

The 8th Conference of East Asia Research Association
for Agricultural Heritage Systems (ERAHS)

Promoting Sustainable Community in Minabe Town through “the SDGs Future City” Initiative



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Junko Owada, self-introduction

【Education】

- Miyagi University, Graduate School of Project Design, PhD (Project Design), September 2020
- Gakushuin University, Department of Philosophy, Faculty of Letters, March 1982

【Work Experience】

- Visiting Professor, Japan Biochar Research Center at Ritsumeikan University, (2024-)
- Professor, Doshisha University, Graduate School of Policy and Management, Social innovation course, 2021 - 2024
- Independence, 2006 - 2021
- E-Square Co., Ltd. Marketing Director, 2000 - 2002
- Aeon Forest Co., Ltd. (The Body Shop Japan) Communication Manager, Sales Promotion Manager, 1993 - 2000
- Tokyu Research Institute. Lifestyle Research Department. Researcher, Japan, 1998 - 1992
- Tokyu Department Store Co., Ltd. Sales Planning Department, 1982 - 1988, 1992 - 1993



Video introduction of activities in Osaki City (13 minutes)

<https://www.youtube.com/watch?v=oqxVgZ4OR5A>

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1. Introduction to Ritsumeikan University, Japan Biochar Research Center

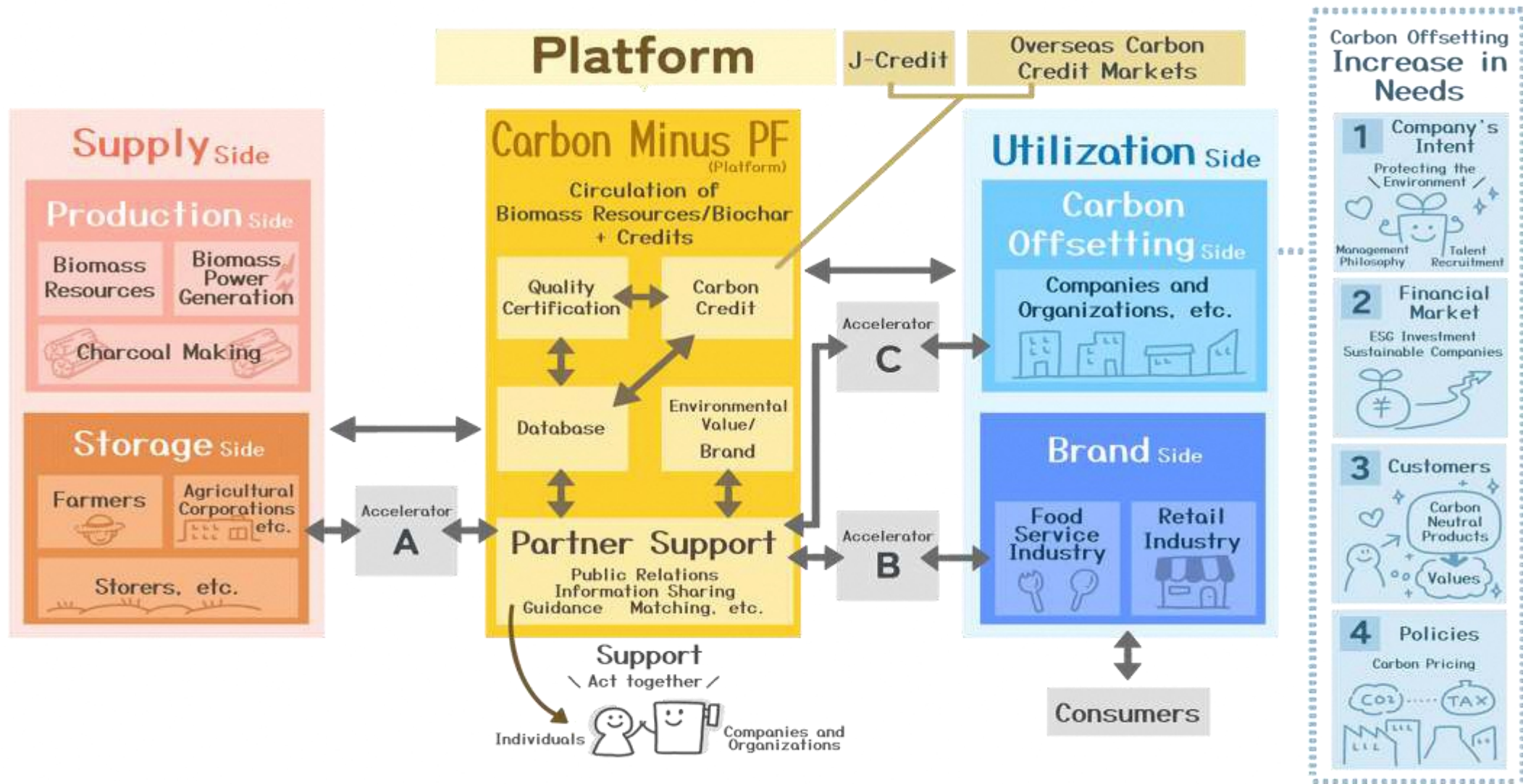
Overview of the Japan Biochar Research Center

Under the Comprehensive Research Institute of Ritsumeikan University OIC, the "Japan Biochar Research Center" was established on November 17, 2022 [* Press Release](#)

◆ Purpose

- Realization of carbon-negative social implementation through the use of biochar to prevent global warming
- Improvement and realization of biochar's environmental conservation functions (carbon storage and soil enhancement).
- Human resource development in related fields.

Diagram for Social Implementation of Biochar



2. GIAHS "Minabe-Tanabe Ume System"



Source: Minabe-Tanabe Regional Association for GIAHS Promotion

Minabe Town (Wakayama prefecture)

【Outline of the town】

- Southwestern part of the Kii Peninsula
- Plum cultivation since the Edo period
- The birthplace of Nankou plum (Ume)
- The largest plum production in Japan. 30% of the national population
- In mountainous areas, “Kishu Binchotan coal” is produced
- There is a "Ume-section" at the town hall. The only one in Japan
- Population: 11,734, aging rate: 32%
- About 70% of the townspeople are engaged in the plum industry.
- Of the 2,242 core plum farmers, 1,021 (46%) are women.
- Vision of the town "A comfortable town where people shine in the blessings of the sea, mountains and rivers"



Nankou Ume



Umeboshi



June 6,
Ume Day

Healthy Food “Ume” Japanese apricot

Ume does not directly develop blood and flesh in a human body, but it makes the body healthy by giving energy to all key parts of the body. Therefore, it is a nutritional food that can be used for health management.

Health functionality of “Ume”

胃がん予防

Prevention of stomach cancer

糖尿病予防

Prevention of diabetes

食中毒予防

Prevention of food poisoning

血液浄化

Purification of the blood



Ume-boshi
(pickled Ume)

高血圧症予防

Prevention of hypertension

骨粗しょう症予防

Prevention of osteoporosis

疲労回復

Recovery from fatigue

インフルエンザ感染予防

Prevention of the
transmission of influenza

3.SDGs Future City (Cabinet Office)

- The "SDGs Future Cities" initiative is implemented by the Cabinet Office since 2018.
- By 2024, 206 cities have been selected.
- It aims to promote sustainable development in municipalities across Japan.
- Cities demonstrating outstanding efforts toward achieving SDGs are selected.



Source:
<https://www.chisou.go.jp/tiiki/kankyo/index.html>

Application process for Minabe Town's "SDGs Future City" designation

<2023> Years of preparation	
May	Create biochar from pruned branches of ume trees with a simple carbonization machine
September	Held a biochar study forum for the townspeople. The lecturers are researchers at the Japan Biochar Research Center of Ritsumeikan University. Approximately 90 townspeople, mainly Ume farmers, participated in the forum. Implementation of participant surveys.
October	"SDGs Future City" training session for town office staff and town council member. Lecturer in charge of the Cabinet Office
November	Voluntary townspeople, mainly Ume farmers established the "Minabe Um Biochar Club"
<2024> Year of application	
February	Study session held by the "Minabe Um Biochar Club"
End of February	Application for "SDGs Future City"
May 21	Selected as an "SDGs Future City" and a "Local Government SDGs Model Project". A budget of about 20 million yen will be granted.
July	Held a training session on "SDGs Future City" for town office staff and town council member. The author serves as a lecturer.

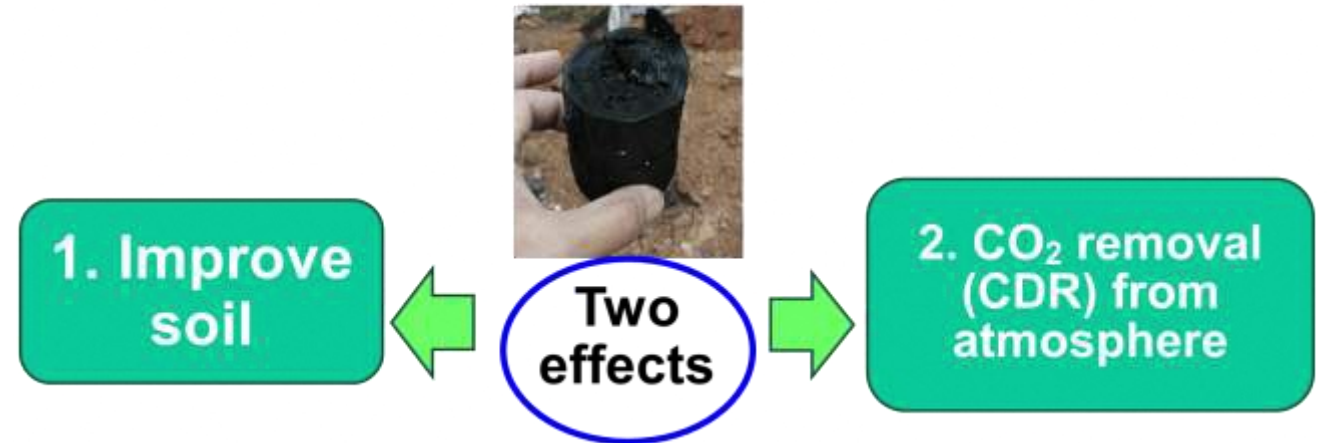
Biochar study forum for ume pruned branches

- A study forum on Biochar of ume pruning branches held (September 15, 2023). 80 people attended.
- A questionnaire was conducted among the town people to clarify the current state of awareness and behavior of the townspeople.



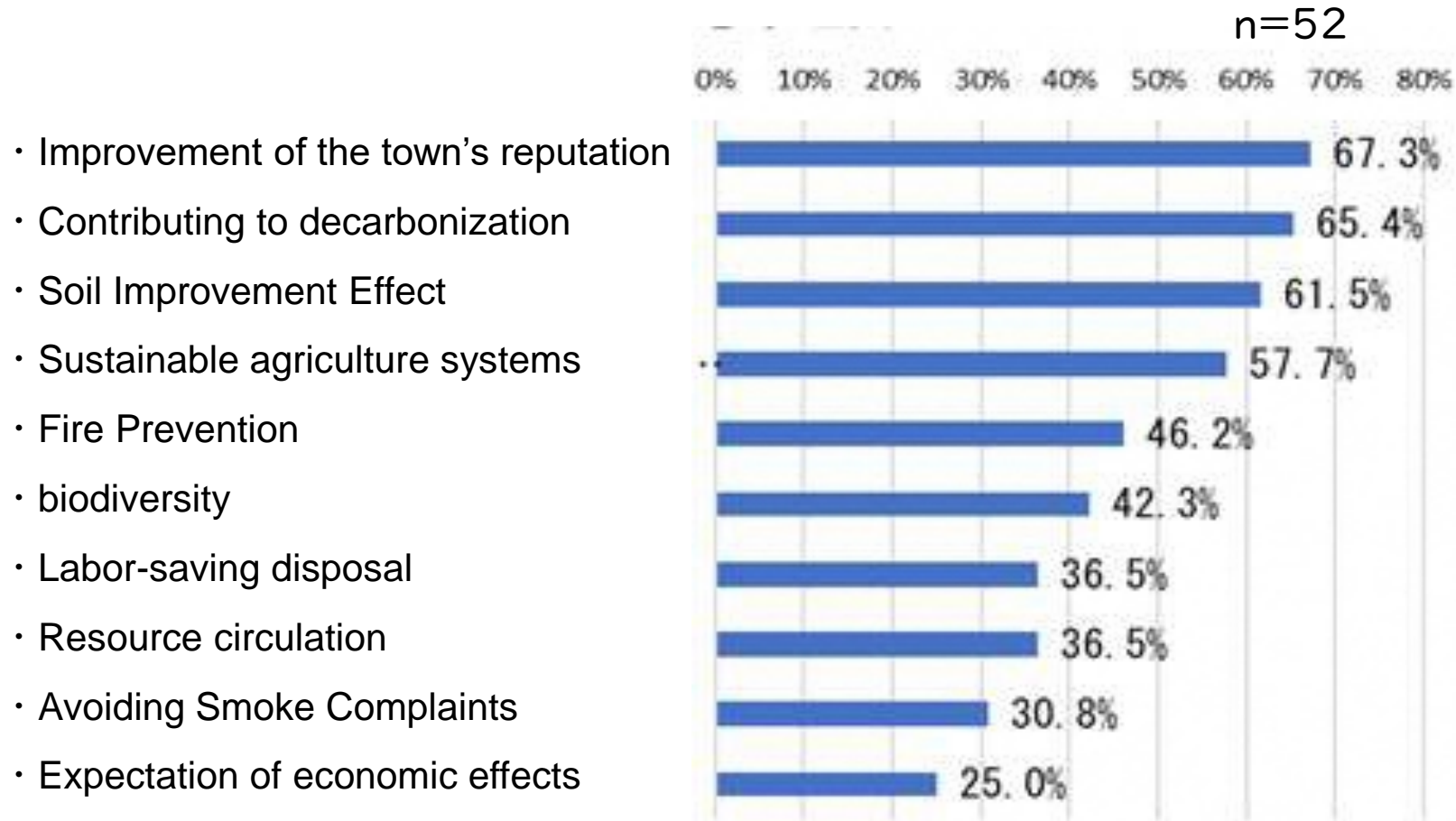
Biochar forum in Minabe Town

“Biochar” is a solid material obtained from the thermochemical conversion of biomass at a temperature exceeding 350°C in oxygen-restricted conditions, which is effective in environmental improvement.



Source: from Dr. Yasuyuki Okimori

Figure: Why you think it would be good to establish a biochar system in Minabe Town (MA)

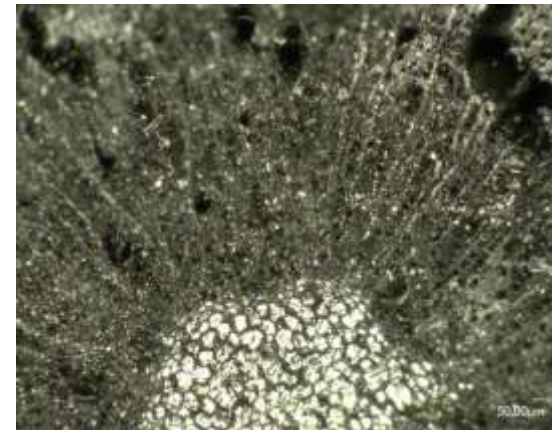


Minabe Town has approximately 649,000 ume trees. Pruned branches are estimated to be about 9,000 tons per year. If the entire amount is converted to biochar, it will be 1,260 tons, and if the entire amount is scattered to ume forests and agricultural fields, the total of 2,500 tons of CO₂ can be captured in biochar.

➔ In FY2023, biochar was produced using a simple carbonization machine, but in FY2024, a Medium-sized carbonization machine will be introduced in Minabe Town to improve the quality of charcoal and the carbonization rate.



Photo : Biochar Study session hosted by the Minabe Ume Biochar Club (February 2024, FY2023)



Cross-sectional photo of charcoal of bio-carbonized ume pruned branches



FY2024: Medium-sized carbonization machine (Source: Takatsuki Biochar Energy Research Institute)

4. Details of Minabe Town's "SDGs Future City" and a municipal SDGs model project



Japan's No. 1 ume village, Promoting the health of people, communities, and the earth through the Minabe ume Learning Commons



Boost immunity with ume

economy

society



Symbol of Minabe Ume and sea landscape



GIAHS



Integrated Approach

- Formation of the Minabe SDGs Platform
- Establishment of "Minabe ume Learning Commons"
- ume pruning branch biochar quantification project
- Development of Minabe well-being indicators

Theme A : Improving the value of ume

- Initiative (1) Further dissemination of ume health benefits and efficacy and strengthening of branding capabilities
- Initiative (2) Strengthening exports of pickled ume and ume wine
- Initiative (3) Promote sales of pruned ume trees by converting them into J-credits using biochar and adding environmental value
- Initiative (4) Promotion of organic farming, work efficiency, and development of the next generation of young farmers and other leaders through smart farming

Theme B : Collaboration between townspeople and cheering groups

- Initiative (1) Increase "attachment to the town" and "love for pickled ume"
- Initiative (2) Promotion of GIAHS learning programs at elementary, junior high, and high schools
- Initiative (3) Corporate CSR and CSV projects utilizing ume and biochar
- Initiative (4) Creation and collaboration of related populations and cheering groups such as "plum worcation"

environment



Theme C : environmentally friendly ume cultivation, biodiversity promotion

- carbon storage by the biochar of pruned branches of ume trees, resource recycling, and improvement of soil biodiversity (soil enhancement)
- Initiative (2) Environmentally-friendly plum cultivation
- Initiative (3) healthy mountain creation for bees



Biochar Study Group

Related people, GIAHS Learning, Corporate CSV



Ume harvesting Workcation

Reduction of CO2 emissions through biochar and environmentally-friendly ume cultivation



Biochar Study session



Medium-sized carbonization machine
(Source: Takatsuki Biochar Energy Research Institute)

environment



Theme : environmentally friendly ume cultivation, biodiversity promotion

Initiative (1) carbon storage by the biochar of pruned branches of ume trees, resource recycling, and improvement of soil biodiversity (soil enhancement)

Initiative (2) Environmentally-friendly plum cultivation

Initiative (3) healthy mountain creation for bees

Reduction of CO2 emissions through biochar and environmentally-friendly ume cultivation

society



Ume harvesting
Workcation



Supplementary reading
book for local elementary
school students



Theme B : Collaboration between townspeople and cheering groups

Initiative (1) Increase "attachment to the town" and "love for pickled ume"

Initiative (2) Promotion of GIAHS learning programs at elementary, junior high and high schools

Initiative (3) Corporate CSR and CSV projects utilizing ume and biochar

Initiative (4) Creation and collaboration of related populations and cheering groups such as "ume worcation"

**Related people, GIAHS Learning,
Corporate CSV**



Ume Cooking Recipe Book



Organic ume

economy



Theme A : Improving the value of ume

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Initiative (3) Promote sales of pruned plum trees by converting them into J-credits using biochar and adding environmental value

Initiative (4) Promotion of organic farming, work efficiency, and development of the next generation of young farmers and other leaders through smart farming

Strengthening the health brand of ume, J-Credits, and environmental value



"Promoting Health for People, Community, and Planet through Minabe Ume Learning Commons," (Local Government SDGs Model Project)



[Initiative 1: Minabe SDGs Platform]

Formation of a stakeholder platform to promote the SDGs. Creation of public awareness tools.

- Formation of the "Minabe SDGs Platform"
- Minabe SDGs Future Design Conference (kick-off event)
- Development of the "Minabe Well-Being Index"



[Initiative 2 "Minabe Plum Learning" "Commons" Regional Co-Creation]

- Realize an organization that learns, Minabe Town
- Implement projects in collaboration with high school students, townspeople, out-of-town experts, and universities and organizations in the Kansai region.

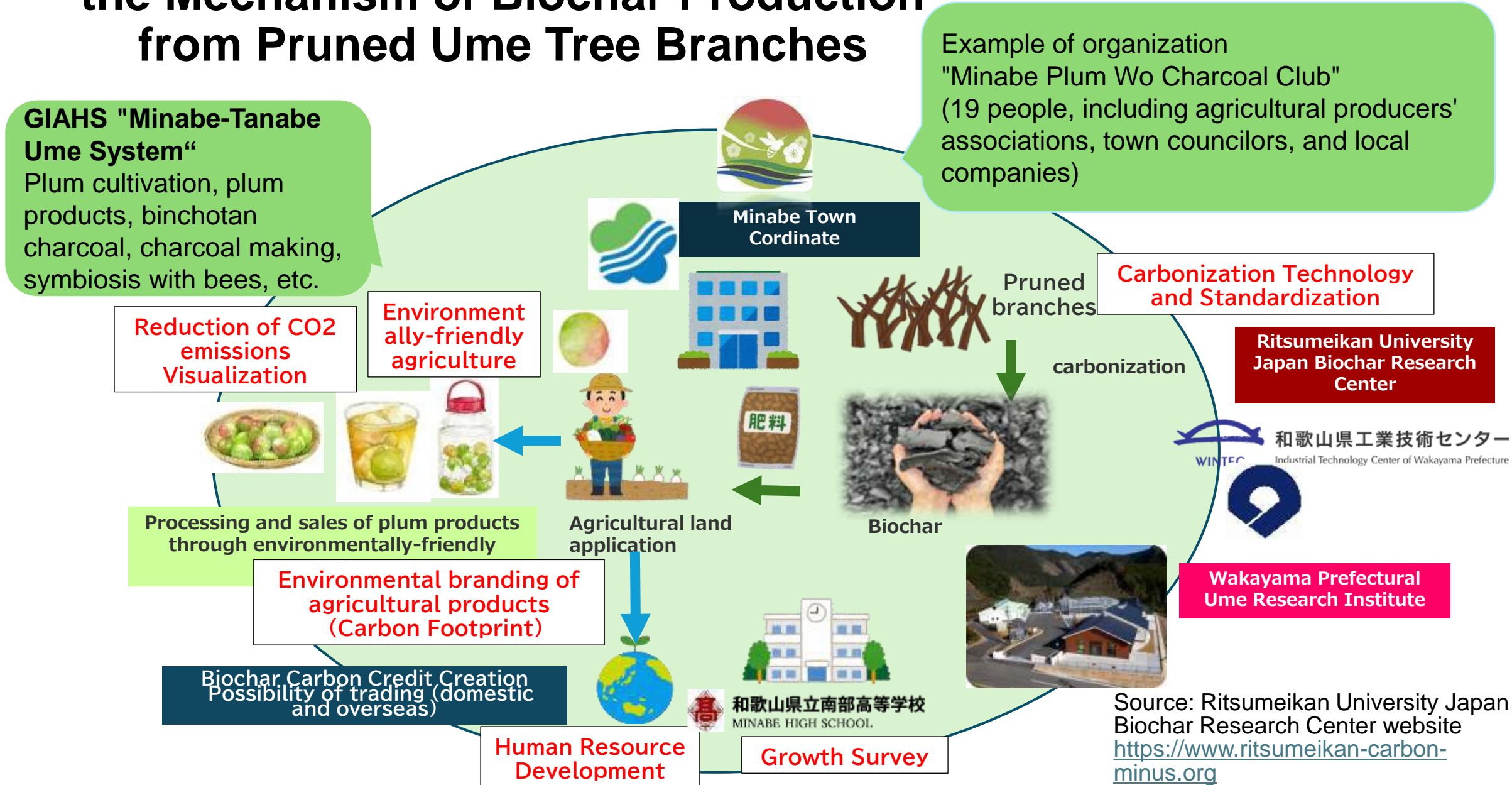


[Initiative 3: Biochar Quantification Project]

- Focusing on biochar, a technology for removing carbon
- Collaboration with Ritsumeikan University Japan Biochar Research Center, Wakayama Prefectural Industrial Technology Center, Ume Research Institute.
- Started creating a mechanism for bio-carbonization of pruned branches of ume trees



Conceptual diagram of the Mechanism of Biochar Production from Pruned Ume Tree Branches





5. Achievements and future challenges

<Achievements>

- We successfully raised awareness among town residents about the biochar production from pruned ume branches. People understood the following three effects of applying biochar to agricultural land: carbon storage (CO2 removal), and soil enhancement (biodiversity conservation) and resource circulation.
- We supported the establishment of a voluntary organization by town residents. (Ume farmer)
- Minabe Town applied for and was certified as an "SDGs Future City." Additionally, it was selected for the "Municipal Model Project" and secured funding.



SDGs Future City Certificate
(2024)

<Challenges and Future Research>

2024: This year, we will focus on the following initiatives:

1. Establishing a system

- Creating a system for the collection of pruned ume branches, biochar production, and scattering of biochar.
- Setting up medium-sized carbonization machine.

2. Calculating J-Credits derived from biochar

3. Conducting a demand survey and exploring sales channels for J-Credits

※ This research is a result of the project funded by the Japan Science and Technology Agency (JST).