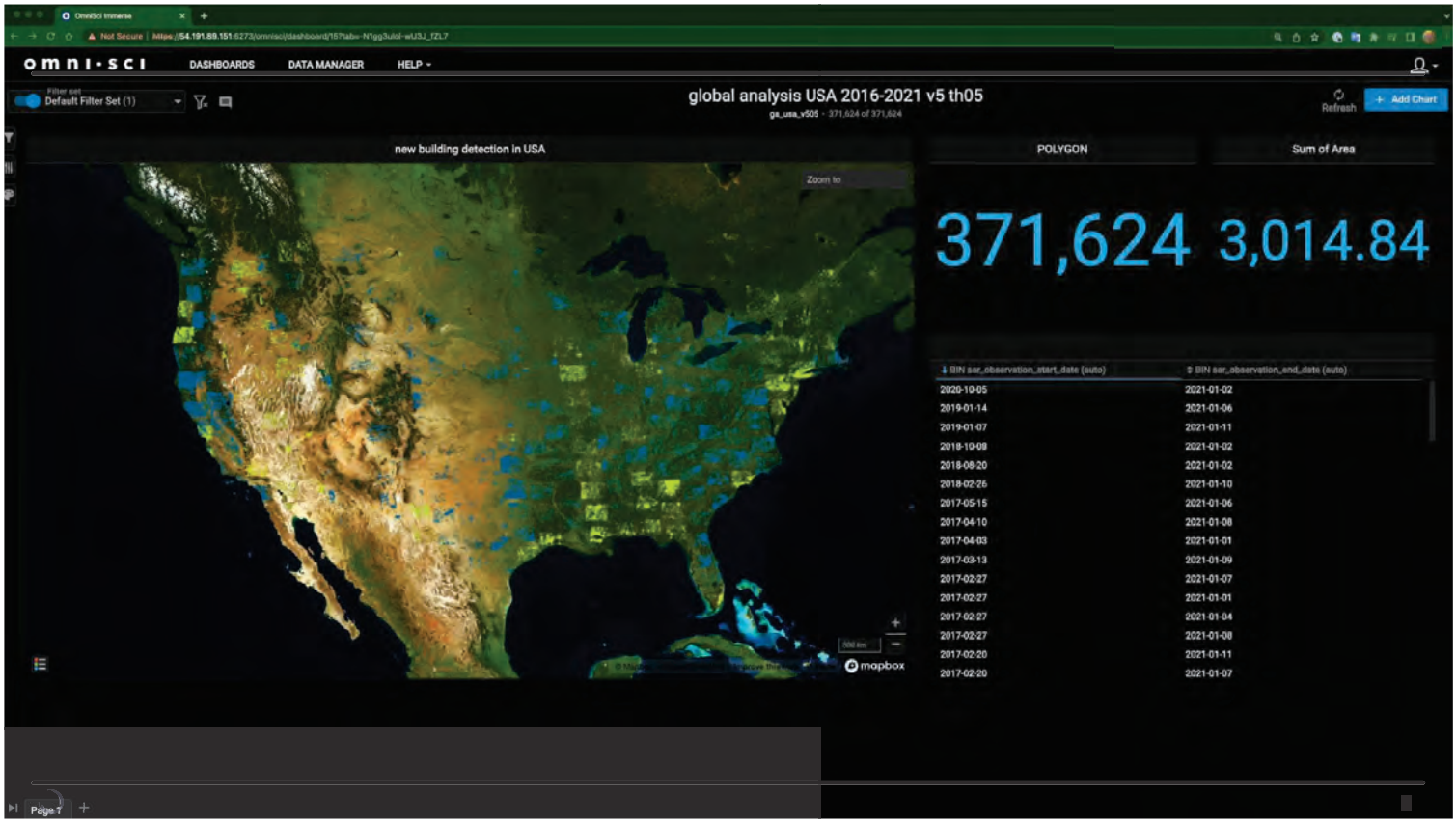
Analytics Result by AI



Map



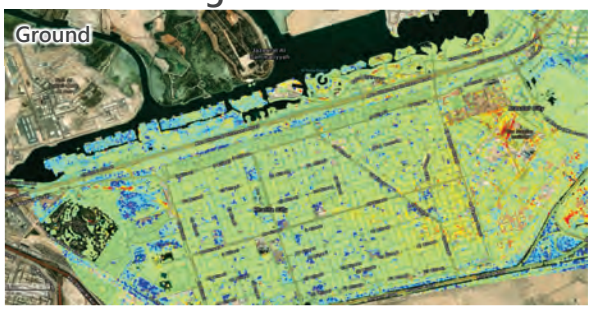
Visualization of new buildings/ vacant lots areas (e.g. from March 2023 to April 2024)

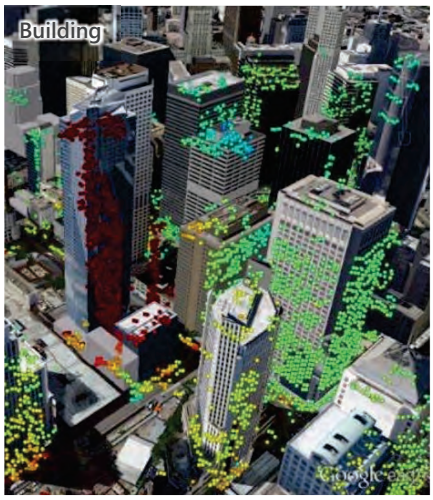


TRE ALTAMIRA ： SqueeSAR™ Displacement Analysis

World-leading displacement analysis technology using InSAR

>>>Utilized for extensive and long-term monitoring of municipal and corporate facilities and ground



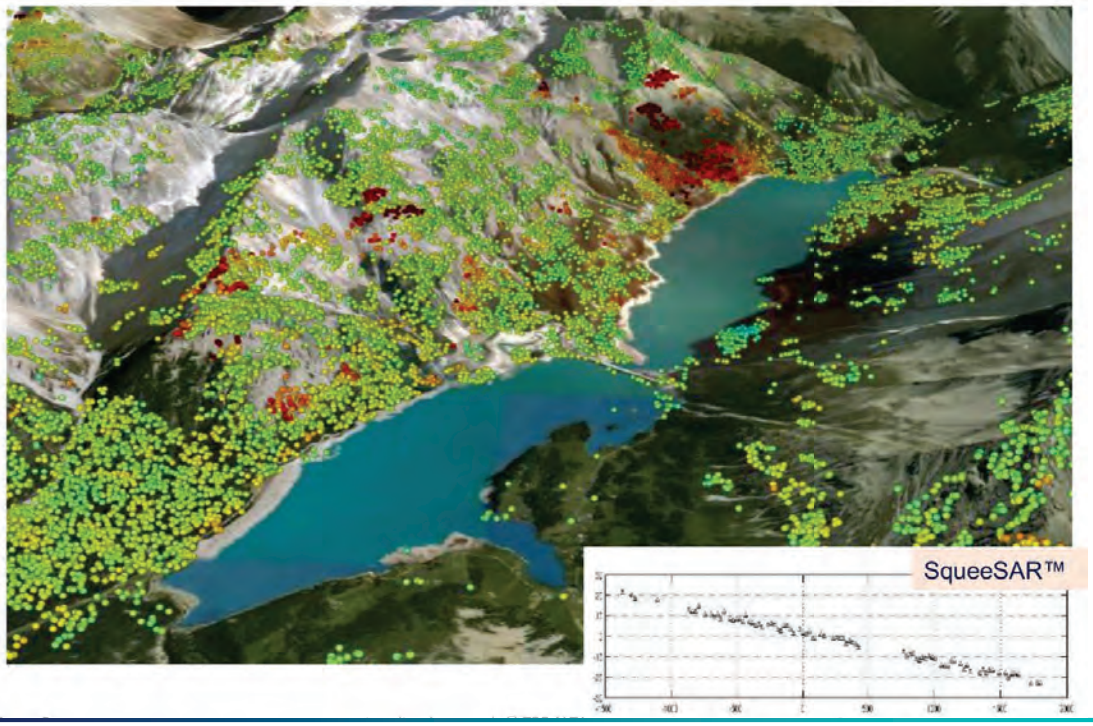


Advantages of displacement analysis using SAR satellite

1. Possible to observe time-series information going back to the past
2. No need to visit the site for observation
3. No need to prepare GPS receivers or survey points on the ground surface

Use case: Construction monitoring/ Facility monitoring

Use case : Disaster management/ Assessment of landslide risk



Use case: Assessment of risk on water leakage (1)

By utilizing satellite data for ground displacement analysis and combining it with on-ground data, we visualize leak risks in facilities and urban areas.

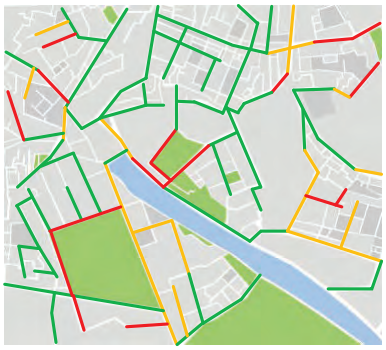
Ground data

- Geographic information of water pipes, repair history
- Traffic information such as roads
- Information on past landslide disasters, etc.

Satellite data analysis

- Ground displacement analysis using SAR satellite data

Leak risk detection



- Determine and visualize leak risk based on analysis results
- Provide information that contributes to operational efficiency and cost reduction

Use case: Assessment of risk on water leakage (2)

Priority Map

Locations of one or more surrounding points exceeding a specified threshold

Extraction of displacement occurrence

Locations where cumulative displacement of 30 mm or more has occurred at three or more surrounding points.

Change of Trend

Locations where subsidence or uplift has occurred over the past three months at two or more surrounding points."

Determining priority locations for construction work

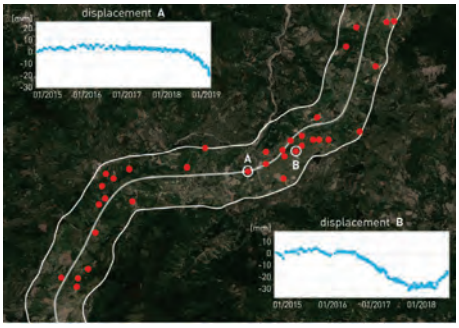
Use case: Pipeline monitoring

Borneo Island (Brunei)

Displacement analysis of satellite data along pipeline areas
Wide-area monitoring utilizing the extensive imaging range of satellite data

Average land displacement

Trend of Land displacement

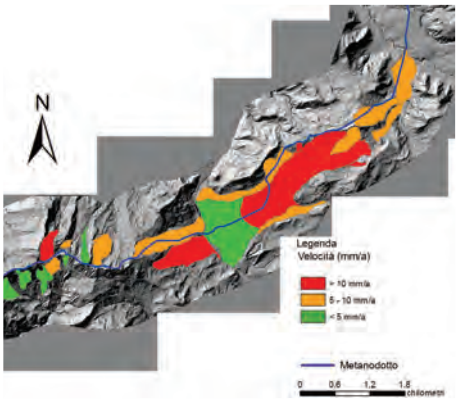


Highlighting only the points with significant changes among thousands of measurement points.

Italy

Combination with aerial photographs and high-resolution terrain models

Detection of landslide areas



In-house Technology

Disaster Monitoring Enabled by Satellite × AI

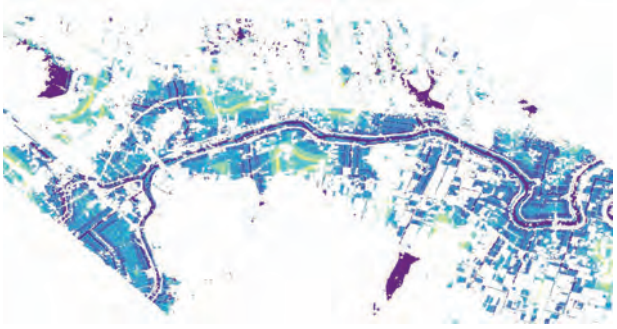
After a disaster, AI quickly estimates "flooding" and "landslides" to provide real-time information.

>>> Used for understanding the extent of damage by municipalities / damage estimation by insurance companies.

Flooding

AI determines flooding based on past flood data.

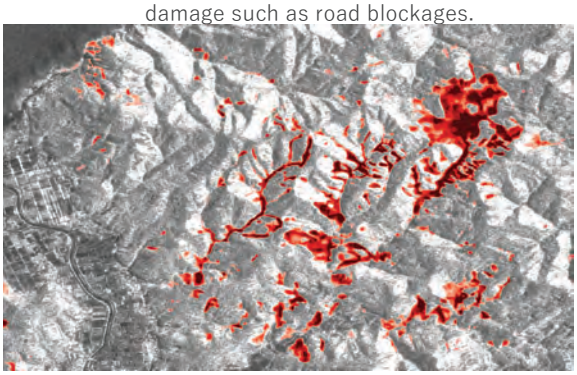
Combines ground data for enhanced accuracy.



The extent and depth of flooding detected by AI

Landslides

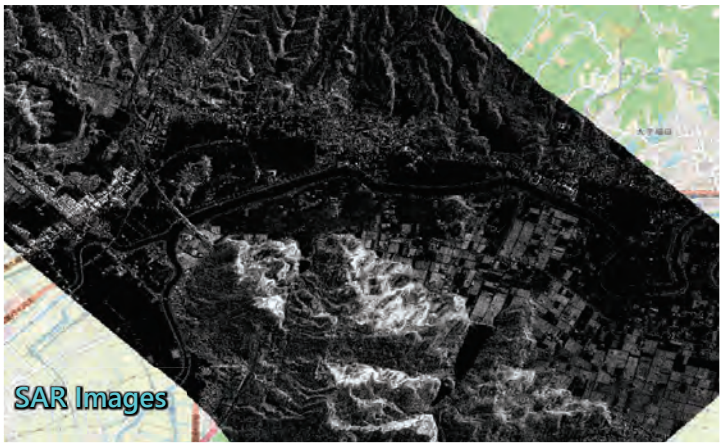
AI estimates landslide locations and assesses damage such as road blockages.

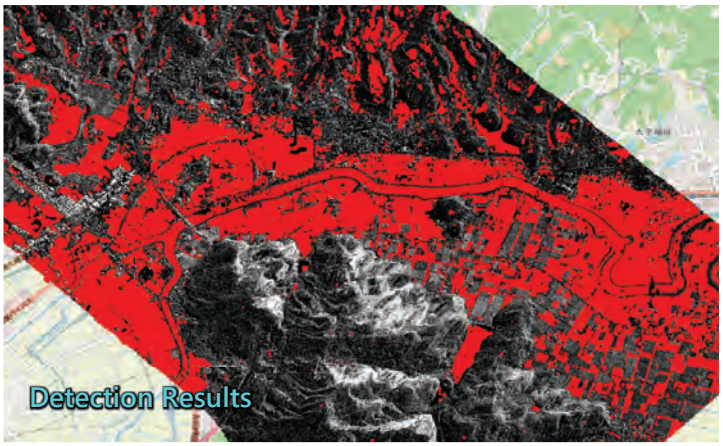


The landslide locations detected by AI

Flood Area Detection

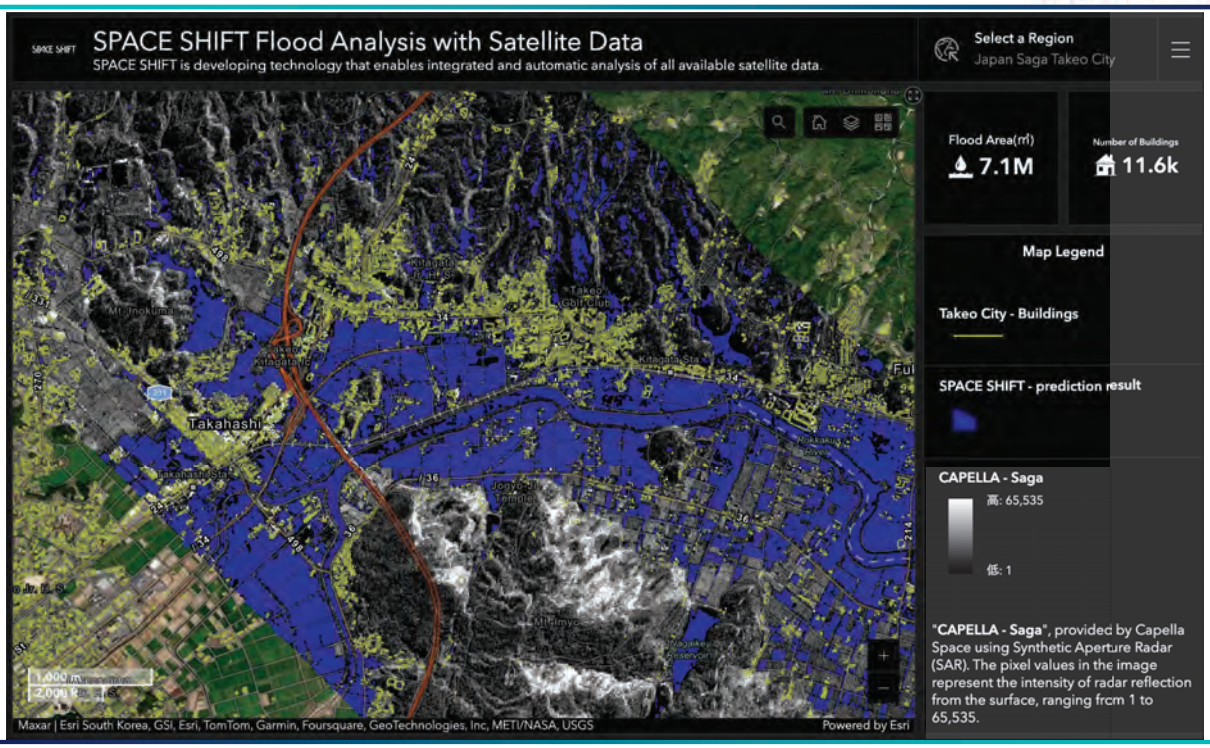
When water disasters such as typhoons caused by abnormal weather occur, we utilize satellite data to automatically analyze the extent and depth of flooding using AI.





Aerial photos make it difficult to distinguish between muddy water in farmland and flooded areas on roads and railways during floods. However, **SAR images can identify flooded areas based on the reflection intensity from the ground surface**. In addition to satellite data, we also analyze images and location information from social media posts to gain a more detailed understanding of flooding at specific locations, **supplementing satellite data analysis with insights from social media data.**

Image of our output: Flood Area Detection



In-house Technology

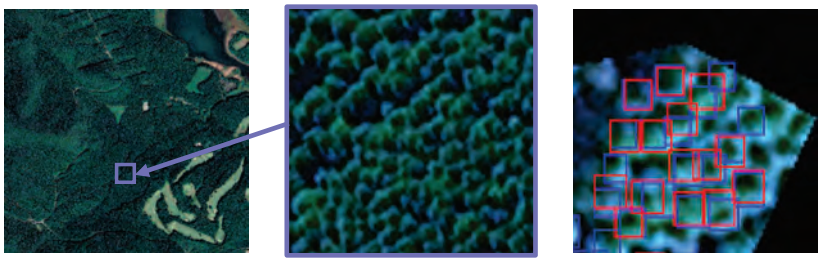
Forest Monitoring by Satellite × AI

Automatic detection of forest canopy, tree height, tree species, etc., for extensive and continuous monitoring

>>>Utilized by companies and municipalities for lumber volume surveys and estimation of CO2 absorption

Tree Canopy Detection

Automatic detection of tree canopy by analyzing optical satellite images with AI



Applying algorithms for object detection

↓

Predicts the rectangle surrounding the canopy ellipse and calculates the volume of timber volume for the entire forest

Tree species & height

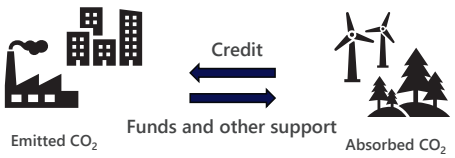
Expanding tree canopy detection further to detect tree height and species

↓

Estimated overall forest CO2

↓

Utilize carbon offsets and other measures to combat global warming



Satellite Data Business Co-Creation Program “SateLab”

SateLab Partner Companies (as of the end of Oct 2024)

i Cubed Systems
NTT PC COMMUNICATIONS
ORIENTAL CONSULTANTS
Global Consulting for Sustainable Development
ORIX
Kisojiban
KYODO NEWS
San-in Sanso
GeoTechnologies
STANDAGE
TAKENAKA
DeepForest
dentsu
tokyo/osaka/nagoya
Nakamori
HALEX
HAPPY LIFE EXPERT
Vesta Inc.
Predictive Analytics
MS&AD
Mitsui Sumitomo Insurance
U3 Innovations