

At the reclaimed land of Kasaoka Bay, Okayama Prefecture
**World-leading vegetable horticulture business
with biomass power cogeneration**



SARA

Smart Agribusiness Research & Alliance

Abundant solar radiation by "Okayama of the Sunny Country"

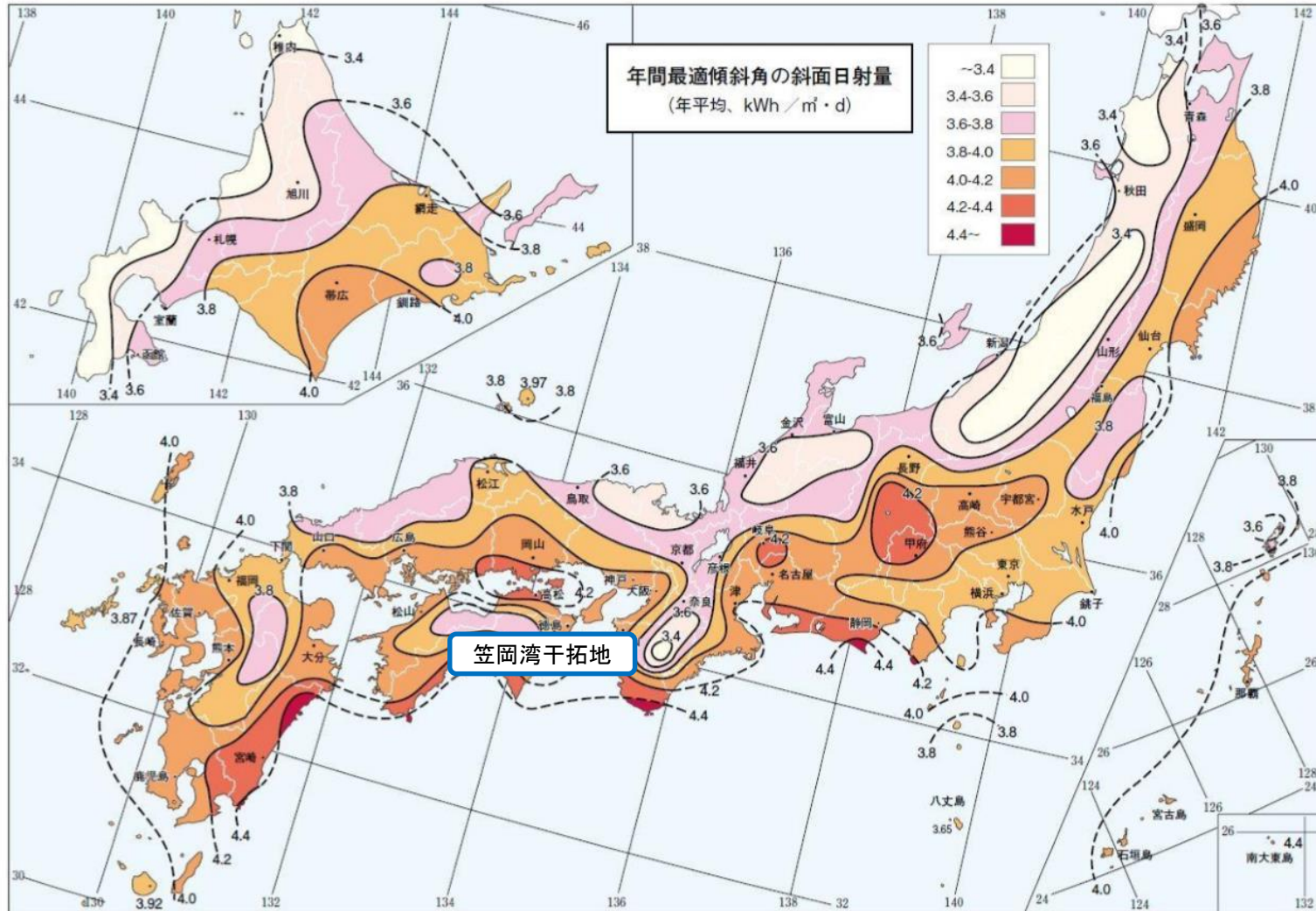


図7 年間最適傾斜角の斜面日射量。数値の単位はキロワット時/平方メートル・日。出典：NEDO

Kasaoka, Okayama and Hokuto, Yamanashi are best climate location for horticulture business in Japan

Smart horticulture complex utilizing biomass energy



Reclaimed Land, Kasaoka Bay

Project cost : 30 billion yen

Construction : 1966-1990

Reclaimed area 1,191ha

SARA first project

Greenhouse area : 20ha

Possible expansion

Related infrastructure

Agricultural Water : 90,000 m³/day

Industrial Water : 50,000 m³/day

Grid connection : 22, 000V

Access to vegetable shipping

Sanyo express way

National road Route 2 Bypass

Port of New-Kasaoka

【 Climate 】

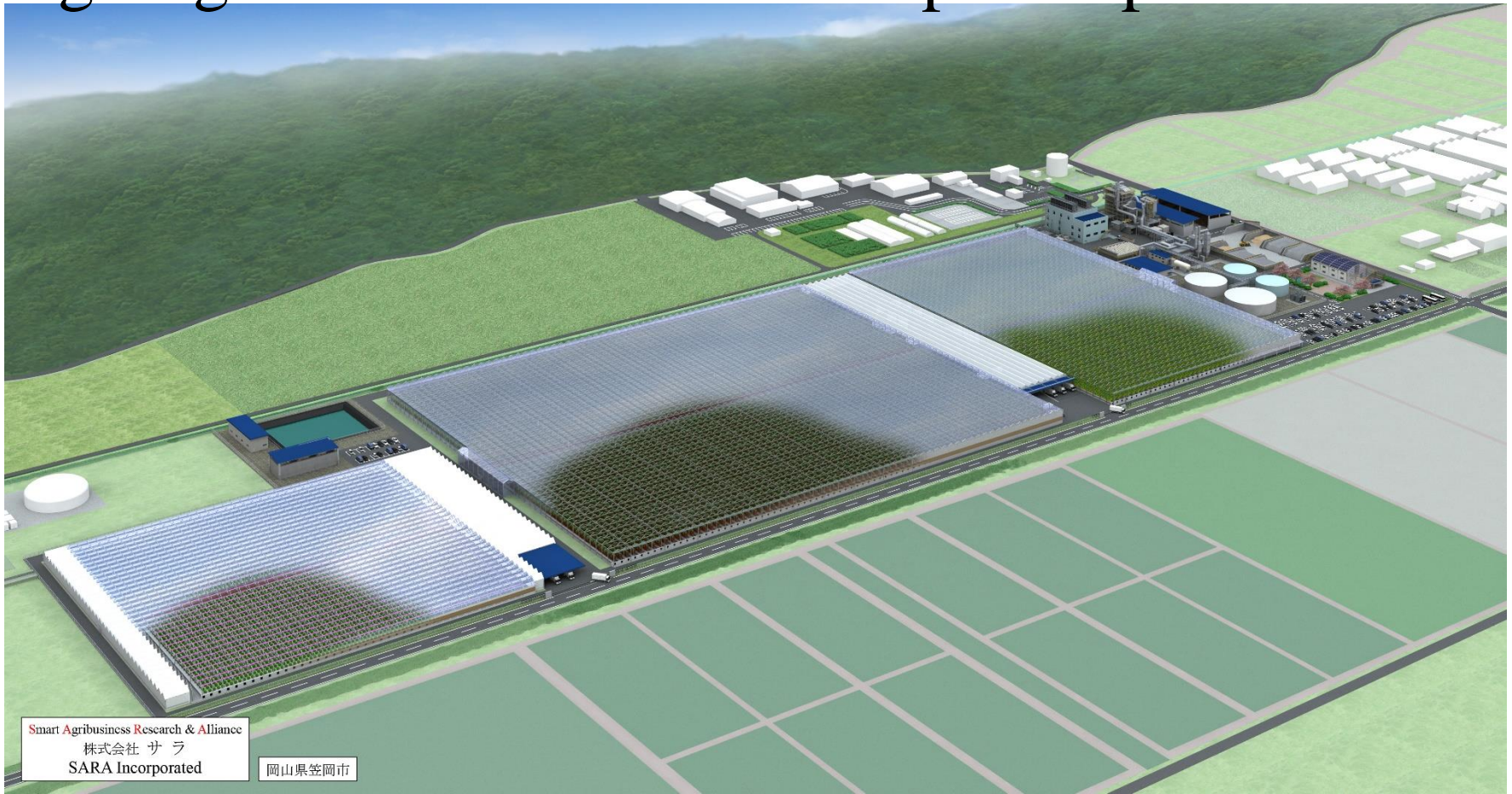
Annual average temperature 15 °C

Annual precipitation 1, 100mm

Daylight hours 2,100 hours or more

Maximum average wind speed 6m/s

Largest greenhouse and biomass power plant in Asia



Smart Agribusiness Research & Alliance
株式会社 サラ
SARA Incorporated

岡山県笠岡市

Semi-closed glass house (13.0 ha)

Lettuce 2.5 ha (165mx151mx8m)

Tomato 6.0 ha (265mx225mx8m)

Paprika 3.4 ha (151mx225mx8m)

Shipping 1.0 ha (0.68 ha + 0.27 ha)

Biomass power generation (10MW)

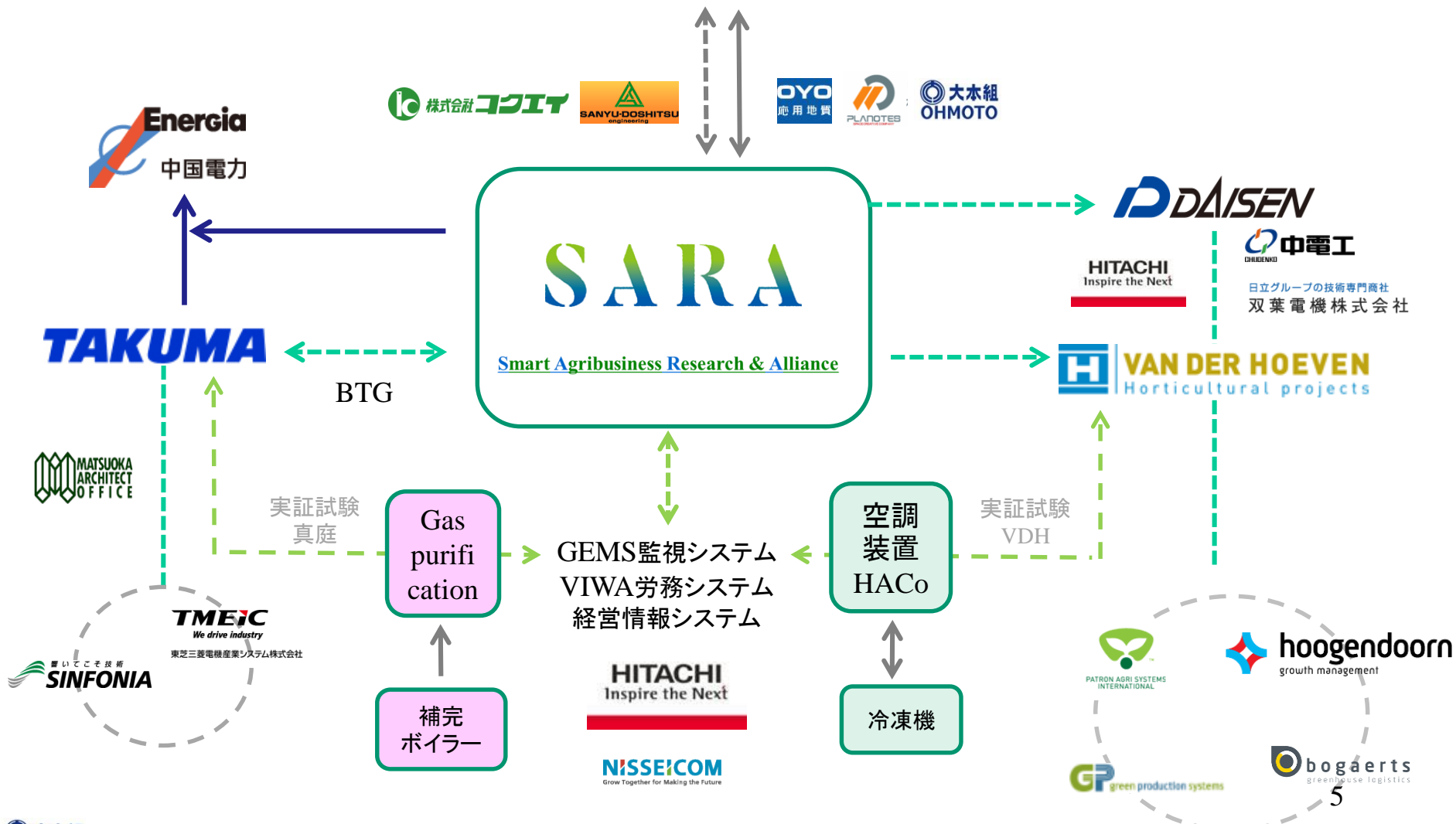
Fuel consumption 80,000 ton /year

Power generation: 80 million kwh/year

Gas purification 14, 000N m³/hour

Air-Conditioning tank 6,700 m³ total⁴

Key international & domestic partners build SARA



Difficult to build on soft reclaimed land like Holland

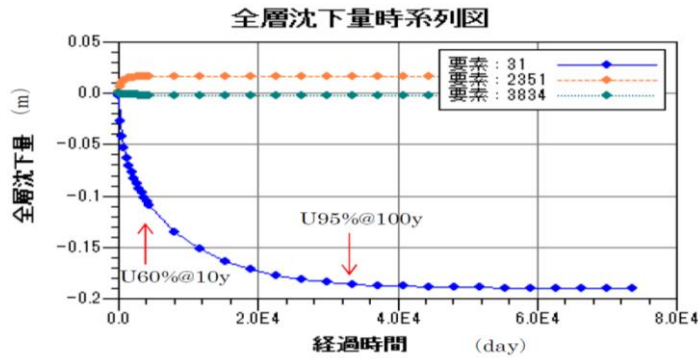
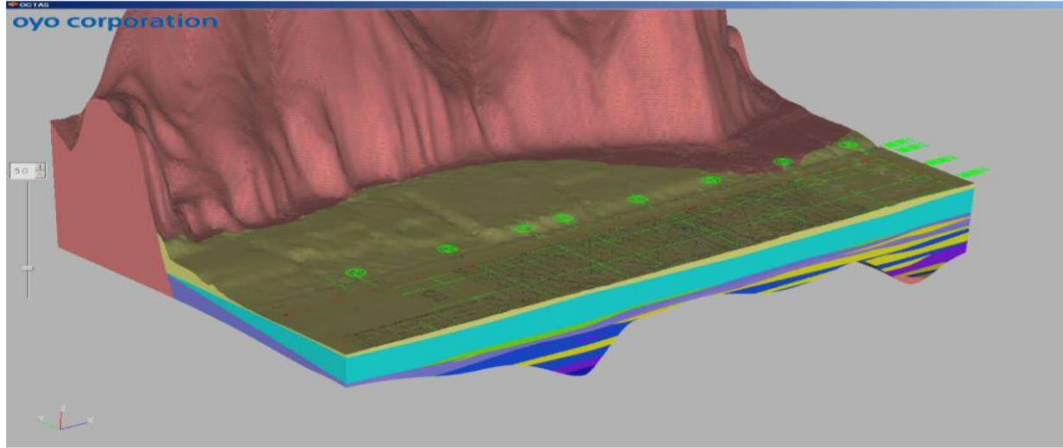


図 7-22 Case01 の代表地点の沈下量の経時変化



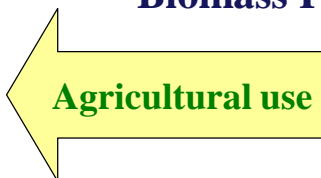
Greenhouse post pile	: 3,200 (12 ~ 25m)
Under ground pipe pits	: 5,000 (2 ~ 4m)
Biomass power plant piles	: 300 (20 ~ 35m)
Cement Piles	: 600 (12 ~ 13m)

A combination of world-leading technologies



FIT

**State-of-the-art
high efficiency
Biomass Power Plant**



11ha semi-closed greenhouse
Complex control of humidity, carbon dioxide,
airflow, fertilizer, etc.
High-yield, low-cost, high-quality vegetables

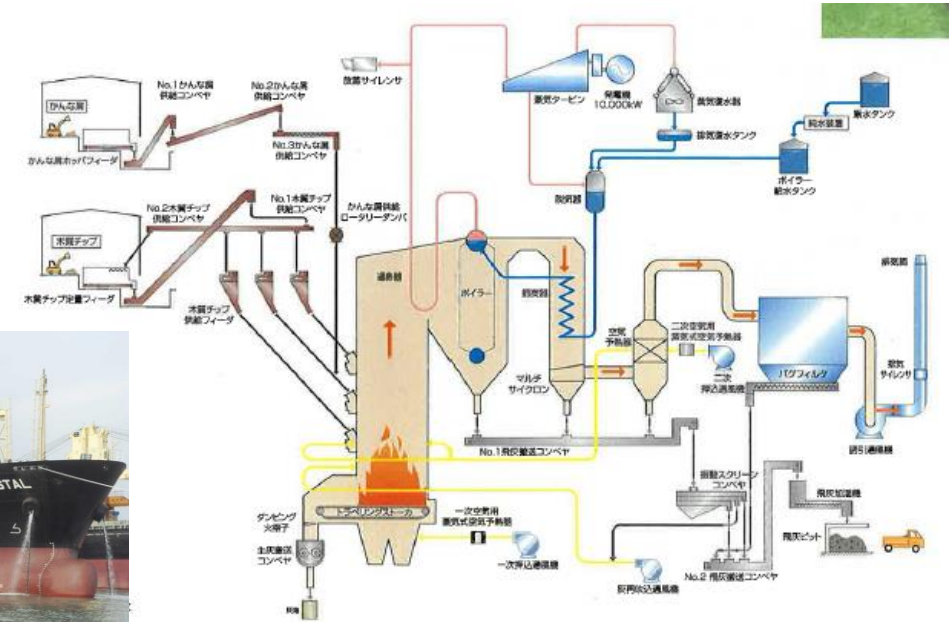
10MW biomass power plant
Supply of heat, cold, carbon
dioxide and electricity
Biomass Tri-generation (BTG)

Stable procurement of biomass power plant fuels

Wood Chip from Vietnam



Domestic wood chip



Palm kernel shells Malaysia and Indonesia

