UNIVERSITY OF TSUKUBA SUSTEP PROGRAM
FIELD TRIP REPORT

LOCAL SDGS IN JAPAN

LEARNING FROM GOOD PRACTICES IN SELECTED THREE SMALL MUNICIPALITIES

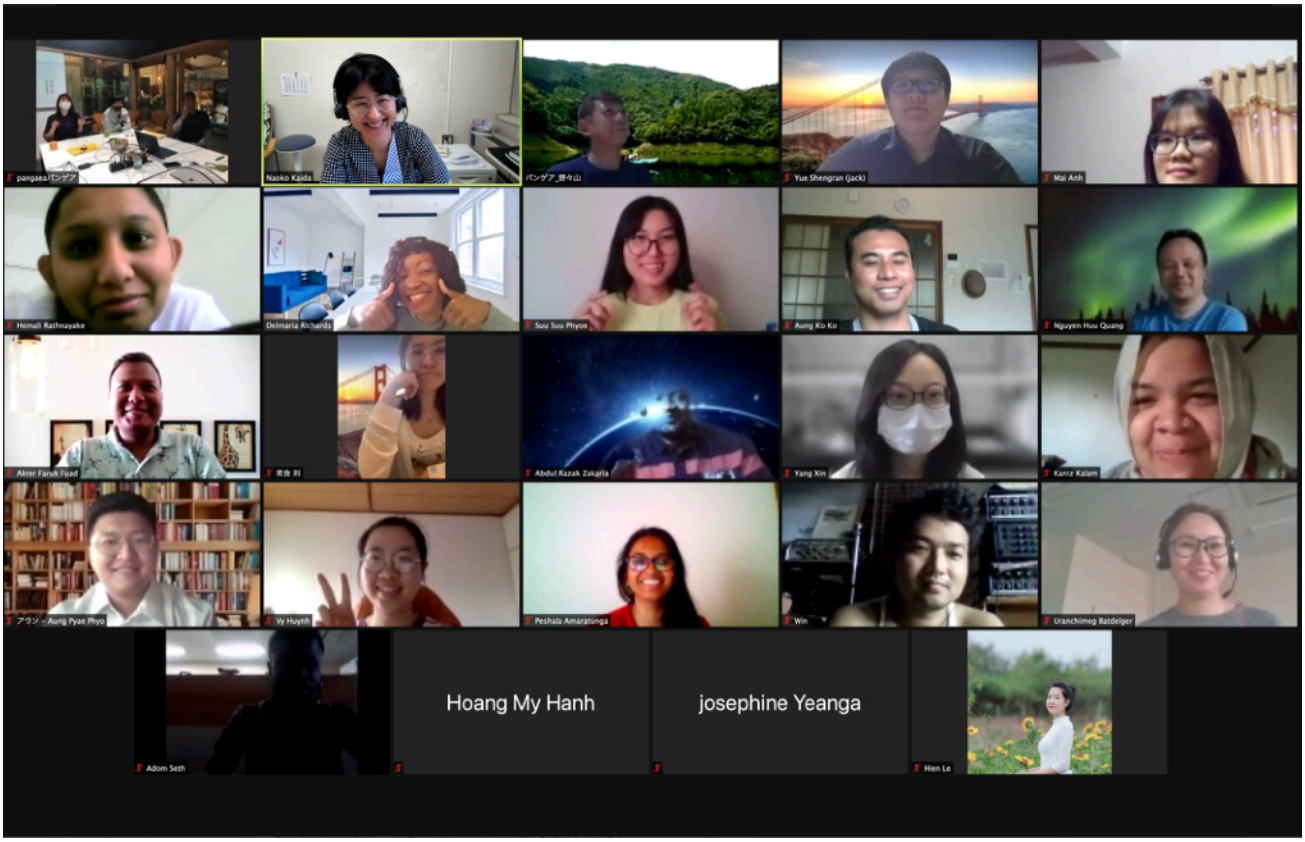
Written by the participants of the SUSTEP Field Trip *Local SDGs Towns in Japan*, May-June 2021
Edited by Naoko Kaida

June 2021

Cite this report as:
SUSTEP. (2021). Local SDGs in Japan: Learning from good practices in selected three small municipalities (SUSTEP field trip report). SUSTEP Program, University of Tsukuba. http://www.envr.tsukuba.ac.jp/~sustep/

Contact:
Naoko Kaida, Ph.D., Associate Professor, Faculty of Engineering, Information and Systems, University of Tsukuba (naoko.kaida@sk.tsukuba.ac.jp)

TABLE OF CONTENTS



Zoom photo session with Kamikatsu Town, June 2, 2021

PREFACE

Years 2020 and 2021 have been unusual and hard for everyone in the world due to the COVID-19 pandemic, so to our students. Field trips in Japan and overseas organized by SUSTEP (Sustainability Science, Technology and Policy) Program, University of Tsukuba, had been all canceled, and the only feasible option was to conduct the trip online.

Two questions then came to my mind: how can we implement it to satisfy the students' appetite for learning, and how could we implement it online even better? It did not take a long time till I wrote up the plan for this online field trip to visit small towns in Japan. I selected Osaki Town in Kagoshima Prefecture, Nishiawakura Village in Okayama Prefecture, and Kamikatsu Town in Tokushima Prefecture believing they are among the best in Japan to learn their innovative visions and practices toward Sustainable Development Goals (SDGs) while being typical remote towns in Japan with decreasing and aging population. We utilized the benefits of conducting online to flexibly set up the schedule and "travel" from one town to another from our own place in Japan and overseas, without which I could not have organized it as an on-site field trip to travel the three distant towns within a few days. Thanks to considerable support from our counterparts in the three municipalities, we had a wonderful online field trip (if not the best as on-site).

I sincerely thank Mr. Nakamura, Ms. Nakagaki, Mr. Matsumoto from Osaki Town, Mr. Ueyama and Mr. Tabata from Nishiawakura Village, and Mr. Nonoyama, Mr. Asano, Ms. Nishikage, Mr. Hyakuno, and many more from Kamikatsu Town for sharing their unique achievements and exciting ventures and visions ahead.

I also thank my SUSTEP Program colleagues for their kind suggestions and supports.

Last but not the least, I would like to acknowledge the wonderful contributions of the students in facilitating the whole trip. The 22 participants are from nine different countries (Bangladesh, China, Ghana, Jamaica, Liberia, Mongolia, Myanmar, Sri Lanka, Vietnam) and diverse academic and professional backgrounds, and questions and issues they raised through their so-called yosomono (outsiders) and wakamono (young people) lenses during the online sessions were inspiring, fresh and even futuristic.

I hope this field trip report will help readers deepen their understanding about the three small but energetic municipalities in Japan with good SDGs practices and stimulate them to think about sustainability and SDGs for their cities, towns, villages, and communities.

Naoko Kaida June 2021

ABOUT THIS TRIP

Text by: Zakaria Abdul-Razak, Delmaria Richards, Uranchimeg Batdelger, Quang Nguyen Huu, Hoang Hanh Thi My

The Local SDGs (sustainable development goals) Town's virtual field trip was one of SUSTEP's academic field trips at the University of Tsukuba for the academic year 2021. It was organized by Associate Professor Dr. Naoko Kaida, the Graduate School of Life and Environmental Sciences.

The main objective of this field trip was to accord students the opportunity to learn from and practically experience actions undertaken by the rural populace in Japan to achieve sustainability with prospects for the future. Three municipalities, Osaki Town, Nishiawakura Village, and Kamikatsu Town, were purposively visited. These municipalities are well known in Japan for the unique strategies for the sustainable management of their natural resources. As a result, the Cabinet Office of Japan selected them as SDGs Future Cities among others.

This field trip was conducted in five days, with each day's activity lasting for about five and half hours from 1 pm to 5:30 pm. We had an orientation session on May 20, 2021, where the course's contents were explained in detail to all 22 participants. Students were divided into four (4) groups and assigned group work to write a report on each town/village we virtually visited. We were also assigned a short individual report to discuss lessons learned and the

SDGs and SDG11 Sustainable cities and communities

Image from Eurostat website.

Three municipalities virtually visited and Tsukuba

applicability of the Japanese examples to our home countries. Due to travel restrictions under the COVID-19 pandemic situation, all the activities in this trip were conducted online using the online meeting applications of Zoom and Microsoft Team.

On May 25, we had a virtual presentation about Osaki Town and its efforts to achieve the SDGs Future City goals. They shared with us their SDGs vision, plan, and a unique idea of an SDGs Association. They also shared some challenges they are facing going into the future. Mr. Nakamura, Ms. Nakagaki, and Mr. Matsumoto led the discussion. On May 26, we had a virtual tour of Nishiawakura Village. The facilitators presented Nishiawakura Village's SDGs vision and its steps to achieve SDGs Future City goals. Their future challenges were also shared. Here, Mr. Ueyama and Mr. Tabata explained the genesis of the village SDGs' vision and prospects.

On June 1, we had our first virtual trip to Kamikatsu Town. A presentation of the Kamikatsu Town profile, crisis and way-out in waste management, the tour of the Zero Waste Center, and an interview with the Zero Waste Center stakeholders and IRODORI farmers. Mr. Nonoyama, Ms. Nishikage, Ms. Kobayashi, and Mr. Hyakuno explained that their practical experience and successes work together to achieve set targets. Our second virtual tour of Kamikatsu Village was on June 2. We had a presentation on Kamikatsu Town's SDGs plan and ways to achieve SDGs Future City goals. They also shared their future challenges for attaining the SDGs goals. Mr. Asano and Mr. Kakimoto led the discussions. A question-and-answer period at the end of each day's session allowed us to pose questions and share our thoughts during this virtual field trip.

FIELD TRIP SCHEDULE

OSAKI TOWN, KAGOSHIMA PREFECTURE, MAY 25TH 2021

Time	Program	Notes (speakers etc.)
13:00	Brief introduction	Ms. Rui Nakagaki, PR expert, Gassaku, Co., Ltd., Osaki Town
13:10	**Part 1. Way to SDGs Future City** Osaki Town at a glance Virtual tour to organic waste recycling facility	Mr. Shoji Matsumoto, Residential Environment Division, Osaki Town Office Mr. Kenji Nakamura, Osaki SDGs Association, and Planning and Coordination Division, Osaki Town Office Ms. Nakagaki
14:10	Q&A	
14:25	Short break	
14:35	**Part 2. SDGs Plan, SDGs Association** High recycling rate Why did they apply for the SDGs Future Cities? Osaki Town's SDGs plan (Circular Village, etc.) How to involve stakeholders in the plan (SDGs Association) Vision to eliminate plastic packaging	Mr. Nakamura Mr. Matsumoto Ms. Nakagaki

15:35	Q&A	
15:50	Short break	
16:00	**Part 3. Future challenges and visions** SDGs challenges to Osaki Town Implications to small municipalities in Japan and overseas	Mr. Nakamura Mr. Matsumoto Ms. Nakagaki
16:30-17:30	Overall Q&A Thank you greeting from student	Mr. Nakamura Mr. Matsumoto Ms. Nakagaki

NISHIAWAKURA VILLAGE, OKAYAMA PREFECTURE, MAY 26TH 2021

Time	Program	Notes (speakers etc.)
12:45	Zoom starts. Join by 12:50.	
13:00	Session starts.	
13:00	Brief introduction	Mr. Takahiro Ueyama, Counsellor for Community Recreation as Special Appointment, Director, Industry and Tourism Division, Nishiawakura Town Office
13:10	**Part 1. Way to SDGs Future City** Nishiawakura Village at a glance Value creation from biomass Virtual tour to renewable energy generation Why did they apply for the SDGs Future Cities?	Mr. Ueyama
14:10	Q&A	
14:25	Short break	
14:35	**Part 2. Nishiawakura Village's SDGs Plan** SDGs Plan (100-Year Forest Plan) How to involve stakeholders in the plan How to attract young immigrants	Mr. Sunao Tabata (Founder and CEO, Hyakumori, Co., Ltd.)
15:35	Q&A	
15:50	Short break	
16:00	**Part 3. Future challenges and visions** SDGs challenges to Nishiawakura Village Implications to small municipalities in Japan and overseas	Mr. Ueyama
16:30-17:30	Overall Q&A Thank you greeting from student	Mr. Ueyama

KAMIKATSU TOWN, TOKUSHIMA PREFECTURE, JUNE 1ST 2021 (DAY 1)

Time	Program	Notes (speakers etc.)
13:00	Brief introduction	Mr. Satoshi Nonoyama (Founder and CEO, pangaea, LLC.)

13:10	**Session 1. Kamikatsu Town at a glance** Characteristics of the village Depopulation and aging communities: situations and reasons	Mr. Nonoyama
13:40	Q&A	
13:55	Short break	
14:05	**Session 2. Crisis and way out, Part 1** Happa business (IRODORI) (25 min video with English subtitles) Interview with IRODORI farmers Q&A	Ms. Kobayashi, IRODORI, Co., Ltd. Ms. Nishikage and Mr. Hyakuno, Irodori farmers Mr. Nonoyama
15:25	Short break	
15:35-17:30	**Session 3. Crisis and way out, Part 2** Zero waste (25 min video with English subtitles) Virtual tour to the Zero Waste Center Interview with the zero waste center stakeholder Q&A	Ms. Suga, Kamikatsu Town Office Ms. Fujii, executive board member, Zero Waste Center Mr. Nonoyama

JUNE 2ND 2021 (DAY 2)

Time	Program	Notes (speakers etc.)
13:00	**Session 4. Way to SDGs Future City** Why did they apply for the SDGs Future Cities?	Mr. Asano, Industry Division, Kamikatsu Town Office *Was in charge of SDGs planning at the time of application Mr. Nonoyama
14:00	Q&A	
14:15	Short break	
14:25	**Session 5. Kamikatsu Town's SDGs Plan** SDGs Plan How to involve stakeholders in the plan (SDGs Council) How to attract young immigrants (through startup human resources development) PR activities and business	Mr. Asano Ms. Kakimoto, Immigration Coordinator, Kamikatsu Town Office Mr. Nonoyama
15:25	Q&A	
15:40	Short break	
15:50	**Session 6. Future challenges and visions** SDGs challenges to Kamikatsu Town Implications to small municipalities in Japan and overseas	Mr. Asano Ms. Kakimoto Mr. Nonoyama
16:20-17:30	Overall Q&A, ideas from students Thank you greeting from student	Mr. Asano Ms. Kakimoto Mr. Nonoyama

PARTICIPANTS/CONTRIBUTING AUTHORS

	Name	Program
1	Rathnayakege Hemali Rathnayake	Ph.D. Program in Sustainable Environmental Studies
2	Amaratunga A M Dona Peshala Ranjani	Master Program in Environmental Sciences
3	Aung Ko Ko	Master Program in Environmental Sciences
4	Uranchimeg Batdelger	Master Program in Environmental Sciences
5	Huynh Thi Bao Vy	Master Program in Environmental Sciences
6	Kalam Kaniz Zakia	Master Program in Environmental Sciences
7	Liu Xiaohan	Master Program in Environmental Sciences
8	Quang Nguyen Huu	Master Program in Environmental Sciences
9	Suu Suu Phyoe	Master Program in Environmental Sciences
10	Yang Xin	Master Program in Environmental Sciences
11	Yue Shengran	Master Program in Environmental Sciences
12	Zakaria Abdul-Razak	Ph.D. Program in Sustainable Environmental Studies
13	Duong Phan Cao	Ph.D. Program in Sustainable Environmental Studies
14	Aung Pyae Phyo	Master Program in Environmental Sciences
15	Fuad MD Akter Faruk	Master Program in Environmental Sciences
16	Hoang Hanh Thi My	Master Program in Environmental Sciences
17	Khin Zaw Win	Master Program in Environmental Sciences
18	Hien Le	Master Program in Environmental Sciences
19	Thi Mai Anh Nguyen	Master Program in Environmental Sciences
20	Delmaria Richards	Ph.D. Program in Sustainable Environmental Studies
21	Josephine Brent Yeanga	Master Program in Environmental Sciences
22	Adom Seth	Master Program in Environmental Sciences

GROUP REPORTS

TOPICS

Summary of achievements, strategies and future challenges of the municipality assigned to each group (Osaki Town, Nishiawakura Village, and Kamikatsu Town (Part 1 and 2)).

1. OSAKI TOWN, KAGOSHIMA PREFECTURE

Visited online on May 25, 2021

Authors: Khin Zaw Win (Chapter editor, Introduction, Remarks/Recommendations), Suu Suu Phyoe (Background, Remarks/Recommendations), Huynh Thi Bao Vy (Strategies, Remarks/Recommendations), Rathanayakege Hemali Rathnayake (Achievements, Remarks/Recommendations), Josephine Brent Yeanga (Challenges, Remarks/Recommendations), Phan Cao Duong (Challenges, Remarks/Recommendations)

1.1 INTRODUCTION

Osaki (大崎町, Ōsaki-chō) is a town which is located in Soo District, Kagoshima Prefecture, Kyushu region, Japan (Figure 1). The coordinate of the town is 31° 26′ 32″ N 130° 58′ 39″ E (Wikiwand, n.d.). Osaki Town is in the eastern Osumi Peninsula, the southern part of Kagoshima Prefecture and it faces the Pacific Ocean (Shizume, 2020). The total population of Osaki Town is 12,831 people with the households of 6,720. The area of the town is 100.67 km^2 and agriculture is its main industry. Despite being a small town in the country, it has many areas as top in Japan, including products and other fields. The main areas in which it stands as Top 1 in Japan include: 1) Production of farmed freshwater eel, passion fruit, chicken meat and pure kudzu powder, 2) Percentage of garbage recycled, 3) Hometown Tax (town and village category), 4) Percentage of professional baseball players produced, and 5) Rhinoceros beetle statues. Osaki is the birthplace of star baseball player Kosuke Fukudome (Wikiwand, n.d.).

Figure 1. Location of Osaki Town in Kagoshima Prefecture of Japan

Source: Osaki Town (2021)

Among its main top 1 areas in Japan, impressive waste recycling rate of Osaki Town over 80% is highlighted in this report. It could expand the lifespan of the landfill site through recycling of recyclables and composting of organic waste (including raw garbage and plant waste). While the national recycling rate of Japan is around 20%, implementing over fourfold to the national rate is noticeable, and it is interesting how that a small town in Japan could develop the system successfully and had ranked the first in national scale (perhaps even in the global scale) in recycling rate not only for a year but for 12 consecutive years. In the fiscal year 2019, Osaki Town was selected as a "SDGs Future City" under the "SDGs Models of Local Governments" project. In this report, we will discuss which conditions played key roles as the background of Osaki Town in its success, how they developed and implemented strategies in the town with various stakeholders to reach the targeted goals, which achievements they obtained for their works in recycling as the national scale, which challenges they faced, are facing and possible challenges in the future and some of the remarks or recommendations on their model.

1.2 BACKGROUND

Osaki Town, with a population of 12,831 people, has been recycling since 1998. It has a waste separation system called the Osaki system that sorts the garbage into 27 categories to ameliorate its recycling rate. This system has many benefits: (1) diminishing about 84% of the volume of waste at a landfill site, (2) extending the life span of the landfill site, (3) generating revenues from recyclable waste, and (4) providing job opportunities. However, there is a hidden story behind these high achievements elucidated in the following paragraphs.

The waste management system in Osaki Town was uncomplicated in that it did not have any separation system for garbage, and the residents disposed of all the waste together at a landfill site. The town did not provide any incineration plant to manage the waste generated by the residents. Hence, the town had the problem of limitation in landfill site capacity. The town considered several possible waste management strategies to prolong the lifespan of the final disposal site.

Building an incineration plant was a possible way to reduce waste disposed at the landfill site. However, a high amount of construction and maintenance cost impeded this plan to implement as one of the waste management strategies in the town. Another way was to establish a new landfill site. However, there was strong opposition from the residents because of the unpleasant smell or odor produced by mixed waste disposed at the landfill site. Therefore, proper separation and recycling of garbage became the best way to diminish the volume of waste produced at the final disposal place and extend the longevity of the landfill site.

To start a waste disposal system without incineration with the help of separation of 3 items (cans, bottles, PET bottles) by residents and collection and processing done by a waste recycling company. Osaki Town's local government collaborated with 153 self-governing community organizations and government offices to hold briefing sessions to raise the

residents' awareness about recycling and its benefits. Then, the town initiated its recycling system in which the garbage is sorted into 27 items ; (1) cans, (2) returnable bottles, (3) brown bottles, (4) colorless transparent bottles, (5) other bottles, (6) PET bottles, (7) cardboard, (8) newspaper and flyers, (9) magazines and miscellaneous paper, (10) copy paper, (11) shredded paper, (12) paper cartoons, (13) paper boxes and wrapping paper, (14) other paper containers and paper bags, (15) fluorescent lights, (16) dry batteries, (17) used clothes, (18) wasted cooking oil, (19) plastics, (20) spray cans and cassette cylinders, (21) metals, pet and kettle, etc. (22) disposable chopsticks, skewer, (23) potteries, (24) small appliances, (25) raw garbage, (26) landfill waste, (27) large-sized waste, with the cooperation of the local government, residents, and enterprises (Osaki Town, n.d.; UN SDGs, n.d.).

As a result, Osaki Town achieved a high recycling rate of 83.1% as of 2018, while a national recycling rate was only 19.9%. In addition, it has been ranked first place in terms of waste recycling for 12 consecutive years since 2006 in Japan.

1.3 STRATEGIES

Osaki Town was recognized and respected by experts and many other municipalities with outstanding achievements in recycling. For implementing garbage separation system successfully in Osaki Town, stakeholders, here as Government, residents, and enterprises, involve and play their respective roles in the mechanism. The role of Government includes in policy making and defining relevant places and mechanism for waste recycling as well as giving explanations and training local leaders. Residents have the responsibility, to separate garbage properly in their home and workplace as well as take out the separated garbage and sort garbage by type at the sorting station. Enterprises collect garbage as per contract with the government, inspect garbage and ship inspected garbage as products. That is the result of the cooperation, collaboration, and trust among the stakeholders. Osaki Town was awarded 2nd Japan SDGs Award by the central government in 2018. Since then, the Osaki government started the idea of building a sustainable town from a high recycling town. Osaki Town was selected as a SDGs Future City in 2019. To achieve the SDGs by 2030, Osaki Town's local government has set up many plans. They aim to achieve a circular society with the involvement of private companies. It means that all products produced in the town will be consumed and recycled in the town, and re-used for another round of production, consumption, and recycling.

Additionally, they plan to establish SDGs school educational institutions and research facilities to collaborate with manufacturing companies. Osaki Town SDGs promotion council has been established to enhance the cooperation between the Osaki government and various stakeholders. The council consists of Osaki Town government, Minaminihon Broadcasting (local mass media), Kagoshima Sogo Shinkin (finance sector), Solanomachi (food and general education), and Gassaku (facilitation of the council). Osaki Town's goal is to abolish plastic containers and one-time plastic consumption by 2030. The SDGs promotion council aims to provide alternative measures to replace one-time plastic use by 2024 and obtain 80% penetration by 2027.

1.4 ACHIEVEMENTS

The main objective of introducing an integrated solid waste management plan for Osaki was to find physical solution for final waste disposal. Since 2002, the project has been successfully implemented in achieving its main objective and brought multiple benefits in the environmental, social, and economic aspects to the city.

1.4.1 IMPLEMENTATION ACHIEVEMENTS

EXTENDING THE LIFESPAN OF THE PRESENT LANDfiLL SITE

The implemented project has been successful in reducing the waste amount to final disposal site by 84% along the last 20 years. In 1998, it was 4,832 tons per year and reduced to 607 tons per year in 2018 (Figure 2). That has enabled to manage the existing land fill site for next 35-45 years, while avoiding the environment pollution and social adversaries had been expected by other options of incineration facilities and finding another landfill site.

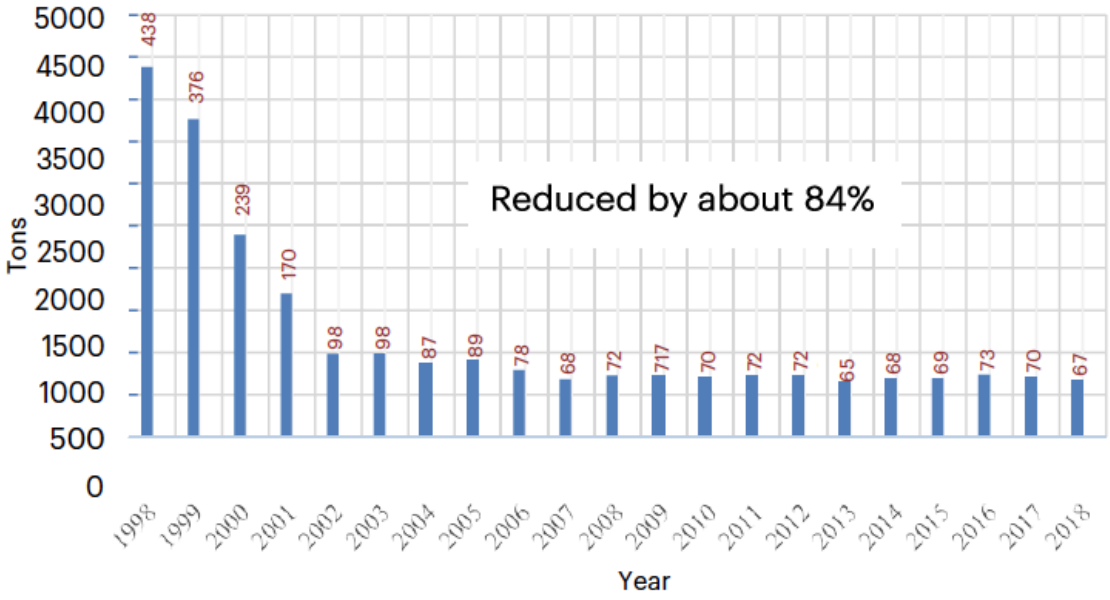


Figure 2. The amount of waste to landfill site in Osaki Town by years

Source : Osaki Town (2021)

ACHIEVING 100% PUBLIC PARTICIPATION AND STRENGTHENING THE COMMUNITY RELATIONSHIPS

Community participation is the key to success the project. The city council has achieved to collect all the solid waste separated into 27 categories at source including both organic and inorganic materials. That could be considered as the main achievement of implementation phase.

Moreover, residents can meet while gathering at the collection points and build face-to-face relationships through collective sorting. They can sort recyclables while teaching each other the rules and strengthen their relationships.

83.1% WASTE RECYCLING RATE

Compared to the national average recycling rate in Japan 19.9%, 83.1% of waste recycling rate by Osaki Town indicates the key achievement of the project. The city has been recognized as No.1 in highest waste recycling rate in Japan for 12 consecutive years 2006 - 2017.

RAPESEED ECO-PROJECT

Project of converting municipal organic waste to compost fertilizer, utilizing for rapeseed fields and producing canola oil, and other byproducts is an outcome of the resource circulation framework of the city.

1.4.2 ECONOMIC BENEFITS

REDUCED PER CAPITA SOLID WASTE MANAGEMENT COST

Compared to the national average annual solid waste management cost per capita 16,400 yen in Japan, Osaki Town has managed to decrease up to its two-third, 10,400 yen per year. Reducing the municipal expenditure would benefit the society in its other service enhancements.

RECYCLING INCOME AND JOB CREATION

In 2018, the income generated by recycling was 6.6 million yen. Being able to utilize part of the income for student loan scheme is one of the additional social benefits achieved from the solid waste management plan. Moreover, the recycling center in Osaki Town handles recyclable garbage from 100,000 people (including neighboring municipalities) and employs about 40 people.

1.4.3 OFFERING INTERNATIONAL COOPERATION

The town is offering technical and management knowhow to other cities based on successive experience of the project including:

(1) Depok City, Indonesia (2012-2014) for domestic solid waste management planning through community participation,

(2) Denpasar City, Bali, Indonesia (2015-2016) through JICA partnership program, and

(3) Recruiting short term international students to the recycling project with the view for future developments in waste management related solution in Asia.

1.4.4 RECOGNITION

The town has been highly recognized for its resource management performances in Japan as follows.

(1) FOOD ACTION NIPPON Award 2015 for canola oil "Yattane! Nattane!! " (meaning "We did it! The Canola Oil!!") produced from recycling including composting

(2) Won the "Grand Prize" in the Food Industry Division

(3) Fiscal Year 2015 Person of Distinction for Establishing a Sound Material-Cycle Society, the driving force behind Japan's No.1 resource recycling rate

(4) Won the "Prize of Minister of the Environment" in the Group Division

(5) 9th Collaborative Town Development Award Project to reduce garbage with the "garbage if mixed, resources if separated" slogan,

(6) Won the "Runner-up Grand Prize"

(7) 2nd Japan SDGs Award, Deputy-chief's Award (by Chief Cabinet Secretary), December 21, 2018

(8) Osaki Town as SDGs Promotion Declaration, January 14, 2019

(9) Osaki Town as "SDGs Future City" under the "SDGs Models of Local Governments" project

Creating a circular village, further efficient and effective resources management is the next target of the town. So far achievements and recognitions have shown greater potential of the town to develop an eco-based circular economy.

1.5 CHALLENGES

1.5.1 CHALLENGES FOR OSAKI TOWN IN THE PAST AND PRESENT

At the beginning of the waste generation/recycling system, Osaki Town faced some challenges for the confidence in the Town's success. There was no incineration plant, which was a serious problem for the town, and the waste generated was dumped in the landfill site with limited capacity. With the landfill approaching the end of its functionality, the only way forward was to prolong the life of the landfill by building an incinerator but it was to costly to construct and maintain. The construction of the new landfill contrasts with the residents of the surrounding area. In order to prolong the life of the existing landfill, it was necessary to establish rules of garbage classification and specific explanations to the residents that would

make them comfortable to embrace the good idea of garbage sorting. Indeed there were a lot of burdens on the local residents to separate waste in the early stage.

The per capita garbage production of the Osaki Town is still 844 g per year. With compared to the national average per capita garbage 918 g, it is smaller but not a considerable difference. So, the town should explore opportunities to reduce the per capita garbage production at source, and the town will then be able to reduce waste management cost further.

1.5.2 FUTURE VISIONS AND CHALLENGES: CAN THE GLOBAL STANDARD OSAKI BE REALLY A GLOBAL STANDARD?

Osaki Town has been successful with a waste-recycling project towards a sustainable development goals (SDGs) initiative. They have a variety of excellent visions such as the further international expansion of the Osaki model or becoming "Global Standard: Osaki", and a further increase in recycling rate. Although such a vision is clear, it likely experiences challenges as well. Herein, we specifically present challenges making the Osaki model be a global standard, which can be applied in most countries. First, the system of waste management is distinctive in different countries, especially the developing world. Many developing nations have a low rate of recycling separation or even without separation. Although they can separate waste into detailed categories, they do not have comprehensive systems or plants to recycle a variety of waste types. To build such a recycling plant is costly and takes considerable time and lasting efforts. They then seem to solely reuse common waste such as paper and plastic items. Also, clear waste-recycling guidance, acts, policies, and regulations may not be properly introduced in many countries.

Another difficulty is the attitude towards making source separation and the limited understanding of the SDGs. Many people have not likely known the SDGs in the developing world. To overcome these challenges, the developing nations need support in terms of sound financial and technical issues from those who have been successful in waste recycling like Japan. To be specific, we first make awareness and concerns practiced, and make people aware of SDGs initiatives and their importance in waste recycling and management. Promoting the purchase of environmentally friendly products and services is also a good idea. These are important issues in future.

1.6 REMARKS/RECOMMENDATIONS

- Exploring recycling of paper diapers to get a higher recycling rate than the present impressive recycling rate is a noticeable thought which fits with the local conditions.

- Implementation of full recycling of organic waste, including kitchen and forest wastes, and supplying fertilizers (including Rapeseed Eco-Project) from that recycling industry, is a model which is impressive, and other cities can implement green waste recycling as a beneficial mechanism.

- To abolish using one-time packaging and plastic products by 2030, Osaki Town will need to find alternative measures in cooperation with the enterprises.

- For the awareness-raising program for the residents, Osaki Town should establish a sharing platform such as a workshop program in the school or cooperation with the local government.

- To achieve the local SDGs a part of being a SDGs Future City, Osaki Town should survey residents' perceptions as Kamikatsu Town has worked on.

- Even though Osaki Town provides opportunities for the immigrants to reduce depopulation in the town, they lack some visible platform to access it, such as local venture schools.

References

Shizume, C. (2020, November 23). *Kagoshima's Osaki Town's ambitious plans to achieve SDGs by 2030*. Zenbird. https://zenbird.media/kagoshimas-osaki-towns-ambitious-plans-to-achieve-sdgs-by-2030/

Osaki Town. (2021, May 25). [Lecture slides distributed in the SUSTEP online trip]. Global Standard: Osaki Town–Toward a sustainable town

Osaki Town. (n.d.). *How to separate and dispose household garbage correctly*. Retrieved June 19, 2021, from https://www.town.kagoshima-osaki.lg.jp/diversity/documents/eigo.pdf

UN-SDGs. (n.d.). *Osaki Recycling System of Japan (separation-collection-processing) achieved 83.4% recycling rate with 27 items separation by community and makes not only environmental but also economical and social outcomes*. United Nations SDGs Partnership Platform. Retrieved June 13, 2021, from https://sustainabledevelopment.un.org/partnership/?p=30108

Wikiwand. (n.d.). *Osaki, Kagoshima*, Retrieved June 13, 2021, from https://www.wikiwand.com/en/%C5%8Csaki,_Kagoshima

2. NISHIAWAKURA VILLAGE, OKAYAMA PREFECTURE

Visited online on May 26, 2021

Authors: Peshala Amaratunga, Aung Pyae Phyo, Hien Le, Yang Xin, Kaniz Zakia Kalam, Adom Seth

2.1 INTRODUCTION

Nishiawakura Village is located in the northeast of Okayama Prefecture with a population of 1,416 people as of March 2021. It covers 57.93 km^2, of which 93% are mountainous forests. Cedar (sugi) and cypress (hinoki) are the main species, accounting for 84% of the total. From the 1990s, because of the economic downturn and other reasons, there was a trend of neighboring municipalities merging in Japan. In 2004, Nishiawakura also held a merger negotiation with neighboring municipalities. However, about 60% of residents in Nishiawakura opposed merging. The village had the weakest financial constitution in Okayama at that time. Therefore, after withdrew from the negotiation, they had to find a new way for its survive. When they recognized their geographical advantage, the village started regional vitalization based on resources wood. After 17 years of efforts, it has become a model of local economic revitalization. It also was selected as a SDGs Future City in 2019.

This report describes the effort they have made and the achievements they have got from six aspects. Our opinions of their future challenges are also included in this report. The six aspects include: 100-year forest business (Peshala Amaratunga), renewable energy business (Aung Pyae Phyo), local venture (Hien Le), immigration (Yang Xin), education of sustainable city (Kaniz Zakia Kalam), and tourism (Adom Seth). The compilation was done by Yang Xin.

2.2 100-YEAR FOREST PLAN (BUSINESS)

Nishiawakura, once faced continuously decreasing population and a weak economy. In order to change this situation, villagers started to develop themselves. Finally, with sustainable forestry, the village became a model for the success of regional revitalization. The 100-year forest business attracted attention from all over Japan. This 100-year forest concept was started with the efforts of creating high quality life in countryside and low carbon society.

Most artificial forests of the Nishiawakura have been planted in the postwar period, which consisted of sugi and hinoki. Imported wood was inexpensive at that time and local forestry was challenged in the timber market. Therefore, less attention was given to forest management, such as thinning. This led to degradation of artificial forests. However, amidst this unfavorable situation, the village came up with the vision of “100-year forest Plan”. The

concept evolved as “look at the lessons of the past 50 years and plan for the next 50 years”. Most importantly, this helped reduce greenhouse gases creating a low carbon society. This created a healthy and fresh living environment preventing landslides in the mountainous areas of the village as well.

One of most important strategy of this initiative was a comprehensive approach, collaboratively planned with village office, forestry cooperative, private businesses, and others. Village office used special budget for this initiative. Targeting the economic sustainability, forest management plan was carried out. According to this plan, forestry practices such as timely thinning, has been started to operate. Two projects have been promoted at same time, one is 100-year-old forest creation and the second one “Mori-no-gakko (Forest School)” project, which aimed develop wood products for end users.

The 100-year forest business was mainly promoted by local government, together with the village office. They managed the forests on behalf of private forest owners, thinning and maintaining roads that are require for forest operations. The village signed a ten-year long-term forest management agreement with the forest owners and carried out all operations legally. The profit earned through wood is shared with owner and rest was used for the 100-year vision. 3,000 ha of forests in Nishiawakura is privately owned and 1,000 ha is company owned and another 1,000 ha is government owned. Currently around 1600 ha of private forests are managed by the village based on trust contracts with the private owners. 1,300 ha of village forests obtained Forest Stewardship Council (FSC) certification, which is an international certification. Consequently, it added value to the local wood. This was an important achievement of the 100-year plan.

The village was not limited only for thinning forests and selling wood but started promoting value-added wood products and supplied end-users. In doing so they were able to win the loyalty of customers. To promote and develop sale of products (e.g yukahari tiles, used for wood flooring) and utilize the local resources, a company, ‘Nishiawakura Forest School’ was established in 2009 as another important strategy. Under this company, a new wood processing company has been established. This helped achieving marketing and nurturing new entrepreneurs. This ultimately led supplying interior materials for houses and other materials for larger buildings as well. Along with all this success, company started to plan forest tours and events, opening other income paths in the village.

The 100-year forest business will face many future challenges. One such challenge is maintaining the same forest cover continuously in the coming years. New forests will take longer period to grow up to the economically optimum size, while current forest stock will continue to reduce rapidly. On the other hand, the managing overaged trees will not be economically beneficial. There will be natural challenges from overpopulated deer and pest damages for the new seedlings. Some climatic factors like snow also may bring unfavorable impacts on forests. On ecological perspective, the species diversity also very low in artificial forests as almost all of them are monoculture cultivations, unlike the natural forests. They lack broadleaved tree species. This will impact biodiversity of the Nishiawakura Village.

2.3 RENEWABLE ENERGY

Nishiawakura Village has been selected by the government as one of the "Eco-Model Cities" leading to the realization of a regional model that maximizes the use of local resources while achieving both a low-carbon footprint and sustainable development [6]. Based on the referendum result, Nishiawakura Village back out the merger negotiation with neighboring districts in August 2004 [5]. The village searched for a way to survive through regional vitalization based on forests and actively introduce small hydroelectric generation, wood biomass, and photovoltaic generation [5].

Waterpower is one of the resources that generate electricity in Nishiawakura [3]. The stable volume of river water and electricity generation depends on the well-managed forests [3]. The village already operated two hydraulic electricity generation stations of 290 and 5 kilowatts and plans to establish another hydraulic electricity production station, of 199 kilowatts, start operation around 2020 [3]. The 290-kilowatt station gets an income of about 70 million yen a year by selling electricity [3]. After finishing the new 199-kilowatt plant can create about 50 million yen [3]. Nowadays, local energy sources can supply approximately 40% of regional power demand in Nishiawakura [3]. When the new plant starts operation, the electricity supply rate will increase to 70% of total power usage in the village [3].

The village cuts trees to thin the forests and improves roads for forest work [3]. Two logs are sold as good wood on the market, three are selling as plywood material, and five were sold as low-quality wood with no commercial value [3]. The low-quality logs remain in the forests because of high transportation costs [3]. Nishiawakura Village starts to promote the usage of low-quality wood as fuel and thinking it is best to utilize such wood within the village for firewood boilers [3].

Nishiawakura has three hot spring resorts [3]. They used to consume 213,000 liters of kerosene in boilers to heat the spring water every year [3]. Now, wood boilers are using low-quality wood with a low commercial value from 5,500 ha of the forest instead of the kerosene, and the replacing amount is about 80%[3]. Nishiawakura Village used to spend over 10 million yen as kerosene costs each year, but these costs are now directly going to the wood biomass and hydroelectric station [3]. The cost of firewood is cheaper than kerosene, therefore people from Nishiawakura Village prefer firewood electricity to use in three hot spring facilities [3]. They can now save 2 million yen in fuel costs annually [3]. The villagers started to use firewood boilers in three hot spring facilities in 2014 [5]. Regional woody biomass for heat supply system is widely used in 2019, and the main facilities of Nishiawakura Village were also developed [5].

Nishiawakura Village promotes electricity and heat production from firewood boilers, hydraulic, solar energy (photovoltaic power) [5]. The electricity from solar energy will go to residences and public facilities [5]. Villagers participated in the operation of solar power generation, and they will set up a new solar panel [5]. These activities can get the new lifestyles and lead to a low-carbon model community for Nishiawakura Village [5].

2.3.1 STRATEGIES

Environmental System Operations can implement the customers' needs from the provision of products and services that utilize renewable energy, such as solar energy and wood biomass, and unused energy [8]. In the wood biomass sector, a heat supply system will construct with the cooperation of the government and private sector at the district level [8]. Another important factor for wood biomass is the efficient operation to meet the requirement of the village [8].

Nishiawakura Village promotes biomass usage to achieve four objectives: fuel cost reduction, stopping the outflow of money from the Nishiawakura Village, supporting forestry, and combating climate change [3]. They are trying to utilize woodchips generated in the lumber sawing process, too [3]. Woodchip boilers and underground pipelines are installed in Nishiawakura Village for sending hot water to public buildings for example a nursery school, the village office, the elementary and junior high schools, senior-care facilities, and clinics [3]. Due to the centralized control system, the heat energy and hot water supply system for individual facilities can fully manage and control [3]. After finishing the district heat supply system, the heat demand of the village can cover about 40% of total usage [3].

2.3.2 SDGS

In September 2015, the adoption of the 2030 Agenda for Sustainable Development that included the SDGs aim for an integrated approach to addressing multiple issues [4]. In December 2015, the adoption of the Paris Agreement aims for substantially zero greenhouse gas emissions by the latter half of the 21st century to achieve the 2 degrees Celsius targets [4]. A major paradigm shift is required to create a new form of civilized society [4]. Climate change is identified as a high-priority issue in the SDGs [7]. Protecting lush forests that act as carbon sinks, absorbing and storing CO_2, helps mitigate climate change [7]. Nishiawakura Village considers developing the environmentally friendly concept and they try to use Sumitomo Forestry's concept [7]. After that, Nishiawakura Village promotes the use of wooden structures and materials as a construction material in an urban area (high-rise buildings) [7]. Due to these kinds of activities, they can get benefits from forests and can improve in climate change mitigation measures [7].

The Sumitomo Trust Bank worked together with Nishiawakura Village and the bank got the idea from doing other businesses and searched the best solution was to stabilize the forestry business by starting a hydroelectric power generation business [7]. In 2018, the Sumitomo Mitsui Trust Bank made a survey about forestry trust, and the bank gives the responsibilities for commercial trust in Nishiawakura Village [7].

2.3.3 FUTURE CHALLENGES

For Nishiawakura Village, there will have to be many challenges concerning renewable energy. For hydroelectric power, the climate conditions are changing day today. Climate change affects the water flow conditions (flow rate, water depth) in the river. The water flow amount is huge in raining season and less in summer and wintertime. The flow conditions of

rivers also affect hydroelectric power generation. Nishiawakura Village covered 95% forest area. The climate change effect and man-made activities (production of wooden furniture, construction materials) can act the deforestation in the future. For biomass (wood boiler), deforestation is a big issue and can reduce the ability of wood boilers. The other issue is the production of carbon dioxide from the wood boiler. Carbon dioxide gas (greenhouse gases) are harmful gases for the environment and our earth. The last issue is not accounted for today because the area of the forest is big, and the forest can absorb carbon dioxide from the wood boilers. However, the production of carbon dioxide from wood boilers should consider as the main problem of climate change.

2.4 LOCAL VENTURE

Nishiawakura Village has a very unique idea called to "Local Venture School" to attract young people to come here to live and study. Indeed, this idea has been successful beyond expectations when more and more people from other places have moved to the village to meet the sustainable development goals. Specifically, there were more than 100 people having moved to the Nishiawakura Village. Moreover, 13 companies established with a total annual turnover of up to 800 million yen (as of September 2017).

In 2015, Nishiawakura start organizing the Local Venture School course. The content of this course is that each student who registers to participate in the Local Venture School course will try to establish a new business in the village and find ways to develop it.

More specifically, starting with the first round of selection, the residents of the village will be sent feedback to directly evaluate the participants of the course. Besides that, the participants are also supported by the village officials to work in groups, and guidance field trips relate to locations in the participant's business project. Going through several evaluation rounds, only participants that have passed the final selection can start developing their business projects. In addition, the participants who have passed the final selection round will receive professional training courses, stipends, and other supports as a reward.

A prominent feature that helps to attract everyone's participation in the course is prioritizing the passion and interests of the participants themselves. Create a free environment to develop business thinking focusing on the interests of participants and residents of Nishiawakura Village.

Another program to support the Local Venture School course is Nishiawakura Local Life Laboratory. This program is for entrepreneurs who are willing to come to explore and develop the village. After the end of this program, the entrepreneurs can decide to continue to participate in the Local Venture School course to establish a new business or complete the Nishiawakura Local Life Laboratory course and leave the village. However, the majority of entrepreneurs and participants often choose to continue working and living in the village.

2.5 IMMIGRATION IN NISHIAWAKURA VILLAGE

Because of the low fertility rates and low mortality rate, population aging has become more and more serious in the world, especially in Japan. According to the data from the Statistics Bureau of Japan, the population aged over 65 in the total population is 28.7% in 2019 [10]. And this number is expected to rise in the near future [11]. The top-heavy population pyramid of Japan implies lots of social issues, such as the decrease of the working age population, increase of health care costs, and unsustainable pension system. This aging problem is also serious in Nishiawakura Village. Nishiawakura has 607 households with a population of 1,416 people as of March 2021. The rate of aging is 37%, which is higher than the average rate of Japan.

How to reduce the impact of population aging on village development is an urgent problem for the local government to solve. In 2006, the local government took measures to try to increase the population in this village. The stratagem is promoting the local ventures. They set up a bureau to publicize their idea. In 2015, a local venture school was built to foster human resources to start local businesses in this village. According to the Nishiawakura website, over the last decade, 45 businesses have been created and the employment is more than 200 people. The scope of businesses is very wide, including clothing, real estate, and inn. Besides, because of the rich forest resources in this village, people take advantage of it and start businesses like wooden furniture and toys. They do not only sell wood directly, but also promote the development of wood products to optimize the value of the wood. The economic scale has risen to 2.1 billion yen in 2020. Such regional revitalization attracts more and more immigrants to live and work there. Data show that the effort is working. Fig.1 is the population (in households) in Nishiawakura Village from 1999 to 2017. It is clear that the population has increased by 10% after 2007. Obviously, such rapid increase is not due to the number of births.

Figure 1. Population (in number of households) in Nishiawakura Village, 1999-2018

Source: Nishiwakura Village website

Besides, the number of children in the village also increased from 126 in 2011 to 158 in 2017. It means that immigration is not only adults but also children, i.e., families [12]. Their joining brings vitality to the small village.

One future challenge for the population increase in Nishiawakura Village is the housing shortage caused by rapid population growth, but I believe that there is sufficient land to build houses. The most important one, I think, is how to maintain its continued attraction to outsiders and even immigrants who already live there. A start-up company is not easy to survive nowadays. How to keep the local venture growth is very challenging. It takes constant effort for the future expansion of immigrants.

2.6 EDUCATION FOR SUSTAINABLE CITY

Education is a critical factor in achieving sustainable development goals. It requires a profound transformation of how we think and act. By changing the behaviors of individuals through education can make a difference in creating sustainable development. The behavior of individual citizens is constructed at a young age and will become active citizens and leaders of tomorrow, consolidating habits, behavioral patterns and forming identity and interpersonal relationships. The essential feature of ESD (education for sustainable development) deals with the process of teaching and learning. It focuses on the development of skills and action competence for sustainability [13].

Nishiawakura is one example of becoming a sustainable city. The feature of the town to revitalize and revamp the dying economy by circulating natural resources by adding values. The land of the village has 95% forest cover. The 100 years of a forest management plan is an innovative idea to make the town livable. Sustainable use of water resources and electricity generation is another example. The population declining trend has reversed, yet it does not reach the target. Local ventures took lots of initiative by diversifying the use of wood product. This had changed the color of the village and many people migrate to the village. In addition, they also took part in building sustainable city by applying innovative idea like GIS mapping for forest area and make available for farmers.

However, it is also important to involve the young generation in building sustainable city. The idea is to work with students practically in order to acquaint them with the basic ideas and educate them about the principles of sustainability. In order to do so, the village has involved the elementary school and junior high school students. The objective is to interact between man and nature, to experience the goodness of Furusato (hometown in Japanese), training and nurturing five senses through familiar nature experiences. To learn about the 100-year forest concept strategy of the village and experiences the wood crafting. The utilization of water resources and express from the nature and people of Nishiawakura. To think about what to do to "liven up our hometown". Besides, efforts have taken for junior high school by declaring their action or plan for SDGs. it enables students to learn about education for international, environmental education, energy education, education on world heritage site and local culture properties and other education. These strategies have taken by the authority

to engage young learners to carry the torch of SDGs to the next generation. They have their own version of sustainable goal. This activity nurtures students to think critically about their environmental footprint and give greater decision-making power while encouraging eco-friendly lifestyles. The villagers also organize education for villagers so they can be aware of this village strategy.

The major challenge of the village is population declination, along with labor work force. Although population demography improved slightly, it still needs more younger immigrants to become a sustainable city. Along with aging society further challenges to enhance their originality and create a process aiming at innovation in socio-economic systems that continuously creates new value. Thus, provides opportunity for younger generation. Energy challenge is another major issue. By producing more hydropower, it can contribute to national grid and become sustainable. By accumulating successes, cities are expected to become self-financing independence, establishing financially and socially autonomous role models for other cities in Japan and around the world.

2.7 TOURISM

Nishiawakura's tourism depends heavily on forests and trees. The forest generates significant financial inflows that can benefit village people and also, re-invested into the management of forests and natural spaces for their long-term conservation, restoration and valorization. Nishiawakura is well noted as a wood business town that attracts temporal visitors into the village. Forest covers the larger part of the total land area dominated by cedar and cypress trees. The nature of the forest serves as an ecotourism destination associated with over 100 years of cedar and cypress wood with a long and short canopy. It provides employment, generates income, and contributes to the quality of life of rural communities.

Among the strategies and achievements, Nishiawakura has made a successful transformation as a sustainable modern ecological village that prioritizes forest as a reformation to promote sustainable development. The forest serves as a source of income to the local residence, offers employment to them like carpentry works, timber milling, and wood architects, and provides raw materials to the local wood manufacturing industry. Nishiawakura Village is a value creation that adds value to sustainable tourism. The town produces timber products as primary raw material and uses them to manufacture wood products like floor tiles, furniture, as well as building and construction materials. Wood products are exported to other prefectures in Japan. The town has quite a few people who migrated from other prefectures to settle in the area even though the native population seems to decline gradually over decades.

FUTURE CHALLENGES

During the online group discussion, a participant from the village elaborated that the most appealing challenge is the number increasing aging population. In Nishiawakura Village, the young once used to move to city and other prefectures during high school education and intend not to return back to the village even after school. Many young people move away to live in urban areas, leaving the older population behind. Depopulation could possibly influence

future sustainability of the forest management. Older generations cannot transfer their knowledge onto their younger counterparts. However, assessing and carefully considering the needs of tourists is at the heart of sustainable tourism planning the local forest management could implement five A's (Accessibility, Attraction, Activities, Accommodation, Amenities).

ACCESS

There should be a clear defined route for tourist within the forest. Since logging is undertaking with the forest, its good forest creates easy route for visitors. This would help to overcome dangers during visit.

ATTRACTIONS

A tourist attraction is a place of interest that tourists visit for its exhibited cultural value, there should be historical significance of amusement opportunities in the village. Some examples include historical places, zoos, art galleries, carnivals, cultural events, among others. Many tourist attractions are also landmarking.

ACTIVITIES

Attractions are links to activities, and these are the things that tourists do. For example, specialist photography catalog, and treetop walk attraction may have numerous trails through the surrounding forest area for fauna and bird watching and botany activities. All these could be introduced in the village to attract more people.

ACCOMMODATION

In order to peak up visitors, the village needs to invest in accommodation, otherwise tourists will have nowhere to sleep. Successful accommodation development, more than ever before, depends on building the right type of facility to suit the needs of business tourists to the place.

AMENITIES

Amenities are required to meet the needs of tourists while they are away from home, such as shopping and restaurants. Therefore, high degree of cooperation is needed, particularly where tourist services may be seen to be competing with the needs of local residents.

2.8 CONCLUSION

Nishiawakura's approach embodies the social forestry concept that reflects human and environmental relationship. Activities of logging exert significant pressures on forests and ecosystems, underlining the apparent difficulty to combine them with forest conservation. There is a need to ensure to plan and regulate tourism adequately and to manage forests and recreation sites according to their usage. Strict protection policies should be instituted to be relatively help reduce local pressures on the forest, even though it is generating incomes for local communities. The local forest division should make efforts to promoting a transition

towards local sustainable territorial development schemes by integrating tourism into natural resources conservation strategies and rural enterprise development.

References

1. Coca, N. (2018, December 6). *Learning from the past: Japan's tree planting efforts provide lessons for other countries*. Ensia. https://ensia.com/features/japan-reforestation-deforestation-lessons-indonesia-china
2. Edahiro, J. (2018, February 28). *Nishiawakura's Initiative for self-dependence attracting motivated young people to migrate to the village and start businesses*. Japan for Sustainability. https://www.japanfs.org/en/news/archives/news_id036016.html
3. Edahiro, J. (2018, March 30). *Nishiawakura's initiative for 100% energy self-sufficiency, and a municipal ICO scheme (JFS Newsletter No. 187, March 2018)*. Japan for Sustainability. https://www.japanfs.org/en/news/archives/news_id036040.html
4. Shibuya, J. (2020, September 29). *Circulating and ecological economy*. IGES/MOE. https://www.iges.or.jp/sites/default/files/inline-files/S2-2_Mr.%20Jun%20Shibuya_MOEJ.pdf
5. Nishiawakura Village (n.d.). *Nishiwawakura Village, Okayama Prefecture [Eco-Model City]*. Cabinet Office. Retrieved June 14, 2021, from http://doc.future-city.jp/pdf/torikumi_city/nishiawakura_pamphlet_en.pdf
6. Public Relations Department Japanese Bankers Association. (2020, June). *The Chugoku Bank, Ltd.*, in JBA SDGs REPORT 2019-2020. Japanese Bankers Association. https://www.zenginkyo.or.jp
7. Sumitomo Group Public Affairs Committee. (n.d.). *SDGs and Sumitomo-How to create the future, theme 5: SDGs and Sumitomo: Environment*. Sumitomo Group. Retrieved June 15, 2021 from https://www.sumitomo.gr.jp/english/act/sustainability/theme5/
8. Yazaki Corporation. (2018, November). *Yazaki Group CSR report 2018*. https://www.yazaki-group.com/global/pdf/ser2018.pdf
9. Hashimoto, Y. (2017, October 21). *Nishiawakura's initiative based on people discovering their own desires (JFS Newsletter No.181, September 2017)*. Japan for Sustainability. https://www.japanfs.org/en/news/archives/news_id035920.html
10. Statistics Bureau Portal Site of Official Statistics of Japan. (2019). http://www.estat.go.jp.
11. Muramatsu, N., & Akiyama, H. (2011). Japan: super-aging society preparing for the future. *The Gerontologist, 51*(4), 425-432.
12. Nishiawakura Village website. (n.d.) Retrieved June 15, 2021 from http://www.vill.nishiawakura.okayama.jp.
13. Pauw, J. B. D., Gericke, N., Olsson, D., & Berglund, T. (2015). The effectiveness of education for sustainable development. *Sustainability, 7*(11), 15693-15717.
14. Edahiro, J. (2015, January 24). *Toward a sustainable Japan: Challenges and changes in society and population*. United Nations University. https://ourworld.unu.edu/en/toward-a-sustainable-japan-challenges-and-changes-in-society-and-population
15. Hasegawa, M., Pulhin, J. M., & Inoue, M. (2013). Facing the challenge of social forestry in Japan: The case of reviving harmonious coexistence between forest and people in Okayama prefecture. *Small-scale Forestry, 12*(2), 257-275.

16. Arizona, Y. (2020, June 22). *Multi-dimensional challenges, multi-sectoral innovations: The resilience of common forest management in Japan*. Sylff Association. https://www.sylff.org/news_voices/28043/

3. KAMIKATSU TOWN, TOKUSHIMA PREFECTURE (PART 1)

Visited online on June 1 and 2, 2021

Authors: Aung Ko Ko, Liu Xiaohan, Yue Shengran, Fuad Md Akter Faruk, Nguyen Thi Mai Anh

3.1 INTRODUCTION

Kamikatsu Town is a small town located in Shikoku Island with 100-170 m above the sea level. It has the population of less than 1,500 people, 53% of which belong to aging population. The town is approximately 110 km^2 in area where 88% of the land is occupied by the forest, 80% of which are planted trees. Kamikatsu Town has three distinctive features: Happa business called Irodori ('colors' in Japanese), zero waste management and sustainable tourism.

3.1.1 HAPPA BUSINESS IRODORI

The company IRODORI created a market for decorative leaves to garnish traditional Japanese cuisine, and established the "Irodori" brand. Farmers, the local agricultural cooperative, and the company IRODORI are engaged in this business together. The company IRODORI coordinates farmers, and offers promotion, marketing, and communication with customers. Independent farmers supply leaves to the company. The average age of farmers is 70 years old, and its majority is women. The total market sales amount to 260 million yen (approximately 2.35 million USD). The "Irodori" brand covers 70% of the market. In the beginning, IRODORI offered merely 20-30 types of garnish, but now offers 320 types of decorative leaves branded as Irodori. In 1986, Irodori's business began with only four female farmers, who used to harvest leaves and branches for flower arrangements. In 1987, Irodori started as a project of the agricultural cooperative of Kamikatsu. Since 1999, IRODORI has been an independent semi-governmental corporation.

3.1.2 ZERO WASTE

Kamikatsu was originally a forestry town that used to exercise open incineration as its main form of waste disposal. Over time, the prefecture informed the town that they could no longer continue using open incineration for waste disposal. Already faced with a declining and aging population, Kamikatsu Town was not able to afford a new incinerator. Hence, the town decided to explore an alternative method of waste disposal. In 2003, Kamikatsu became the first town in Japan to implement the zero-waste policy. Since their declaration to eliminate landfill and incinerated waste by 2020, the residents have worked together to fulfill the principles of the "3Rs" of reduce, reuse, and recycle. As the town does not operate its trash collection service, the residents take their garbage themselves to the town's single waste collection center, where they separate it into more than 45 different categories. Meanwhile, they compost

kitchen waste and food scraps at home. With the town having devised such a waste system, the residents have gained a keen awareness of the need to reduce waste completely. Through their collective efforts, the residents of Kamikatsu now recycle more than 80% of their overall waste.

3.1.3 SUSTAINABLE TOURISM

Kamikatsu is a unique destination to study in terms of sustainable tourism development. The town has been trying to achieve SDGs in the future. It is a beautiful village set in a valley with wonderful local products, onsen hot-springs and hiking trails to attract visitors. Historically, domestic tourism to Kamikatsu has focused on its local, high-quality foods, leisure activities such as hot-springs, and active fun in warmer months such as hiking, camping and kayaking. Recently, the town's zero-waste policies has attracted a new type of visitors drawn to sustainability planning. Thousands of academics, media, government planners and researchers come to the town each year.

3.2 KAMIKATSU'S SDGS AND ACHIEVEMENTS

Kamikatsu Town established its brand image with the first zero waste declaration in Japan. The town never had waste collection trucks running in town. They aim to nurture villagers not to dirty the earth. They promote reuse and recycling of wastes, do their best to demolish waste incineration and landfill by 2020, and make partners around the world as many as possible to make the global environment better.

Kamikatsu Town has been selected as SDGs Future City in 2018. It is achieving SDG9, SDG11, SDG12, SDG13, SDG15, and SDG17 by a large margin. It has a long-term commitment toward a sustainable town. It has contributed to making sustainable communities in three parts; economy, environment and society to revitalize the local economy, lead a circular society on the environment and create an attractive town for the young generation. Community recreation strategy includes industry promotion utilizing Irodori mountains, developing an Irodori business plan to involve new tourism programs, nurturing next generations of agriculture and forestry, circular community planning projects using the zero waste brand, environmental education curriculum, collaboration projects with private companies, education tourism utilizing the resources of Kamikatsu Town, extending education tourism based on sustainable tourism. The targets of Kamikatsu Town are:

(1) Happa business (Irodori): Develop next generation training programs utilizing Irodori mountains.

(2) Zero Waste: Winning the town brand with the first zero waste declaration in the country. Establish as an all-town project by flipping the idea (The town never had waste collection trucks.) Put control on the water tap in collaboration with the manufacturer. Ethical consumption.

(3) Sustainable tourism (Pangaea): Urban immigrants turn rural rich resources into tourism values. Residents' needs for cognition lead to tourism development. Economic revitalization and employment promote immigration.

3.3 STRATEGIES TO ACHIEVE THE GOALS

3.3.1 ZERO WASTE

REDUCE

Organic waste composting at home: All organic wastes are composted at home. Residents process their organic waste, such as food waste, through an electric composting machine. This machine decomposes the organic matter with the help of microorganisms. For the purchase of the machine, the town government will provide a subsidy (four-fifths of the price), and citizens will only have to pay 10,000 yen.

REUSE

Kuru-kuru Shop: This is a special store located in a garbage collection center. The goods in this store are all provided by residents of the town. Residents (those in Kamikatsu only) can put items they no longer need but can still use in the store, and people who need these items (including people from outside to the town) can take away for free.

Kuru-kuru Craft Center: Used fabrics (especially kimonos and carp-flags) are collected here. The staff (mainly elderly people in the town) will make them into new craftwork goods. Through clever and well-made design, many wonderful products are created in the center that are popular even among young people.

RECYCLE

Detailed waste separation rules: Kamikatsu Town has implemented detailed waste separation rules. There are currently 45 categories, including cans, glass bottles, plastic bottles, plastic containers, and so on. Where each kind of waste will be sent, what it will be recycled for, and how much it will cost/sell, are all explained in the posters. The waste must be washed and dried before disposal. If necessary, staff at the recycling station will also provide instructions and assistance to improve residents' waste sorting.

Waste pickup services: Since there are no waste collection trucks for collection in the town, residents need to send their waste to the town's waste collection center by themselves. The waste collection center is opened every day during the specified hours (7:30-14:00) except for the New Year period at the end of the year (December 31-January 2). For the aging people who are unable to carry their waste, the town's Zero Waste Academy staff provide a pick-up service once every two months. This is a service with a fee (general waste: 210 yen per 45L waste bag), of which the town government pays 200 yen and the residents pay 10 yen. This in fact is expected to motivate the residents to reduce their waste disposal by charging the fee.

3.3.2 DECLINING POPULATION

The population of Kamikatsu Town has been declining in recent years due to the lack of high school education and the effects of decreasing birth rate and the aging population. In order to keep the bottom line of 1,000 people by 2040, Kamikatsu Town considers attracting more people to come for carrying out their business through the brand merits of zero waste and Irodori. New businesses will bring jobs, which will attract more people to come and work, and the population will grow or at least decline at a minimum rate as a result. At the same time, this can also contribute to the economic development of the town. For example, company Pangaea, based on the spirit of zero waste, has launched an eco-tourism business that attracts people to come and experience the "Happa Business" (e.g., school field trips, new employee training trip). These educational trips are bringing in profits while getting more people involved in the Zero Waste initiative.

3.4 FUTURE CHALLENGES AND RECOMMENDATIONS

3.4.1 FUTURE CHALLENGES

FOR ZERO WASTE

5R achievement: Kamikatsu adamantly aims at achieving a 100% recycling rate while currently at just over 80%. Recognizing the remaining 20% as not an obstacle but an opportunity, it is now aiming for a 100% rate by the year 2030 (Ong, 2020). Some items such as leather, rubber, PVC, footwear, and severely soiled items must be burned, while some other items such as non-combustible material that does not remove dirt or cannot be disassembled, gypsum board, plaster, and shell must be landfilled (PED, 2020). Thus 5R (3R + refuse and repair) could facilitate Kamikats's zero waste challenges.

Manpower: Waste disposal is an issue that cannot be solved by Kamikatsu alone (IFG, 2019). All the people need to collaborate with each other to secure the ecosystem. Hundred years ago, Japan's population was about 40 million, now almost 120 million, and perhaps within the next 100 years, it may be back to 40 million again. Today one in four is over 65 years old (and already over a half in Kamikatsu), it will be one in three by 2035, and by 2060, two in five will be over 65. Demographics are changing along with aging and put a huge burden on the younger generation in terms of manpower in waste disposal and collection as well as other matters (Edahiro, 2015).

FOR HAPPA BUSINESS (IRODORI)

Aging people: In Japan, more than 60% of the farmer population is aged above 65 and in Kamikatsu Town 53% are aged people. The rapidly aging farming society in Japan would not only decrease Japan's food self-sufficiency percentage but also result in a low domestic farming business (Usman et al., 2021).

Generation gap: Due to a fascination with jobs related to science and technology, the young people in Japan do not want to adopt farming as their career path. They want to live, study in the city also rather than the rural areas (Usman et al., 2021).

Food habit change: Japan has seen the largest change to its diet in the last more than hundred years and mostly the younger have been transformed into an imbalanced meal laden with processed foods, highly saturated fats, empty calories, and few fresh vegetables. Day by day, new food items and recipes rather than traditional ones are added to the menu list (Silcox-Quimby, 2014).

FOR SUSTAINABLE TOURISM (PANGAEA)

Biodiversity loss: Promoting tourism to enjoy natural values may introduce over crowds by urban immigrants, leading to over exploitation of resources and creating wastage and biodiversity losses.

3.4.2 RECOMMENDATIONS

5R PROMOTION BY THE ENVIRONMENTALLY FRIENDLY SHOPPING CAMPAIGN

The collaboration with prefectures, municipalities, logistics business associations, consumer organizations, educational institutions, social institutions, families, and society etc. can undertake in this campaign by various activities to grow more consciousness about the nature, its conservation, environmentally friendly products, how waste pollutes the nature and how we should avoid it, and so on (Ministry of the Environment, 2014).

EASY MIGRATION FACILITY

Japan may offer easy migration from overseas to face off manpower shortage. Recently, the country's parliament passed a bill to raise the number of visas granted to unskilled and semi-skilled workers by about 500,000 by 2025 (Dekle, 2019).

SMART AGRICULTURE

Agriculture is a labor-based activity. This physical activity may be minimized by using advanced technologies according to human commands (Matsuoka, 2020).

PROPER DOCUMENTATION, TRAINING FOR PRACTICAL EXPERIENCE

To transmit indigenous knowledge to new generation, authorities may focus on proper documentation and publication, training for practical experience with offering subsidy, concession, etc.

ADOPTION WITH CHANGES

People may seek new agricultural products, byproducts which may be eatable, adorable, add aesthetic value, etc.

CONSERVE THE NATURE

Offering geo-tourism, wild social resources conservation campaign, tree plantation, isolating to conserve forest areas, etc. could be fruitful to cope up with tourists as well as benefits.

MENTAL SUPPORT CONSULTANCY

Countrywide counseling program for people, focusing on aged peoples' society, mass-media campaign on mental health improvement, and community-based get-together program arrangement may earn mental strength.

3.5 CONCLUSIONS

Kamikatsu Town is a small town but has made remarkable achievements in reaching the SDGs. Referring to Kamikatsu Town is to mention Happa business (Irodori), zero waste and sustainable tourism. These have become the unique brand of Kamikatsu Town with the large share of the Irodori brand in the market, a high rate of waste sorting and recycling, and attractive offers in the direction of sustainable tourism. By 2030, this town is expected to achieve SDG2, SDG3, SDG4, SDG8, SDG9, SDG11, SDG12, SDG13, SDG15, and SDG17. To date, the town has achieved 6 out of 10 targets. The efforts of the local government and community have revitalized the economy, created jobs for the local workforce, including the elderly in the model effectively for the whole model and the elderly themselves, attract and retain immigrants with their families and jobs to settle down in town.

Kamikatsu Town has identified important strategies and implemented solutions to continue developing in its direction in the long term. Regarding Happa business (Irodori), the locality continues to follow the motto of sustaining health by being a player and contributor for the elderly, developing programs to train the younger generation to use the irodori mountains. Concerning zero waste, the focus points are the 3R, namely the use of home composting machines, thorough reuse and recycling from waste and, importantly, care for the elderly people, who have limited working capacity. In future plans, Kamikatsu Town puts control on water tap in collaboration with the manufacturer and promotes ethical consumption. The town is also ambitious to establish a town-wide project by flipping the idea (The town never had waste collection trucks) and win the town brand with the first zero waste declaration in the country. In terms of sustainable tourism, the local government's policy is urban immigrants turn rural rich resources into tourism values, residents' needs for cognition lead to tourism development. Economic revitalization and employment promote immigration. More sustainable tourism programs are expected to be established with expansion to other regions.

Despite certain achievements, there are still many challenges faced by the people and the government of Kamikatsu Town. The common challenges of the whole Japanese society are population decline and population aging, and the difficulty in calling the younger generation into rural areas is partly caused by generation differences and food habit changes. In the context of Kamikatsu Town, the challenges can come from the ambition of the 5R achievement and loss of biodiversity among others.

Facing these situations, solutions that promote 5R, smart agriculture, attract immigration, transfer indigenous knowledge, adapt to changes, conserve the nature, and take care of community mental health are expected to address the challenges for Kamikatsu Town effectively.

References

Dekle, R. (2019, January 16). *Why can't Japan allow large-scale immigration to solve labor shortage problem?*. The Globe Post. https://theglobepost.com/2019/01/16/japan-labor-shortage-immigrants/

Edahiro, J. (2015, January 24). *Toward a sustainable Japan: Challenges and changes in society and population*. United Nations University. https://ourworld.unu.edu/en/toward-a-sustainable- japan-challenges-and-changes-in-society-and-population

Haga, K. (2015). Innovation and entrepreneurship in aging societies: theorical reflection and a case study from Kamikatsu, Japan. *Journal of Innovation Economics Management*, (3), 119-141.

Ideas For Good (IFG). (2019, March 1). *Kamikatsu's success formula becoming a Zero Waste town*. Zenbird. https://zenbird.media/kamikatsus-success-formula-becoming-a-zero-waste-town/

Office of Sound Material-Cycle Society, Policy Planning Division, Waste Management and Recycling Department, Minister's Secretariat, Ministry of the Environment. (2014). *History and current state of waste management in Japan*. Ministry of the Environment. https://www.env.go.jp/en/recycle/smcs/attach/hcswm.pdf

Jjwalsh. (n.d.). *Inspiration of zero-waste town*. GetHiroshima. Retrieved June 19, 2021, from https://gethiroshima.com/features/inspiration-of-a-zero-waste-town/

Matsuoka, K. (2020, September 20). *AI & drones come to the farm in Japan*. c&en. https://cen.acs.org/food/agriculture/AI-drones-come-farm-Japan/98/i36

Murray, M. (2019, November 18). *An introduction to Tokushima's Kamikatsu: Stunning nature and zero waste*. Setouchi Finder. https://setouchifinder.com/en/detail/4528?pg=3

Ong, R. (2020, July 9). *Kamikatsu's Zero Waste Center "WHY": It's finally complete*. Zenbird. https://zenbird.media/kamikatsus-zero-waste-center-why-its-finally-complete/

Planning Environment Division (PED), Kamikatsu Town. (2020, March 1). *Items that cannot be recycled in Kamikatsu Town and are in trouble*. Kamikatsu Town. https://zwtk.jp/2020/03/01/

Sakano, A. (2015, April 19). *Zero waste: A small town's big challenge*. World Economic Forum. https://www.weforum.org/agenda/2015/04/zero-waste-a-small-towns-big-challenge/

Silcox-Quimby, R. (2014, April 21). *Changing food culture in Japan*. Good Food World at Home. http://www.goodfoodworld.com/2014/04/changing-food-culture-in-japan/

Usman, M., Sawaya, A., Igarashi, M., Gayman, J. J., & Dixit, R. (2021). Strained agricultural farming under the stress of youths' career selection tendencies: a case study from Hokkaido (Japan). *Humanities and Social Sciences Communications, 8*(1), 1-8. https://doi.org/10.1057/s41599-020-00688-4

4. KAMIKATSU TOWN, TOKUSHIMA PREFECTURE (PART 2)

Visited online on June 1 and 2, 2021

Authors: Zakaria Abdul-Razak, Delmaria Richards, Uranchimeg Batdelger, Quang Nguyen Huu, Hoang Hanh Thi My

In this chapter, we discuss the summary of achievements, strategies, and future challenges of Kamikatsu Town. We conclude this report by proposing some solutions to combat the challenges hampering the SDGs in Kamikatsu.

4.1 KAMIKATSU TOWN'S STRATEGIES TO ACHIEVE SDGS

Local SDGs towns in Japan share several commonalities, including but not limited to surviving the tremendous municipal merger of the Heisei Era, possessing unique programs to accomplish the sustainable development goals (SDGs), multi-stakeholder participation, plus government endorsement and support. These plausible strategies have brought successes in sustainable community development. Nonetheless, notwithstanding the significant accomplishment of all three areas (Osaki Town, Nishiawakura Village, and Kamikatsu Town), Kamikatsu Town stands out for its Irodori venture, zero-waste program, sustainable agroforestry management, as well as its socially innovative approaches of attracting young immigrants to an aging town. All four strategies are paramount in meeting the community's overarching goal of ecological progressive harmonic revitalization. This section briefly explains the strategies employed to achieve the goals successfully. The strategies in focus are zero waste, "Happa" business, forestry management, industry innovation, and education tourism. The successes of these schemes are assessed thus far.

4.1.1 HAPPA BUSINESS (IRODORI)

Irodori ("to color") is the concept of altering the shape or appearance of things to add beauty. It is an essential part of the "Happa" business, which was started in the 1980s by the president of IRODORI. Co. Ltd, Tomoji Yokoishi. This business came about to diversify the agricultural industry to cash crops, considering the increased competition in timber production and the destruction of orange trees by the 1981 cold wave. In the past, the main agro-products were rice and oranges. With diversity, especially considering Irodori's growth in the agro-industry, there has been economic revitalization in Kamikatsu Town. The business involves selling fresh flowers and leaves to decorate Japanese dishes.

Farmers have tablets and computers to access a members-only web page on the Kamikatsu Information Network. Here, they find order information from buyers. Orders are then shipped

to different locations through Kamikatsu JA (Japan Agricultural Cooperatives). The products include plum, cherry, and peach blossoms, green maple leaves, plus, nandina; all used as food garnishes. It saw expansion in 1999 when IRODORI Co. Ltd. became a public-private partnership (PPP). After 30 years, 200 farmers are now involved in shipping 320 products locally and internationally to France, Germany, Thailand, etc.

Reasons for the success of the "Happa" business include the lighter weight of leaves, enabling the elderly women farmers to handle them with much ease, market research for the leaves and knowing the customers' expectations, and the use of distribution channels. Sales are also improved through product standard improvement, where special trimming techniques are utilized to guarantee high quality.

Furthermore, the innovation of becoming an agricultural marketing company by collecting demand data then disseminating it directly to framers and IRODORI Co. Ltd. has contributed to the increases. As demand and confidence among stakeholders are increasing favorably, the business becomes attractive to young people, thus so-called "U-Turn" and "I-Turn" immigrants are integrated into the "Happa" business, where locals and outsiders are encouraged to return or immigrate to engage in jobs within the industry. Moreover, the business attracts outsiders through study sessions in the internship program where experienced Irodori farmers train and mentor youths for increased participation. The collaboration between farmers and interns fosters improved relationships and information sharing among different generations.

Numerous benefits arise from the Happa business, including income generation, vitality-boosting of elders, supporting women farmers, providing internships, and increased technology utilization. International interns can be taken as part of a homestay program. The business might lead to an expansion of the international market share while encouraging immigration.

4.1.2 ZERO WASTE IN KAMIKASTU

Living a zero-waste lifestyle means striving to eliminate or massively reduce the solid waste going to landfills, incinerators and employing recycling options; thus sustainable, and reusable options are adopted. As over 100 major cities across the globe declared zero waste in the early 2000s, so did Kamikatsu Town. In 2003, it was the first among five cities in Japan to declare zero waste. The town prides itself on being a forerunner in sustainable solid waste management.

According to a presentation given by Mr. Nonoyama during our virtual field trip in June 2021, the zero-waste lifestyle in Kamikatsu Town aims to reduce waste by promoting the 3Rs, reduce, reuse, and recycle, without the utilization of landfilling and incineration by 2020. A Zero Waste Center was developed to aid in achieving its goals. The move was partly influenced by the 1997 Containers/Packaging Recycling Act which brought sweeping changes to waste management across Japan, including Kamikatsu. After that, it started with nine categories of separation but now has 45. The essential element is to reduce then reuse, with recycling being the last option. In the town, zero-waste refers to "making waste, over-

consumption, and spending into zero," that is, reducing waste from the production stage. A reduction or total elimination of single-use plastics is also a focal point (Nonoyama, 2021).

Since 2017, residents transport their waste to one waste collection center, Hibigatani Waste Collection Center, then segregates them into 45 different categories. Elderly residents who cannot regularly take their waste to the center are assisted by the staff of the waste collection center, who visit these homes and collect the sorted waste once every two months (Nonoyama, 2021).

The uniqueness of Kamikastu's zero waste project includes a stringent waste characterization of 45 different categories, the signs at Hibigatani Waste Collection Center indicating the destination and deliverables of various wastes (Figure 1), the transparent display of profit and loss from waste management, a Zero Waste Academy (established in 2005), and a non-profit organization for research and promotion of zero waste projects to educate the residents and outsiders regarding the community's commitments to the zero-waste concept. Household compost can be done collectively then the excess is sold to outside markets.

Figure 1. Hibigatani Waste Collection Center Disposal Sign, Kamikatsu Town.

Source: Pangaea, LLC. (2021)

4.2 SUSTAINABLE AGROFORESTRY MANAGEMENT AND SOCIALLY INNOVATIVE APPROACHES

Nature conservation through sustainable use of agroforestry resources is a dominant theme in the town's SDG strategy. After the increased market competition, the timber industry declined; now, the area is covered with 90% forest. Moreover, the growing and retailing of leaves and

flowers are done sustainably. Additionally, there is a promotion of sustainable health and education tourism. The current and future socio-economic, environmental impacts are considered when addressing the needs of tourists.

In Kamikatsu Town, visitors can experience a wide array of eco-friendly activities including kayaking, aesthetics (rice terraces in Kashiwara), join nature camp (for a botanic experience with plant species observation), geo-tourism (fossil excavation), and trekking through mountains. Additionally, collaboration with big corporations like Sunstar Group to promote health tourism is commendable and offers visitors the opportunity to enjoy nature coupled with essential products.

Kamikatsu Town should promote a limited number of small craft items for sale to promote greater use of forest resources. Additionally, kitchen and garden waste can also be coupled for greater compost output or bio gasification to produce steam or electrical energy.

4.3 STRATEGIES FOR PUBLIC PARTICIPATION AND COLLABORATION WITH BUSINESSES AND INDUSTRY

Kamikatsu Town had a goal of zero waste. It is moving forward to a sustainable and beautiful town, which was the first in the country to declare as the zero waste town from 2003 and joining the Association of the Most Beautiful Villages in Japan in 2005. Kamikatsu Town has developed 3rd master plan for sustainable socio-economic promotion. The goal is to communicate both social-economic and environmental issues for sustainability. Since 2015, Kamikatsu started developing a scheme for communication strategies with the national government and corporations. The town has been planting flowers and trees and growing garden plants in greenhouses for early blooming plus market distribution. Under the master plan, the town has been contributing beautiful flowers and plants.

IRODORI, Co., Ltd. has developed the Irodori business, popular among locals because of its coloring and gorgeous leaves. The corporation serves as a link between individual producers and markets, carries out business activities, provides information that connects calls or emails with producers, operates an information network system for handling orders, and performs other actions. In this business, elderly farmers can aggressively be involved in this Irodori business that helps them earn income and happiness there. More than 50% are females, and elderly who are average age is 65 with around 200 households.

To aid the program, a tracking information system has been developed and set up in the home of each farmer. It analyzes data by checking sales, performing ranking, relates data, and finally, send information to enable sales. As a result, the town realizes well-being by promoting natural resources with local public participation. Owing to this business, more people are becoming energized with increased confidence in their participation. Many foreigners visit the town to familiarize themselves with the Irodori business. Today, the business has grown to record sales of 260 million yen every year.

Natural resource management in Kamikatsu Town by several cooperating entities, including the cooperative agricultural sector, and other primary objects of the area, cooperates and operates the business. The business provides the elderly with income and contributes to the town's local socio-economic structures. Therefore, the business boosts the economy of the town. Consequently, it has direct impacts on other industries through the increased number of visitors to the town. They namely visit to engage in eco-tourism, observing the business, and or attending seminars. Kamikatsu Town is continually striving to develop healthy eco-tourism further. Several primary tours, such as visiting hot springs with local ingredients and factory tours, promote collaboration with the town's office. For example, a famous five-star company called Sunstar Group is collaborating by networking within the systems.

4.4 FUTURE CHALLENGES

As introduced in the previous sections, briefly, like many other municipalities in Japan, Kamikatsu Town's population is shrinking. However, aiming at the region's revitalization, so-called the "sustainable development in Kamikatsu way" (Nonoyama, 2021), the town is working toward a socio-economic system based on its unique characters and the valuable practical experiences of its old towners (Suzuki, 2012).

According to Kamikatsu Town's members we virtually visited in June 2021, to accomplish its sustainable development goal, Kamikatsu Town must tackle seven main challenges: prospering with abundant nature; creating sustainable energy; making a way in the world while carrying on its unique tradition and culture; parenting collectively, having a sound mind in a sound body eternally; the region's attractiveness leading to the economic development; and preparing and supporting mutually. These challenges cover the whole socio-economic and ecological system of Kamikatsu Town. Therefore, it will bring out a sustainable social-ecological environment for the town's citizens to work and live collectively by surpassing these.

4.5 SOLUTIONS TO COMBAT CHALLENGES

To tackle the future challenges, Kamikatsu Town, by its SDGs future urban planning (Kamikatsu Town, 2018), determines what strategies or targets it needs to work toward its sustainable goals.

There are, in total, eight main strategies: (1) industrial promotion utilizing Irodori; (2) promotion of new entrants in agriculture, forestry, and fisheries business; (3) recyclable town development utilizing the zero-waste brand; (4) promotion of seasonal tourism; (5) employment support for young people and successors training; (6) promotion of sustainable and beautiful town development; (7) promotion of zero waste policies and facilities; and (8) formation of healthy longevity that is active throughout life. Moreover, the crucial point in working with these strategies is that the approach must be sustainable and integrated (Kamikatsu Town, 2018).

Kamikatsu Town seemingly acknowledges that the backbones of its "sustainable development in Kamikatsu way" are the Irodori business and the zero-waste brand. Therefore, by a sustainable and integrated approach, all strategies are considered based on the prospering of these two backbones. The approach fundamentally promotes and utilizes the Irodori business and the zero-waste brand toward sustainable development. As a result, it helps revitalize Kamikatsu Town, bringing up people's living conditions eternally and in a very Kamikatsu way.

What is more, it can be considered that the place's unique character should be the core of any attempts toward its future development. Kamikatsu Town, with its way of sustainable development, turns out to be a typical and symbolic example of this finding.

4.6 SHARED VALUES BETWEEN OTHER TOWNS AND OUR COUNTRIES

Globally, waste rates are rising with rapid population growth and urbanization. Annual waste generation in the world is expected to increase by 70% from 2016 to 3.40 billion tons in 2050 if with no efforts. Over 90% of waste in low-income countries is often disposed of in unregulated dumps or openly burned, causes serious health, safety, environmental outcomes, and contributes to global climate change (World Bank, 2019). The waste characterization will help determine the number of total wastes and the types of waste. It is crucial because it helps us decide the waste amount generated and which type of waste must be focused on to ensure a successful recycling approach. Kamikatsu Town's current recycling rate is more than 80%, an achievement compared to 20% of Japan's national recycling rate.

To gain this success, Kamikatsu's residents put much effort into recycling, for example, sorting waste at source, reducing environmentally unfriendly production, and increasing reusable products to prevent the spread of waste in daily life. Similarly, traditional jobs like the Happa business (Irodori) contribute to the uniqueness of this Japanese town. Although the Kamikatsu Town is facing a severe lack of young labor force and limited immigrants, the residents there showed that aging people between the ages of 70 to 75 years old are still robust and active. Currently, Kamikatsu's residents are trying to train and transfer their knowledge about doing business and agriculture to young people. Moreover, to comply with the economic development and sustainable development goal, Kamikatsu Town is also focusing on tourism for anyone that wants to experience the rural lifestyle in Japan like the 100 years of the forest, Kuru-kuru Shop (a waste recycling/reuse shop), in a zero-waste town.

Although Kamikatsu Town is small, its actions will be successful and can be a template for other towns and cities worldwide to learn from; especially regarding citizen engagement and raising awareness. For example, what is produced in town, is recycled and used there. Similar policies comparable to waste separation, redesigning products into reusable items will be workable in other places in and out of Japan, especially in Asian countries where rapid population growth and economic development create massive demand.

4.7 CONCLUSION

All the projects promote small and medium-sized businesses alongside industry innovation, having positive spillover effects for U-turn and I-turn. Moreover, Irodori internships and educational opportunities for all age range ensure the stability of the programs. The town's projects are salient for its survival, given its population. We learn that to achieve sustainable societies, the loops between production, consumption, and disposal must be closed. Therefore, we need to reduce waste from upstream (at the production stage). For this, clear ecological goals accompanied by philosophies communicated and agreed upon by majority stakeholders are necessary.

The most successful point reached by Kamikatsu Town is that they can achieve full participation of all social stakeholders: central and local arms, the government, manufacturers, enterprises, communities, households, and so on to understand their responsibilities for the community future generations. Kamikatsu Town clearly understands that to achieve its zero-waste goal, the most challenging part will be how to keep its traditional and unique characteristics while trying to connect with the outside world, which has more education, opportunities, technologies, and so on.

Many people argue that Kamikatsu is a small, closed community, an isolated town, which can be among the advantages to Kamikatsu Town becoming a symbol. However, we believe that other towns and cities worldwide can employ some of the same strategies to achieve zero waste, alongside the general SDGs goals. Nevertheless, when doing so, the proper steps and timelines with the policies are paramount for success.

References

Kamikatsu Town. (2018, July). *Kamikatsu SDGs future urban planning*. Kamikatsu Town. http://www.kamikatsu.jp/docs/2018082900017/file_contents/kamikatsu_SDGs.pdf

Kamikatsu Town. (2021, April 1). *Reiwa 2nd Year Kamikatsu Town SDGs Promotion Committee Activity Report: Shared Vision*. Kamikatsu Town. http://www.kamikatsu.jp/docs/2021032400017/

Nonoyama, S. (2021). [Lecture notes in SUSTEP online trip]. Sustainable community planning: Sustainable development in Kamikatsu way. Pangaea, LLC.

Pangaea, LLC. (n.d.). [Video in SUSTEP online trip]. Introduction about Irodori ad zero waste in Kamikatsu. Pangaea, LLC.

Suzuki, N. (2012). Creating a community of resilience: New meanings of technologies for greater well-being in a depopulated town. *Anthropology & Aging, 33*(3), 87-96. https://doi.org/10.5195/aa.2012.58.

World Bank. (2019, September 23). Solid Waste Management. The World Bank. https://www.worldbank.org/en/topic/urbandevelopment/brief/solid-waste-management.

INDIVIDUAL REPORTS

TOPICS

Briefly report and discuss the followings:

- Lessons learned from the three municipalities,
- Applicability to your country, and
- Suggestions for the municipality(ies) you virtually visited.

RATHNAYAKEGE HEMALI RATHNAYAKE

1. OSAKI TOWN

Osaki Town has been recognized for its integrated solid waste management plan as a stepped forward for achieving Sustainable Development Goals. While the key element of the project is being the motivated community participation, they have achieved 84 percent of reduction in final landfill waste and 83% of recycling rate in 2018. That has enabled to resolve the major issue of landfill facility by extending the life cycle of present landfills site for next 35-45 years. The future challenge of the project is to introduce the waste reduction strategies by reducing plastics and abolishing single time used packaging which it drives to considerable decrease of per capita waste generation and overall city waste management cost. The city's next initiative for achieving SDGs by 2030 is to establish circular economy though compost manufacturing from organic waste and utilize as resource input for agriculture and develop value added local production venture.

In Sri Lanka averaged daily per capita waste generation is nearly same as Osaki Town around 800g of which 65% is biodegradable. The country recently brought up a policy decision to go for totally organic agriculture, which may consequently result in high demand for compost fertilizer. This enables to motivate for a circular linkage between food and agricultural waste used for compost manufacturing and fertilizing for agriculture. That has the potential of the total biodegradable waste generated is to be the resource for compost manufacturing. The quality of compost manure depends on the state of waste segregation at source, to be not mixed with inorganic compounds. Therefore, the effective contribution of the citizen is the key to success the process. Presently composting projects have been implemented in some cities of the country, but it should be further implemented as a national policy, where biodegradable waste is supplied to the collection centers trough a standardized collection system or utilized by the community themselves for home gardening. Likewise, country should first have to step to segregate the organic resource content of the national solid waste generation, where then remain 35 percent is the target for recycling.

2. NISHIAWAKURA TOWN

Nishiawakura city has been recognized as a SDGs Future City in 2019. The successive elements of the city revitalization process are forestry management plan and related local venture, managing energy demand by renewable energy generation, attracting immigration and ecotourism, its contribution to the climate mitigation by stimulating the carbon sinking process through maintaining a biomass carbon capital and removing the carbon dioxide from the air is also a significant benefit from this eco city model to the globe.

In applicability to Sri Lanka there are some notable potentials in countryside in terms of forest management. Considering the timber production, 42 percent of country's timber supply comes from home gardening, 11 percent from the forest plantation and rest from imports and other agricultural plantations (FAO, 2009). Since private sector has the major capacity, the public private collaboration might be a good initiative to create an integrated economic-

environment development plan in regional wise. Further the agricultural cities like Mahaweli development towns which developed to supply irrigated water to the dry zone have gone through huge transition of forestry to agriculture land use. The carbon loss has occurred due to these transitions can be offset by such kind of forestry management projects within the Mahaweli development regions, by adding with multiple benefits of preserving ground water table and natural water schemes, enhancing the environment quality, and introducing revenue streams through forestry management related entrepreneurship to attract younger population.

3. KAMIKATSU TOWN

Kamikatsu Town has achieved its identity and recognition towards achieving SDGs through Irodori happa business, zero waste declaration and sustainable eco- tourism. The remarkable feature of Irodori happa business is that it enables elderly population to be a player and a contributor to the economy and thereby being themselves a healthy community. Zero-waste concept of the city considers much on reuse and recycling with community participation. By providing composting machines to the houses, they have further reduced the burden on city resources on kitchen waste management and on the other hand it is conceptually a mini scale resource circulation method that utilize the nutrient content of their kitchen waste to home gardening.

In Sri Lanka if considered the main city of Colombo, still most of the houses have a small-scale gardening space and most of them are provided with composting bins. Yet that kind of electric composting machines would be more attractive in kitchen waste recycling. I believe that kitchen waste collection from houses except from town center commercial spots should be strongly limited and motivate to dispose only other waste items in clean and proper manner to achieve the zero-waste target. Considering happa business, in Sri Lanka, especially elderly and women entrepreneurship programs would be easily adopted to engage that kind of businesses., In the countryside it can be adjusted to compatible local resources, which is unique or available at the region and can be managed by public private collaboration. I would like to suggest for introducing plant leave based packaging industry where the waste is goes to the organic manure production. That enables to limit countries plastic imports and circular the natural resource of the country and lead for green economy.

References

FAO, 2009, Forestry Outlook study, retrieved from http://www.fao.org/3/am624e/am624e00.pdf.

Kamikatsu's success formula becoming a Zero Waste town, retrieved from https://zenbird.media/kamikatsus-success-formula- becoming-a-zero-waste-town/

Nonoyama S, sustainable Community Planning, Kamikatsu Town, Tokushima Prefecture SUSTEP Online Trip, June 1&2, 2021

Osaki Town, Global Standard: Osaki Town - Toward a sustainable town, SUSTEP Online Trip, May 25, 2021

Shizume, C., 2020, Kagoshima's Osaki Town's ambitious plans to achieve SDGs by 2030, November 23, 2020, Retrieved June 9, 2021, from https://zenbird.media/kagoshimas-Osaki-towns-ambitious-plans-Sdgs-by-2030/

Ueyama, T, Effort for regional revitalization that no one is left behind, Nishiawakura Village, SUSTEP Online Trip, May 26, 2021

PESHALA AMARATUNGA

INTRODUCTION

Osaki, Nishiawakura, and Kamikatsu are three cities selected under revitalization of local areas through progressive SDG approaches. Most importantly all the towns followed their own way towards achieving SDG goals, from the resources they owned. They achieved economic, socially and environmental sustainability within a limited budget. They acted as role models to all other cities, not only in Japan, but other countries as well. They succeeded through collaborative approach with various stake holders.

LESSONS LEARNED

Osaki Town practiced zero incineration waste management, which is very eco-friendly. It is very impressive that residents are highly motivated, and they separate household waste into 27 categories, which is an unimaginable process. They achieved challenge of dumping waste in the same site by extending life of same land fill site. They had three options to prolong the same landfill site, (1) to build an incineration plant (2) to have a new landfill site and (3) to make the current system efficient and use same site for a longer period. They followed third option and came up with this efficient waste sorting and recycling. Due to their waste separating efficiency, the ratio of recycling to land filling increased. They could achieve recycling rate more than 80% which best not only in Japan but all over the world. Consequently, the waste extent goes to land fill, reduced by 84% in 2018 compared to 1998. Finally, they could extend the land fill life up to 35-45 years. Most importantly, the power of community is the way to their success. They maintain a good social relationship with each other. Osaki Town has been able to create job opportunities for recycling as well. The residents follow a healthy lifestyle, enjoying local foods.

Nishiawakura Village, facing decreasing population and weak economy, could overcome their challenges with 100-year forest plan and other new business activities. Following the thematic slogan of forestry industry “brighten our forests, brighten our life, brighten our future” they found solutions for their own problems, achieving SDGs. The village maintains 93% of high forest cover enabling to create a healthy and fresh environment. The two pillars of their vision are to create a low carbon society and local venture and attract young generation. The village aims to create a high-quality countryside life by activating these pillars. Biomass industry, hydro power generation and eco-tourism development plans are important aspects of village revenue. The local venture could attract young generation come to the village. The theme behind their development is “No one left behind” which is a good lesson for every village who seeks their own success.

Farmers in Kamikatsu Town are independent business owners, whose main livelihoods created upon agriculture, forestry and happa (Irodori) business. It is interesting to know that the majority of citizens, who engage in happa business, are averagely more than seventy-five years old. Even the difficult period like covid 19, the young farmers did not compete with the senior farmers, respecting them as adults. The residents are highly motivated that they

contributed lot to make the zero-waste concept a reality. They also work happily towards achieving SDGs. Community recreation strategy of Kamikatsu Town is very impressive. An industrial promotion programme started utilizing Irodori mountains. This aimed to develop tourism and encourage next generation by integrating agriculture and forestry. In forest area town government developed a plan for better production system. Irodori farming manual was prepared and promoted training to aware the students about technical know-how of the business. Zero waste concept utilized in many public and private projects. Health tourism was developed using rich nature with forest resources as well. Another interesting point came out from citizen's hearing is that they do not like artificial Cedar trees but want to have "Satoyama" forests.

APPLICABILITY TO MY COUNTRY - SRI LANKA

Sri Lanka can apply the zero incineration waste management practices as we learned from Osaki Town and Kamikatsu Town. The waste separation is not properly practiced, and it is necessary to change attitudes of people through positive thinking approach. Lessons can be taught through the high motivational attitudes of local residents in these Japanese SDG towns. The life span of open dumping sites can be extended, following proper recycling methods without burning. The government officers of Municipalities should be educated on proper waste separation and recycling. These practices should be added to the school curricula as well.

In Sri Lanka the forestry sector is not much significant with forest plantations. The Rathnapura Municipality can focus on making profit from forestry as much of the plantations concentrated around that area. The lessons learned from Kamikatsu can be applied for this. There are beautiful waterfalls located in the region. Therefore, eco-tourism and producing hydroelectricity is much possible in this municipality. The residents need to make aware with the SDGs and appoint them as leaders of implementing projects. Rathnapura is also blessed with precious gemstones, which has opened paths to businesses and employment in the area. Local ventures can be introduced with gem industry and other local products. International study tours can be promoted regarding gem mining process in the rivers and inside the underground tunnels.

Another city is "Kithulgala" which is small town in Rathnapura district. Kithulgala is famous for jaggary and treacle (syrup) made up of "Kithul tree" (Fishtail palm). It is a very healthy food that can be used instead of sugar. The area is famous for water rafting a famous bird watching area as well. The natural forests play important role in biodiversity conservation as well. Therefore, the eco-tourism can be promoted through local ventures, specific food products and study tours as we learned from Nishiawakura and Kamikatsu.

SUGGESTIONS

Since Osaki Town has been identified as an "education platform" for SDGs, and a town of recycling, the knowledge can be spread all over the world. Therefore, it is important to train the young generation and give them thorough knowledge of SDGs as well as develop their foreign language (English, French, etc.) skills. Then the knowledge can be shared with schools

in other countries. They can organize mutual study tours with international students. This will help whole world turning to a circular economy.

The technical know-how of Osaki Town can be spread through international workshops and seminars. Recycling facilities can be installed to manage waste comes from animal husbandry, even though, it is considered as commercial waste. The special food items like passion fruit and eel can be used to promote the tourism, both locally and internationally. Therefore, Japanese government can support Osaki Town to conduct a massive awareness and promotional campaign all over the world. They can work collaboratively with JICA to make this a successful project. Products can be developed with collaboration with researchers and business entities.

Nishiawakura is very successful with forestry business, which is important for the economy of the village. One suggestion for Nishiawakura is, have a good plan for biodiversity conservation. It will help increase species of both flora and fauna. This will support to increase the eco-tourism as well. Cable car or rope line system also can be operated in the mountain to attract more local and foreign tourists. Forestry researches also can be facilitated at international level.

In order to eliminate disposable containers and discontinue single-use plastics in Kamikatsu, open markets can be introduced. There, all fruits and vegetables can be stored without wrapping. A scale can be used to weigh the required amount of vegetables. This is practiced in supermarkets and fairs of some countries (e.g, Sri Lanka). In restaurants, instead of plastic containers natural wrappers can be used (In Sri Lanka, Banana leaves and lotus leaves are very popular). Japan also has large lotus leaves and they can be used as an alternative. The oranges (citrus) grown in the area can be promoted through a special marketing name. Researchers can do experiments to improve the quality and taste of various citrus varieties in Kamikatsu. To overcome the impact of Covid-19 pandemic the business owners can help each other for their income earning. The person who gets highest orders can buy products (e.g., happa business) from others and help each other during difficult situations. This can be practiced for the restaurants as well. Innovative ideas of people can be encouraged with incentives and subsidies. Spread the news through media broadcastings. Leisure activities can be planned in Irodori mountains, which will attract more young people.

References

Coca, N. (2018). Learning from the past: Japan’s tree planting efforts provide lessons for other countries. Retrieved on 14th June 2021, from https://ensia.com/features/japan-reforestation-deforestation-lessons- indonesia-china.

Edahiro, J. (2018). Nishiawakura's Initiative for Self-Dependence Attracting Motivated Young People to Migrate to the Village and Start Businesses. Retrieved 15th June 2021, from https://www.japanfs.org/en/news/archives/news_id036016.html.

JICA (2012). Profile of Environmental and Social Considerations in Sri Lanka. Retrieved on 18th June 2021 from, https://openjicareport.jica.go.jp/pdf/12080032.pdf.

AUNG KO KO

LESSONS LEARNED FROM THE THREE MUNICIPALITIES

We learned about the sustainable management of three municipalities during the online field trip: Osaki Town in Kagoshima Prefecture, Nishiawakura Village from Okayama Prefecture and Kamikatsu Town in Tokushima Prefecture. All three municipalities have unique characteristics that are in-line with sustainable development, and are trying to achieve sustainable goals in the future.

With a 13,000 population, Osaki Town has ranked first in nationwide recycling for 12 consecutive years. Through community-led efforts, the town now has a 27-item waste sorting system. This effort allows for more than 80% waste reduction compared to 1998, generates municipal recycling revenue and creates new jobs. The most critical stakeholders in the town are self-governing associations. The people belong to each self-governing association and do daily activities, including recycling with 27 items separation. Participating in the waste separation activities as a place for communication to strengthen bonds among the community is an interesting social behaviour of Osaki. The local government is responsible for issuing laws and rules of recycling, investing in a waste recycling company and managing the disposal site.

Most artificial forests in Nishiawakura, as in other regions throughout Japan, were planted during the country's postwar years of rapid economic growth. With the subsequently broader distribution of inexpensive imported wood, Japan's forestry became dwindled, leading to insufficient attention to forest thinning. The degradation of artificial forests was also caused by the lack of thinning and other forest management efforts. Facing these circumstances, the village established "a 100-year vision of forests" in 2008. This initiative aims for cherishing the thought of ancestors who planted the trees 50 years ago for future generations and for making concerted efforts to raise the forests for another 50 years into splendid 100-year old forests. The 100-year old forest is being promoted mainly by the local government. With the village office on behalf of the owners, the local government keeps the forests, thins them out and maintains forest roads. The village sells wood derived from forest thinning under proper management as logs and promotes the wood products for end-users to increase the value-added local wood.

Kamikatsu town is a small town located in Shikoku Island with less than 1,500 people, 53% of which belong to the aging population. The town is approximately 110 km2 in the area where the forest occupies 88% of the land. Kamikatsu town has three distinctive features: Happa business called IRODORI, zero waste management and sustainable tourism.

The Irodori company created a market for decorative leaves to garnish traditional Japanese cuisine, and established the “Irodori” brand. Farmers, an agricultural cooperative, the “Irodori” company are engaged in this enterprise together. The average age of farmers in the village is 70 years old, and the majority are women. Irodori’s business began with only four female

farmers in 1986. In 1987, Irodori started as a project of the agricultural cooperative of Kamikatsu. Since 1999, Irodori has been an independent semi-governmental corporation.

Kamikatsu town used to exercise open incineration as its primary form of waste disposal. Over time, the town could not afford a new incinerator with a declining and aging population. Therefore, the town decided to explore an alternative method of waste disposal. In 2003, Kamikatsu became the first town in Japan to implement the zero-waste policy. Since the time of declaration to eliminate landfill and incinerated waste, the residents have worked together to fulfill the "3Rs" principles of reducing, reusing, and recycling. The service for trash collection is not operated in the town and the residents have to send their waste to the waste collection center by separating it into more than 45 different categories. With the keen awareness to reduce waste, the residents compost the kitchen waste and food scraps at their home. Through their collective efforts, the residents of Kamikatsu now recycle more than 80% of their overall waste.

Kamikatsu is a unique destination to study in terms of sustainable tourism development. The city has been being tried to achieve SDGs in the future. It is a beautiful village in a valley with fantastic local products, onsen hot-springs and hiking trails to attract visitors. Recently, the town's zero-waste policies to achieve sustainability have attracted a new type of visitor.

APPLICABILITY TO MYANMAR FROM THE LESSONS LEARNED FROM WASTE MANAGEMENT OF OSAKI TOWN

Generated waste in Osaki Town used to be brought to the landfill as the town had no incineration facility in its district. However, Osaki became the leading municipality for 12 consecutive years in Japan due to its recycling rate. So, how does Osaki maintain number one for such a long period? The same with local authorities in Japan, Osaki had to face the landfill capacity problem. As the town could not incinerate waste, they tackled this problem by separating the waste into different categories to prolong the life span of landfills. Therefore, Osaki established an original sorting method named 'Osaki System', calling for different waste separation and collaborating with businesses to advocate its initiative. By applying this waste sorting strategy, the government of Myanmar could initiate some garbage sorting systems depending on the regions as the majority of towns in Myanmar do not have incineration plants.

Garbage sorting in Osaki is not just ordinary garbage sorting because waste is sorted into 27 categories to maximize recycling. This steady effort of waste separation began to appear in numbers gradually, and the amounts of landfill waste and recycled waste reversed after implementing garbage sorting. In 2017, Osaki's recycling rate was over 80% to that of the national average in Japan. As waste separation is not usual in Myanmar except in large cities, it may sound odd for the people for the first time. However, awareness to the public like educating the public with training for separating various kinds of wastes into kitchen wastes, burnable and unburnable wastes will maximize the recycling and life span of landfill sites in Myanmar.

While making remarkable progress in solving its waste issues, Osaki is making another step toward promoting SDGs. Osaki aims to reduce plastic and achieve to abolish single-use containers by 2030 completely. It also aims to provide a beneficial alternative by 2024 and targets 80% penetration by 2027. Moreover, Osaki wants to accelerate the circular economy, promote SDGs, make renewable energy, and build a new social system.

SUGGESTIONS FOR WASTE RECYCLING OF OSAKI TOWN

On average in Japan where the recycling rate is almost 20%. However, the recycling rate of Osaki town is more than 80%. The recycling cost will get cheaper when citizens fully corporate in sorting and washing garbage. It will also reduce the costs in recycling plants because there is no need to sort and wash using expensive equipment. Conversely, the more the governments spend the money to recycle, the more recycling rate may go up. However, this will not be acceptable in terms of fiscal policy. Citizens' cooperation is a "must" for achieving sustainable waste management. In addition, the cleaner recyclable garbage is, the higher the selling price.

References

Edahiro, J. (2015). Toward a Sustainable Japan: Challenges and Changes in Society and Population. Retrieved from https://ourworld.unu.edu/en/toward-a-sustainable-japan-challenges-and-changes-in-society-and-population

ECD, MONREC (2017). National Waste Management Strategy and Action Plan for Myanmar, the Republic of the Union of Myanmar, Nay Pyi Taw, Myanmar. Retrieved from https://optoce.no/wp-content/uploads/2019/04/Myanmar-National-Waste-Management-Strategy_Mar-2018.pdf

Edahiro, J. (2018). Nishiawakura's Initiative for Self-Dependence Attracting Motivated Young People to Migrate to the Village and Start Businesses. Retrieved from https://www.japanfs.org/en/news/archives/news_id036016.html

Haga, K. (2015). Innovation and entrepreneurship in aging societies: theorical reflection and a case study from Kamikatsu, Japan. Journal of Innovation Economics & Management, 18, p. 119-141. Retrieved from https://www.cairn-int.info/journal-of-innovation- economics-2015-3-page-119.htm

Khaing Zar Yee, (2019). Overview of solid waste management in Myanmar. Retrieved from https://www.pic.org.kh/images/2019Research/20191014_Overview%20of%20Solid%20Waste%20Management%20in%20Myanmar.pdf

Jain, A. (2017). Waste Management in ASEAN Countries. p.7. Retrieved from https://www.unenvironment.org/resources/report/waste-management-asean-countriessummary-report

URANCHIMEG BATDELGER

OBJECTIVE

The aim is to introduce and share Japan's Local Sustainable Development Goals (SDGs) and learn from good practices that focus on natural resources and beautiful cultural villages as Osaki, Nishiawakura, and Kamikatsu Town. In addition, participants and organizer discussed their own experiences. A total of 22 participants have joined, and Naoko Kaida has successfully instructed the online trip.

INTRODUCTION

The Japanese government declared a total of 17 SDGs for support in the countries with stakeholders. Those Osaki, Nishiawakura, and Kamikatsu Town were all selected in SDGs program from 2019. Each town and city has owned their business based on the natural and cultural way from history. Even though the town/villages have faced several problems, challenges, and successes, they always learn from national and international levels.

A total of participation was 22, and they discussed, shared their recommendations, learned from Japanese practices, and exchanged their acknowledgments. They hope that they will contribute all the experience from the online trip to their countries.

DISCUSSION

Osaki Town: a total population is 12,831, and SDGs main is to reduce plastic containers and one-time plastic consumption as minimum as possible. The number one is fish, passion fruit, chicken production, and waste (organic and non-organic) recycling business. The main activity is each household participated in the landfill disposal of waste without incinerators. The recycling system established cooperation, collaboration, and trust between households, enterprises, and local government for organizing the collection, explanation/guidance, and permits. The three participation has own responsibilities, for example; the household separates and sorts; besides, enterprises inspect the garbage and train the student, who needs recycling systems. The towns implemented the project, which did succeed in reducing the waste to be final disposal by 84% over the 20 years. Without incineration, landfill sites will have to face the challenges such as limited landfills, contaminations, etc.

Nishiawakura Village: a total population is 1437, and household 607. The village aims to create high-quality countryside and work for over 100 years in the forest business and renewable energy business. Forest in Nishiawakura was planted artificial for economic growth and forest management for avoiding degradation of the artificial forest. The business mad job creation and economic development under-supported projects, named Mori-no-gakko are responsible for SDGs goal as clean energy. The businesses are conducting such as forest eels, hot springs, and wooden products. The village adopted solar, fire, small biomass, and hydropower plants as facilities for introducing renewable energy. For example, solar power uses depend on power usage, which resident is 100 kW and private is 90 kW. According to renewable energy, the local government has been working to support the tourism business, promote migration, and

elderly participation. Last decades, people moved from the countryside to the village the population has been increasing compared to 2009. Even though the population is rising, there has met a challenge for high school. The local government is preparing for the future city under SDGs; to promote sustainable development in the three aspects of the economy, society, and the environment.

Kamikatsu Town: a total population is 1489 with agriculture as Irodori and citrus and zero waste. The town covered 80% of planted forest. From the history of efforts, happa business, how it developed from foresty to happa launched by Mr. Yokoishi. He founded the business in Okasa to understand the possibility of working with farmers. The business just started with four farmers; currently, the number of farmers increases by over 200 farmers. The Irodori business is spread all over the county, independent of farmers managed by Irodori Corporation. In this business, elderly people aged over 60 as farmers can very aggressively be involved and support their life's income and they would like to participate. Irodori business contains three-cycle systems: information to the company, shipment to the farmers, and production dispatch to the JA. The Kamikatsu village was declared a zero-waste town, in 2003. It is moving forward to a sustainable and beautiful town. Natural resource and management in Kamikatsu Town, the cooperative agricultural sector, and business contribute to the town's local social economics. Therefore, the business contributes to motivating the economy of the town. Low carbon technology sets in the villages contain solar power systems in some residents, such as schools and facilities. To increase the number of visitors to the town, observe the business, or attend seminars on eco-tourism. Kamikatsu Town is developing healthy eco-tourism but not fully developed. Several tours, such as the primary type, are hot springs with local ingredients and factory tours promoting collaboration from the town office and five-star company famous in Japan for collaboration with networking systems. Therefore, the town has recently challenged the declining population, then, ongoing plan to support the people living in the town and running the business.

CONCLUSION

According to SDGs, the online trip introduced and visited three towns: Osaki, Nishiawakura, and Kamikatsu, which were watched purposively by virtual. Those towns are selected SDGs proposed villages, and it will be making future sustainable development technology in the examples. I have learned how communication is essential to develop business from support, collaboration, participation, and efforts from the government. Besides, SDGs in Japan are developing around Asia, such as Malaysia, Indonesia, and even Mongolia are adopting these improvement and comprehensive goals. Even though COVID-19, I am excited to participate in the future Japanese perspective of towns experience and practice in a virtual trip.

References

Kamikatsu Town, Promoting Local government SDGs for Invigoration of Localities, March 28, 2019

Kamikatsu Town, Satoshi Nonoyama, Sustainable Community Planning, Online trip, 1&2 June, 2021

Nishiawakura Village, Regional Creation Promotion Office Manager, Takahiro Ueyama, Efforts for regional revitalization that no one is left behind, 2020
Osaki Town, Global Standard: Osaki Town
Questions and answers from the online trip, Local SDGs Towns in Japan: Learning from good practices

HUYNH THI BAO VY

OSAKI TOWN

Osaki is a small town in the Southern part of Kagoshima prefecture, with a total population of 12,831 people (Shizume, 2020). The town has been well-known by other municipalities in Japan due to its outstanding achievement in the recycling system. The town has successfully sorted garbage into 27 categories to diminish the pressure on landfill sites. Proceeding with the success as the number one recycling town, Osaki local authority has started building a sustainable town from a high-rated-recycling town. The establishment of the SDGs Promotion Council marked the new stage in the development process of the Osaki Town. For long-term visions, the Promotion Council has planned the strategies towards an Osaki circular town, educational institutions and research facilities, etc.

NISHIAWAKURA VILLAGE

Nishiawakura is a village located in the northeast of Okayama Prefecture. It has a population of 1,416 people, with a total area of 57.93 square kilometers. The village was 93% covered by forestry, and forestry is the main livelihood of local communities. The 100-year forest business was managed and promoted by the local government in 2009. This plan has helped improve the living standards of local communities, create more job opportunities, and attract more potential immigrants.

KAMIKATSU TOWN

Kamikatsu Town has been well-known for its unique business called Irodori and zero-waste town. As Osaki Town and Nishiawakura Village, Kamikatsu Town is a typical example of the town which successfully ultilizes the available resources at the locality for the business development.

LESSONS LEARNED FROM CASE STUDIES OF THE THREE TOWNS

Utilizing the local resources as motivators for the sustainable development of the local economy.

Successfully achieving the long-term goals requires periodic strategy plans with the participation of whole communities from governments, private sectors, households, and individuals.

Providing the immigrants, especially the young people with high life conditions and job opportunities as they may have been the potential generations in the town with the limitation on population.

CHAM ISLAND – A SUITABLE VILLAGE IN HOI AN CITY, VIETNAM, FOR LEARNING GOOD PRACTICES

Cham Island is located 15 kilometers from Hoi An City's mainland. Cham Island is a small village with a total area of 1,317 hectares and around 2,400 local people (Ngoc, 2018). Cham

Island is an attractive destination for tourists as a World Biosphere Reserve. Plastic bags are not permitted to use on the island by the local government to diminish the negative impacts of plastic waste on the environment. However, there is no solid waste treatment system in the town, and all solid waste generated from local households would be transported to the mainland for treatment. Moreover, the solid waste classification at source has not been implemented on the island. Therefore, the local authority of Cham Island can apply the lessons of Osaki Town, Nishiawakura Village, and Kamikatsu Town in waste separation at source.

References

Ngoc, Q. T. K. (2018). Impacts on the ecosystem and human well-being of the marine protected area in Cu Lao Cham, Vietnam. Marine Policy, 90(December), 174–183. https://doi.org/10.1016/j.marpol.2017.12.015

Shizume, C. (2020). Kagoshima's Osaki Town's ambitious plans to achieve SDGs by 2030, November 23, 2020, Retrieved June 13, 2021, from https://zenbird.media/kagoshimas-Osaki-towns-ambitious-plans- to-achieve-sdgs-by-2030/

KALAM KANIZ ZAKIA

INTRODUCTION

Japan is a country of very distinct landscapes and cities with an extended history of resistance to natural disasters. To cut back GHG emissions, Japan advocates environmentally friendly technologies to move low-carbon cities, boost various collaboration of private and public sectors, essential change of the socio-economic system and physical structure, and reduce resource consumption. Reduce, Reuse and Recycle are highly promoted. Japan's local governments are taking a lead role toward a sustainable city (Hara et al., 2014). One of the new Japanese economic policies is to promote small-scale or decentralized energy systems to form communities with more sustainable and low-carbon emissions. The strategy is to associate local financial institutions that hold enough funds available for appropriate investment and the local governments who have the authority to push qualified businesses that will bring social benefits and employment opportunities based on locally available resources (MIC, 2014). It may significantly benefit the SDGs as decentralized renewable power systems and their local governance will be crucial in integrating several SDGs. The online tour around the three local villages has a different strategy to reach the SDGs.

OSAKI TOWN

With 12,821 people, Osaki Town has been recycling for 20 years and achieved an 83.4% recycling rate in 2017 and recorded first in ranking the recycling rate surveyed by the Ministry of Environment for 11 years. The city has started the recycling business by incorporating Non-incineration Waste Disposal System, including separating 27 items by citizens and collecting and processing by a waste recycling company, Osaki System. To start the non-incineration Waste Disposal System, the local government of Osaki Town held a meeting with 4,000 households townspeople co-organized with 153 self-governing associations and government offices in Osaki Town over a total of 450 times for about four months. As a result, local government offices said to citizens, “Recycling makes change garbage to profitable resources” to understand town people. Then Osaki Town of local government, enterprise and residents’ cooperation sorted 27 items and introduced economic outcomes like creating new jobs and social consequences like making a scholarship program using recycled products. The main goal of the Osaki system is citizens’ support with high environmental consciousness and professional skill of recycling and visiting homes to those who are difficult to sort and collect garbage. The participatory and inclusive approach in decision-making overcome the barriers of adopting a recycling system rather than a new dumping site or incineration.

NISHIAWAKURA VILLAGE

Nishiawakura faced a constant decreasing population and a weak economy. To change this situation, villagers started to develop themselves. Finally, with sustainable forestry, the village became a model for the success of regional revitalization. The 100-year forest business attracted attention from all over Japan. This 100-year forest concept was started to create high-quality life in the countryside and low carbon society.

The composition of forests is mainly based on inexpensive and imported wood sugi and hinoki and challenged the local forestry. Therefore, forest management, such as thinning, has given less priority and led to the degradation of artificial forests. The new concept evolved as “look at the lessons of past 50 years and plan for next 50 years”. Most importantly, this helped reduce greenhouse gases, create a low carbon society, and create a healthy and fresh living environment preventing landslides in the village's mountainous areas. The primary strategy of this initiative was a comprehensive approach, collaboratively planned with the village office, forestry cooperative, private businesses, and others. They targeted economic sustainability and promoted 100-year-old forest creation and the second one “Mori-no-gakko” project, which added value to the local wood. The profit earned through wood is shared with the owner and the rest was used for the 100-year vision. Moreover, hydropower production contributes to the local economy.

KAMIKATSU TOWN

Kamikatsu’s town office has tried unique approaches to waste management like no incineration, garbage collection or landfill, 100% composting by households and businesses, and a centralized garbage sorting station. 100% composting alone helped the town quickly reduce waste by one-third. Although zero-waste has been a difficult transition to the town, due to the collaboration between the city office, a local NPO, local stakeholders and young entrepreneurs, new sources of income via tourism and new industry have been added.

In addition, the beautiful part is the elderly farmers in Kamikatsu evolved into entrepreneurs as entrepreneurial partners in the development process of the Irodori enterprise. Thus their latent innovative spirit revitalizes the regional economy and becomes healthier and happier at the same time.

CHITTAGONG CITY

With a land area of 157 km^2 and 170 million population, Chittagong is the second-largest city in Bangladesh. The strategic location and friendly business environment make it a national economic hub of Bangladesh. The city contributes more than 50% of Bangladesh's tax revenue earnings and 11% of Gross Domestic Product (GDP). Despite its immense potential, Chittagong faces enormous challenges because of high population growth, and this is directly related to the increase in waste generation. The average production of solid waste in the urban areas of Chittagong is 1,550 tons per day. The growing number of population becomes challenging to manage household waste. Due to land shortage city is also facing to find new open dumping or landfill site. Sometimes authority burns waste to reduce it, it directly and causes air pollution. There is no direct solid waste management policy in Bangladesh; however, Renewable Energy Policy 2008 was introduced to recover the energy. The National 3R Strategy 2010 was launched to recover resources from waste. To install an incineration plant is expensive and operational and maintenance is also complicating so the city can follow the strategy of Osaki Town to manage their waste. Several actions can be applied by public engagements, contributions of local businesses and manufacturers, the establishment of centers for reused and remade products, campaigns, and successful encouragements of local authorities.

CONCLUSION

All the local government has taken different sustainable development plan as these cities declared distinct sustainable goals. For becoming a zero-waste city, the most significant challenges are the segregation of waste. It is time-consuming and required many efforts that could only be applicable in such a small town having residents with high personal responsibility and enthusiasm, not applying governmental enforcements. This hassle can be reduced by diminishing waste generation though they have reward system to change people behaviours and establish recycling and composting culture.

References

Coca, N. (2018). Learning from the past: Japan's tree planting efforts provide lessons for other countries. Accessed on 13 June, 2021. https://ensia.com/features/japan-reforestation-deforestation-lessons-indonesia-china.

Haga, K. (2015). Innovation and entrepreneurship in aging societies: theorical reflection and a case study from Kamikatsu, Japan. Journal of Innovation Economics Management, (3), 119-141.

Hara, K., Newman, P., & Takao, Y. (2014). Sustainable Development Goals: How Can Japanese Local Governments help? In World Sustainability Forum 2014 e Conference Proceedings Paper.

MIC (Ministry of Internal Affairs and Communications) of Japan. Chihou Zaisei no Jyoukyou; Tokyo, Japan, 2014; http://www.soumu.go.jp/menu_seisaku/hakusyo/chihou/pdf/h26.pdf.

Mia, M. A., Nasrin, S., Zhang, M., & Rasiah, R. (2015). Chittagong, Bangladesh. Cities, 48, 31- 41.

Osaki recycle system of Japan. Osaki Town office. Accessed on 16 June, 2021 https:// sustainabledevelopment.un.org /partnership/?p=30108

Sujauddin, M., Huda, S. M. S., & Hoque, A. R. (2008). Household solid waste characteristics and management in Chittagong, Bangladesh. Waste management, 28(9), 1688-1695.

LIU XIAOHAN

THE EXPERIENCE OF KAMIKATSU TOWN: ZERO WASTE AND THE INSPIRATION TO THE WASTE MANAGEMENT IN SHANGHAI

We got a lecture from Satoshi Nonoyama san in the part of Kamikatsu Town internship. The lecture is about zero waste, happa business and sustainable tourism. I learned a lot from this program, and I got some lessons from the zero waste in Kamikatsu Town, it is a good experience for Shanghai to learn it.

In China, the policy of waste sorting has been in force for nearly two years (start from 1st July 2019), and the policy has been progressing. Shanghai has basically built a whole-process classification and collection system. But the waste management policy in Shanghai is still in the early stage, so it need to learn some successful experience from the other cities.

Compared with the system of the waste management in Kamikatsu Town, I can offer some suggestion to shanghai for waste management. The government should raise citizens' awareness of garbage collection and source reduction. Do a good job in publicity and education about the waste management. Refine and clarify garbage classification standards. Combined with SDGS, corresponding detail targets to a great extent.

References

An Introduction to Tokushima's Kamikatsu: Stunning Nature and Zero Waste. https://setouchifinder.com/en/detail/4528?pg=3

Haga, K. (2015). Innovation and entrepreneurship in aging societies: theorical reflection and a case study from Kamikatsu, Japan, Journal of Innovation Economics & Management 2015/3 (No. 18), p.119-141, https://www.cairn-int.info/journal-of-innovation-economics-2015-3-page-119.htm

Usman, M., Sawaya, A., Igarashi, M., Gayman, J.J., & Dixit, R. (2021). Strained Agricultural Farming under the Stress of Youths' Career Selection Tendencies: A Case Study from Hokkaido (Japan). Humanities & Social Sciences Communications, 8:19 https://doi.org/10.1057/s41599-020-00688-4

NGUYEN HUU QUANG

INTRODUCTION

This report will discuss the lesson learned to what extent a region can successfully attempt its sustainable development goals based on its unique character from the works of three local municipalities in Japan: Osaki Town, Nishiawakura Village, and Kamikatsu Town. In the first place, these municipalities face a similar challenge as many other regions in Japan: the shrinking population. They have to choose whether passively become a part of "The Great Heisei Consolidation" (Takaharu, 2007) and fade away or actively find a way to revitalize and prosper eternally. Fortunately, It turns out that Osaki Town, Nishiawakura Village, and Kamikatsu Town have found their way toward sustainable development. Although the success stories of these local towns are different in details, the town's sustainable development is deeply based on their unique character. This finding can be considered as the most prominent finding throughout this SUSTEP online trip.

OSAKI TOWN

Located in the eastern Osumi Peninsula, the southern part of Kagoshima Prefecture, with 13,000 people and agriculture as the primary industry (Shizume, 2020), Osaki Town has a similar background to many other ordinary municipalities in Japan.

Firstly, the Osaki Town's story started with the attempt to tackle its municipal waste treatment issues. The town has no incineration facility. Although it has a landfill site to bury its waste, the issue is that the site will not last forever (Osaki Town, 2021). In aiming to increase the longevity of this landfill site, Osaki Town decides to carry out its unique recycling system. The system, then, is called Osaki System. The Osaki System turns out to be a significant success. It makes the town the number one in Japan regarding the municipal waste recycling rate for more than one decade (Shizume, 2020; United Nations, n.d.).

Figure 1. Osaki recycling system

Source: Osaki Town (2021)

Based on the success of the Osaki System, Osaki SDGs Promotion Council has been found in 2021. The council will lead Osaki toward its SDGs vision as the "Circular Village Osaki" (Osaki Town, 2018, 2021) that aims to maintain its sustainable development based on the strategies: circular economy, stimulating SDGs, renewable energy, and forming a new social system (Shizume, 2020).

In summary, based on the town's original character, Osaki Town focuses on and makes the Osaki System the core motivation for realizing its sustainable vision.

NISHIAWAKURA VILLAGE

Located on the northeastern end of Okayama Prefecture and at the southern base of the Chugoku Range, with about 1,500 people and forestry as the primary industry (Nishiawakura Village, n.d.; Ueyama, 2020), Nishiawakura Village is a small village that chooses not to be merged with others in the "The Great Heisei Consolidation" (Takaharu, 2007). It has to find a way to revitalize and prosper based on its unique character that has been surrounded by abundant forest.

The decisive difference between Nishiawakura Village and Osaki Town is that it has forestry as the backbone business. With the catch copy of "brighten our forests, brighten our life, brighten our future" (Nishiawakura Village, 2018), Nishiawakura Village starts the "100 Year Forest" concept in 2009 and make it the cornerstone of the village's attempt toward its sustainable future. The future in which a "high-quality countryside" is realized based on the strategies: energy business using water resources from the abundant surrounded forest, a community where "no one is left behind," and sustainably maintaining and utilizing its forest treasure (Nishiawakura Village, n.d.; Ueyama, 2020).

Figure 2. A high-quality countryside framework in Nishiawakura

Source: Ueyama (2021)

Consequently, the approach of Nishiawakura Village toward its sustainable development goals based on its unique background shows a similar characteristic with Osaki Town.

KAMIKATSU TOWN

Kamikatsu Town is a small town in Shikoku Island with about 1,600 people (IDEAS FOR GOOD, 2019). The town was found by merging Takahoko Village and Fukuhara Village during "The Great Heisei Consolidation" (Takaharu, 2007). It is an ordinary small town in hilly and mountainous areas of Japan (Pangaea, 2021).

What makes Kamikatsu Town different from Osaki Town and Nishiawaura Village? The answer is the Irodori business and zero-waste brand. Although Kamikatsu is a merged town, it seemingly acknowledges that the backbones of its "sustainable development in Kamikatsu way" are the Irodori business and the zero-waste brand. Therefore, by a sustainable and integrated approach toward a sustainable and beautiful Kamikatsu, the town's development strategies are needed to be considered based on the prospering of these two backbones. It is the approach that fundamentally promotes and utilizes the Irodori business and the zero-waste brand toward the town's sustainable development goals. As a result, it helps revitalize Kamikatsu Town, therefore bringing up people's living conditions eternally and in a very "Kamikatsu way."

Again, it can be considered that the place's unique character should be the core of any attempts toward its future development. Kamikatsu Town, with its way of sustainable development, turns out to be a typical and symbolic example of this inference.

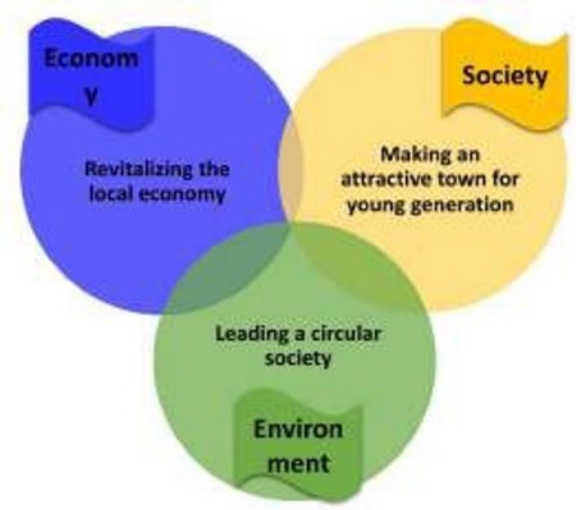


Figure 3. The framework toward a sustainable and beautiful Kamikatsu Town

Source: Pangaea (2021)

CONCLUSION

In conclusion, I would like to borrow Mr. Nonoyama's ending words about "returning to the starting point" and the "fundamental of things" to discuss that no simple copy will work in sustainable development. Thus, any region's sustainable development plan is needed to be based on its unique character.

Acknowledgments

First of all, I would like to thank all the members of three local towns from Osaki Town, Nishiawakura Village, and Kamikatsu Town for their informative and inspiring evoked sharings. I would learn many things regarding sustainable development issues. Also, my great appreciation goes to Professor Naoko Kaida for the significant effort to organize and manage the online trip to make this opportunity for exchanges an actual meaningful event.

References

IDEAS FOR GOOD. (2019). Kamikatsu's success formula becoming a Zero Waste town | Sustainability from Japan - Zenbird. Zenbird. https://zenbird.media/kamikatsus-success-formula-becoming-a-zero-waste-town/

Nishiawakura Village. (n.d.). Nishiawakura Village, Okayama Prefecture [Eco-Model City]. Retrieved June 18, 2021, from http://doc.future- city.jp/pdf/torikumi_city/nishiawakura_pamphlet_en.pdf

Nishiawakura Village. (2018). Nishiawakura SDGs future urban planning. http://www.vill.nishiawakura.okayama.jp/wp/wp- content/uploads/2019/09/c674e8eb955336df2b011b2c2e2f7889.pdf

Osaki Town. (2018). Osaki SDGs future urban planning, Kagoshima Prefecture Osaki. Osaki Town. (2021). Global Standard: Osaki Town - Toward a sustainable town. SUSTEP Online Trip, Osaki Town, Toshima Prefecture, May 25, 2021.

Pangaea. (2021). Sustainable Community Planning - Sustainable development in Kamikatsu way. SUSTEP Online Trip, Kamikatsu Town, Toshima Prefecture, Jube 1&2, 2021.

Shizume, C. (2020). Kagoshima's Osaki Town's ambitious plans to achieve SDGs by 2030 | Sustainability from Japan - Zenbird. Zenbird. https://zenbird.media/kagoshimas-osaki-towns-ambitious-plans-to-achieve-sdgs-by-2030/

Takaharu, K. (2007). The Great Heisei Consolidation：A Critical Review. Social Science Japan, September, 7–11.

Ueyama, T. (2020). Efforts for regional revitalization that no one is left behind. SUSTEP Online Trip, Nishiawakura Village, Okayama Prefecture, May 26, 2021.

United Nations. (n.d.). Osaki Recycling System of Japan (separation - collection - processing) achieved 83.4% recycling rate with 27 items separation by community and makes not only Environmental but also Economical and Social Outcomes - United Nations Partnerships for SDGs plat. Sustainable Development Goals - Partnerships Platform. Retrieved June 17, 2021, from https://sustainabledevelopment.un.org/partnership/?p=30108

SUU SUU PHYOE

OSAKI TOWN

Lesson learned: 1. waste characterization and recycling, 2. cooperation and collaboration among stakeholders, 3. highest recycling rate, 4. composting, 5. SDGs Future City

Disposing of the mixed waste at the landfill site was the only waste management system in Osaki Town. Therefore, when landfill site longevity became limited, it came to find a possible solution for this problem. Nevertheless, high construction and maintenance costs hampered building an incineration plant. In addition, there was strong opposition from the residents making a new landfill site because of an unpleasant odor emitted from that site. Thus, proper sorting and recycling of waste became an optimal solution to extend the lifespan of a landfill site. The town sorted garbage into three types: cans, bottles, and PET bottles. It developed an Osaki recycling system in which the waste is sorted into 27 categories to enhance the town's recycling rate. It has a recycling center where the organic waste is treated to provide compost at a reasonable price for the farmers in the town. As a result, the town achieved a high recycling rate of 83.1% as of 2018, while a national recycling rate was only 19.9%. Thus, it has been ranked first in waste recycling for 12 consecutive years since 2006 in Japan(Osaki Town, 2021). The town was selected as an SDGs future city in 2019. It was evident that cooperation and collaboration among residents, enterprises, and the Osaki Town government can provide a high recycling rate (Osaki Town, 2021).

Osaki Town should promote reducing the amount of waste at the source to reduce the cost of waste treatment per capita. It should find alternative measures in cooperation with various stakeholders to abolish using one-time packaging and plastic products by 2030.

NISHIAWAKURA VILLAGE

Lesson learned: 1. 100-year-forest business plan, 2. value-added products, 3. renewable energy, 4. local ventures, 5. SDGs Future City

Nishiawakura Village has a population of 1,416 people as of March 2021. About 93% of the area is covered by forest, especially cypress and cedar. In 2009, the city established 100-year forest business plan to create high-quality countryside. In addition to logging, the village encourages companies to produce value-added products such as furniture, instrument, etc. The village also developed renewable energy systems such as solar power, hydropower, and firewood boiler to meet the energy demand at the site. Moreover, the village has local venture schools, and it also encourages diverse local ventures by providing opportunities for migrants. Providing opportunities for local ventures can solve the problem of the aging population in Japan. Nishiawakura Village has been designated as one of the SDGs Future Cities in Japan in 2019 (Ueyama, 2021) .

The village has employed a clear-cutting system for logging. Thus, it should consider reforestation and afforestation in the 100-year-forest business plan. The village should promote the ecotourism industry as it is enriched with natural resources.

KAMIKATSU TOWN

Lesson learned: 1. Happa business, 2. zero waste, 3. aging population, 4. sustainable tourism, 5. SDGs Future City

Kamikatsu Town initiated its Happa business in 1986 under the encouragement of Mr. Yokoishi. At present, 150 farmers (households) do Happa business generating 260-270 million yen per year. Moreover, it is the first town that declared zero waste in 2003. It has a waste collection center where the residents sort the garbage into 45 types to recycle. It was chosen as an SDGs Future City in 2018. It has promoted sustainable tourism as a partnership among different stakeholders such as the local government, Pangea company, and SUNSTAR company (Nonoyama, 2021).

The town has problems such as depopulation and an aging population, i.e., 53%, is 65 years and above. The town should provide internship programs to attract young generations and provide opportunities to rent land to encourage immigrants to initiate the Happa business. It should set an eco-labelling such as zero waste to promote its local products and business.

APPLYING WASTE MANAGEMENT STRATEGIES FOR YANGON CITY IN MYANMAR

Yangon, the former capital of Myanmar, is located in the southern part of the country. In Yangon, the total municipal solid waste (MSW) generated is 1,981 tons/day, which is composed of organic waste (77%), plastic (13%), paper (7%), and others (3%) (Gamaralalage et al., 2017). Yangon City Development Committee (YCDC) collects MSW through door-to-door, curbside, bin container, and open or communal waste collection points (Environmental Conservation Department, 2018). MSW is mixed and disposed of together at the final landfill site. Scavengers, waste collectors, and waste dealers generally carry out waste recycling activities. In Yangon, waste dealers collect 86 tons of recyclable waste per day, which is composed of glass (57%), cardboard (15%), paper (13%), plastic (7%), cans (7%), and others (1%) (Environmental Conservation Department, 2018). Thus, open dumping at the landfill is the only way for solid waste management in Yangon. It might face the problem of limitation in the life span of the landfill site. It is better to sort waste into different types, such as paper and plastic, cans and bottles, and organic waste, so that YCDC can enhance recycling and generate revenues from it. In addition, as organic waste dominates more than 70% of MSW, YCDC should treat this waste through composting and provide or sell the products to the farmers. Then, different stakeholders such as YCDC, researchers, residents, private companies, broadcasting stations, and others should cooperate to sort waste into more different types and enhance recycling in Yangon.

References

Environmental Conservation Department. (2018). National Waste Management Strategy and Master Plan for Myanmar (2018-2030). Gamaralalage, D., Premakumara, J., Hengesbaugh, M., Onogawa, K., Tin, O. M., Design, H., & Horizono, S. (2017). Waste
Management in Myanmar: Current Status, Key Challenges and Recommendations for National and City Waste Management Strategies.
Nonoyama, S. (2021). Sustainable community planning [PowerPoint Slides].SUSTEP Field Trip (virtual)
Osaki Town. (2021). Global Standard：Osaki Town Osaki Town：Overview [PowerPoint Slides].SUSTEP Field Trip (virtual) Ueyama, T. (2021). Efforts for regional revitalization that no one is left behind だれひとり 、 取り残さない地方創生の取組

Self-introduction [PowerPoint Slides].

YANG XIN

ZERO WASTE

What surprised me the most was the concept of zero waste in Osaki Town. I noticed that the recycling rate increased from almost 0% in 1998 to more than 80% in 2018, and such a high recycling rate has been kept for 12 years. The same thing happened in Kamikatsu Town. Residents in Kamikatsu Town speared waste into 45 categories which is stricter than that in Osaki Town.

The premise of zero waste is high-quality waste sorting. Sorted garbage can be sold if they are economically profitable and other organic waste can be reused after drying and fermentation. It not only saves resources but also extends the life of the landfill.

Personally, I totally admire what people did in Osaki Town and Kamikatsu Town to create a recycling system and hope such system can be used in other areas/countries. However, I am not sure if the waste sorting could be done properly or accepted by residents. In China, waste is simply classified as recyclable waste and non-recyclable waste in most areas for past years. Such classification activities are done consciously by people, so not all waste sorting is done properly because of lacking waste sorting education. The result of it is that the component of waste delivered to the recycling station is very complex. It impedes the recycling rate. Besides, there is no municipal system to supports all recyclable resources to be recycled. In many cities, the main target for commercial recycling is only metal. Large-scale recycling, such as industrial waste, is carried out through recycling companies. Small-scale recycling, such as municipal waste, relies on scavengers or residents themselves. Therefore, waste recycling has been greatly hindered, let alone zero waste society.

I think people in Osaki Town made a good demonstration of waste sorting and recycling. I notice that, for organic waste, the processing time is very long. I understand that fermentation and drying take time. But for a large amount of organic waste, like waste generated in a big city, it will take a large space and time for the process. So I wonder if they have any idea to optimize it.

RESOURCE MAXIMIZATION

Regional revitalization is difficult in rural areas because of a lack of human resources and financial support. However, Nishiawakura Village and Kamikatsu Town demonstrated a good way to promote the local economy which is made to most of what you have.

Nishiawakura has a rich forest resource. To maximize the value of the forest, they do not only sell wood directly, but also encourage local venture to sell wooden products to end-users. This practice increases the added-value of wood. In the forest area of China, local government can imitate it to increase local fiscal revenue. In Kamikatsu Town, they have the leaf business (Irodori). It helps local people in a very romantic and economical way. Besides, due to the

characteristics of this business, the elderly can also be involved. It is a great demonstration for other areas that has a large number of elderly population.

In many rural areas of China, residents face the problem how to develop in a sustainable way. The large emigration of young laborers restricts the economic development of the countryside, and in turn, it increases the loss of young generations. However, luckily, the natural resource is rich in China. How to revitalize the local economy and improve the quality of life of residents by taking good advantage of what they have is a problem that must be solved.

One disadvantage of Irodori business in Kamikatsu Town, I think, is fungibility. This business model can be accepted by any other town who has leaf resources. Unlike wood products, commercial demand of leaf is not big enough for a sustainable development. I wonder if they have other business to support their town.

YUE SHENGRAN

Waste is a problem with a global scale. With economic development, the standard of living is being greatly increased, while leading to the generation of more and more waste. If we cannot handle properly, the impact on the environment will be huge.

Japan is one of the countries with the most advanced waste management system in the world. Through the lessons learned from the three municipalities, I found that they have a common feature that they all have an extremely completed recycling system.

In Osaki Town and Kamikatsu Town, waste is divided into more than dozens of different categories. The number of such sorting is far more than in other areas, even in Japan where the classification of waste is so meticulous. Each category of resources is handled by a corresponding company to ensure the recycling of resources.

In China, Shanghai became the first city in China to adopt mandatory waste separation in July 2019 (Huang, 2019), and another 45 cities also will operate afterward. So far, there are still few relevant studies available for inquiry. However, through the self-reports of some residents known to the present author, it is not difficult to find that the current results are still not very satisfactory.

Currently, starting with Shanghai, garbage across China is basically divided into four categories: recyclable garbage; kitchen garbage; hazardous garbage; and other garbage. The number of categories is far less than that of Osaki Town and Kamikatsu Town. In addition, unlike the two municipalities, waste disposal in China is still dominated by incineration and landfills, but composting or fermentation of food waste into biogas has been done well since the past, especially in some rural areas.

According to Nakamura & Kawase (2011), by increasing the number of waste separation, the effect of waste reduction and collection of recyclable waste can be expected. Yoshioka (2002) also found that with the lower number of waste separation categories had a higher average of household waste generation, and the higher number of waste separation categories had a lower average of waste generation. Although the more categories of waste separation may due to more troublesome for residents (especially since China is still in the initial stages of waste sorting). However, as the behavior of waste separation becomes habitual, an appropriate increase in the categories of waste separation will have a promising impact on increasing the rate of resource recovery as well as promoting waste reduction. At the same time, improving environmental education and publicity for young people and finding ways to enable more of them to participate will be of great importance in solving the waste problem for now and the future. This is also what these three municipalities are working on.

Regarding the recommendations for the three municipalities in Japan, finding ways to engage more people (especially young people) remains one of the most pressing issues to be tackled

(either for addressing population decline or for the spiritual continuation of the SDGs). Combining traditional businesses with advanced technology to allow young generations to practice what they learned can be one of the directions to strive for in the future.

References

Huang, H. (2019). China's radical new rules to recycle rubbish. Retrieved from https:// multimedia.scmp.com/infographics/news/china/article/3038540/china-waste- sorting/ index.html

Nakamura, T., & Kawase, A. (2011). An empirical analysis of residential solid waste management in Japanese municipalities. Government Auditing Review. (43), 111-123

Yoshioka, K. (2002). A study on the differences in the amount of household waste generated among municipalities and its factors - A nationwide survey of municipalities. Retrieved from: http://csspcat8.ses.usp.ac.jp/lab/kanayaken/seika/5th/pdf/yoshioka/abstract(J).pdf [accessed 21.6.20].

ABDUL RAZAK ZAKARIA

INTRODUCTION

The Local SDGs towns virtual field trip, one of SUSTEP's field trips, was designed to accord student the opportunity to learn from, and practically experience actions undertaken by rural populace in Japan to achieve the 2030 SDGs looking into the future. We visited three purposively selected towns; Osaki Town, Nishiawakura Village, and Kamikatsu Town. These towns were selected as SDGs Future Cities among others by the Cabinet Office of Japan because of the uniqueness of efforts made by both community members and the local government to achieve sustainable development while sharing their experiences with the rest of the world. This field trip lasted five days with each day's activity lasting five and half hours, from 1pm to 5:30pm. It was organized and facilitated by Associate Professor Naoka Kaida of the University of Tsukuba.

An orientation meeting about the field trip was held on May 20, 2021, by Professor Kaida where the course content was explained. Students were divided into four (4) groups and group tasks were assigned and explained to all 22 participants. On May 25, 2021, we had a virtual tour of Osaki Town, a presentation about Osaki Towns' waste recycling, SDGs vision and plan, the efforts undertaken to achieve the towns' SDGs Future City goal, and the challenges they face going into the future. Mr. Nakamura, Ms. Nakagaki, and Mr. Matsumoto led the discussion and answered student questions during this session. On May 26, 2021, the agenda used in Osaki Town was followed in our virtual tour of Nishiawakura Village. Here, Mr. Ueyama and Mr. Tabata led the discussion and answered our questions. On June 1 and 2, 2021, we had our first and second virtual tour of Kamikatsu Town, a presentation about the towns' crisis in waste management, a tour of the Zero Waste Center, and interview with the Zero Waste Center stakeholder and IRODORI farmers, a presentation on Kamikatsu Town's SDGs vision and plan, ways to achieve SDGs Future City goals, and future challenges for attaining the SDGs goals, respectively. Mr. Nonoyama, Ms. Nishikage, Ms. Kobayashi, Mr. Hyakuno, Mr. Asano, and Ms. Kakimoto led the discussions and answered our questions.

LESSONS LEARNT

Osaki Towns' self-help activities that led them to achieve success as the first placed town in Japan regarding waste recycling for 12 consecutive years (achieving 80% recycling rate) and second runner-up for the SDGs City Award winner was one great lesson. Their ambitious target of abolishing one-time packaging and the use of plastics through the SDG council approach, SDGs school and SDGs research centre plan were innovative.

Nishiawakura Village's 100-year forest concept and the exploitation of alternative livelihood activities like honey production, the engagement of schools in SDGs practical activities, the local venture school project, and the mountain experience tourism provided great lesson that can be applied elsewhere.

Kamikatsu Towns' identification and usage of local resources to establish the Happa business, their education tourism specialty, the SDGs promotion committee, farm for teaching younger Irodori business owner idea, were great lesson. I particularly learnt from Mr. Yokoishi (CEO, Happa business) who selflessly worked with initial Irodori business owners and promoted the business using research, practical field tours, and farmers field visits to exquisite hotels that are using the "Happa" leaves in their cuisine to motivate the farmers.

APPLICATION OF LESSONS LEARNT

The tropical rain forest of Ghana forms part of the Guinea Forest Region in western Africa and is blessed with diverse flora and fauna. Recently, the Minister for Lands and Natural Resources of Ghana ordered the Forestry Commission to clamp down on all forms of mining activity in the forest (Xinhua News, 2021). Nishiawakura's 100-year forest plan concept can benefit Ghana's quest to safeguard its forest reserves that is being destroyed by miners and illegal loggers (Kyere-Boateng and Marek, 2021). Alternative income activities like bee keeping, small ruminant rearing, and mushroom cultivation can provide jobs and income to local communities as they nurture the forest under the 100-year forest plan. This will also help Ghana to reduce its high unemployment rate while protecting the country's forest that have recorded huge forest cover loss in recent years. Government of Ghana should provide sustained funding, security, and technical support in this regard to ensure sustainability.

SUGGESTIONS

An annual award scheme for best Irodori business owner could serve as incentive to attract young business owners to Kamikatsu Town. Also, land consolidation program targeted at retired farmers who can no longer cultivate but are willing to lease their land to new entrant immigrant Irodori business owner will further motivate and attract younger people into Kamikatsu Town.

References

Kyere-Boateng, R. and Marek, M.V. (2021). Analysis of the Social-Ecological Causes of Deforestation and Forest Degradation in Ghana: Application of the DPSIR Framework. Forests, 12(409), 1-29. https://doi.org/10.3390/ f12040409.

Xinhua News. (2021). Ghana to end mining in forest reserves. March 23, ACCRA. http://www.xinhuanet.com/english/africa/2021-03/24/c_139831490.htm. Accessed date:2021/06/17.

PHAN CAO DUONG

LESSONS LEARNED FROM THE THREE MUNICIPALITIES

The virtual trip took me to three municipalities, namely Osaki, Nishiawakura, and Kamikatsu. I learned interesting lessons about how these three rural, remote, and small towns have developed toward sustainable development goals (SDGs). The most impressive lessons on each municipality were the following ones. It was a complete surprise about the effectiveness of the recycling project. Specifically, the cost of waste treatment by individuals was much lower while the rate of waste recycling is higher than that of the national level. Waste was also divided into detailed categories (up to 45 categories in Kamikatsu Town). The collaboration between locals and local centers sounded interesting. I wonder why this model or system has not been applied commonly in Japan. Another interesting lesson was the Happa business called Irodori to successfully help the elderly earning a living, although the business faces considerable challenges.

APPLICABILITY TO OUR COUNTRY

Regarding the applicability of the lessons learned from this virtual trip to our country, I discuss waste recycling in Hanoi. Despite the capital of Vietnam, waste management has faced big challenges while the volume of waste is rapidly increasing in Hanoi. Although a major volume of waste is collected and treated, a certain amount is uncontrollably released elsewhere in Hanoi (Fig. 1). Recycling is applied for a few waste categories such as glass, metal, paper, and plastic (Fig. 2). The ineffective management of waste in Hanoi comes from various reasons such as the shortage of budget and technologies. These shortages seem not easy to tackle within a short time. However, we may change the attitude of locals towards sustainable waste management by providing them with clearly effective guidance, acts, and regulations in sustainable waste disposal, recycle and reuse. Model projects and practices are also

Figure 1. Illegal disposal of waste in Nguyen Chi Cong street, Hanoi [1]

The red board present “Prohibition of waste disposal”, but big amount of waste is still released here.

Figure 2. Recycling rate of waste in Vietnam [2].

necessary to involve the locals in the process of waste recycling. Importantly, support from the government and collaboration with the successful towns, namely Osaki, Nishiawakura, and Kamikatsu, is essential.

SUGGESTIONS FOR THE MUNICIPALITIES VIRTUALLY VISITED

Osaki, Nishiawakura, and Kamikatsu gave us interesting lessons about how they have done to reach the standard of SDGs. Their expectation is to make their models such as the Osaki Recycling System and Sustainable Happy Lives to be global standards. These standards are likely suitable to apply in small villages. However, they may be valuable lessons to everyone in terms of education. They should be spread worldwide. To this end, support from the Japan International Cooperation Agency (JICA) and international students are integral.

Finally, I would like to express my appreciation to Kenji Nakamura-san, Ruru Nakagaki-san, and Shoji Matsumoto-san, Takahiro Ueyama-san, Sunao Tabata-san, Satoshi Nonoyama-san, Kobayashi-san, Hyakuno-san, Nishikage-san, Suga-san, Fuji-san, Asano-san, Kakimoto-san, and Naoko Kaida-sensei for giving us your great time, interesting lectures and stories.

References

Dang Anh Thu (2016). General overview on solid waste management in Vietnam (https://www.env.go.jp/recycle/circul/venous_industry/pdf/env/h27/11_2.pdf).

The World Bank (2017). Solid and industrial hazardous waste management assessment (https://documents1.worldbank.org/curated/en/352371563196189492/pdf/Solid-and- industrial-hazardous-waste-management-assessment-options-and-actions-areas.pdf).

AUNG PYAE PHYO

WASTE SEPARATION SYSTEM OF OSAKI TOWN AS A REFERENCE FOR MANDALAY CITY, MYANMAR

Firstly, I would like to thank Associate Professor Kaida Naoko because of arranging this internship programs and I was chosen as a member of the "Local SDGs Towns in Japan" internship tour. I also want to thank the presenters and other persons who share knowledge and experience of each town and village. I got a lot of knowledge and experiences from the four day tours of Osaki Town, Nishiawakura Village, and Kamikatsu Town even online tours. Each town and village have their ability, special case, and how to use their special features for improvement of their town and village.

Osaki Town is famous for its municipal waste recycling activities and got the highest recycling rate in Japan for 12 consecutive years with recycling rate 82.6%. Nishiawakura Village is well known for its wooden products (daily usage home appliances, construction materials, and public area appliances), and biomass heaters that generate heat and electricity for local heating process and electricity for local and public buildings. Kamikatsu Town is famous for its Happa business and young immigrants venture activities. In Kamikatsu Town, the 53% of total population is 65 year or older and students and young people are going outside due to the education because there is no senior high school. Therefore, the population of Kamikatsu Town is decreasing. But young immigrants from other area moved to Kamikatsu Town for their jobs, Kamikatsu Town considers about the venture for young immigrants and makes the job opportunities for them. Among these towns and villages, I can reference the knowledge and experience of Osaki Town for my country and for my native city, Mandalay

Mandalay is the second-largest city in Myanmar, after Yangon ("Mandalay", 2021). Located on the east bank of the Irrawaddy River, 716 km (445 mi) north of Yangon, the city has a population of 1,225,553 (2014 census) ("Mandalay", 2021). Mandalay is the economic center of Upper Myanmar and is considered the center of the Burmese culture ("Mandalay", 2021). Being the economic center and location in central Myanmar, the population of the city has been increasing year by year and improved land use (expansion of urban area). The city area is expanded due to economic (construction of industrial buildings, and industrial zones) and domestic use (housing, hotels, office buildings, and public buildings). The more increasing the population, the more municipal solid waste generation will occur.

In my city, Mandalay, there is no effective waste recycling process and only two incineration plants. These incineration plants cannot run 24 hours a day and seven days a week. In Osaki Town, there are no incineration plants. This is the same thing between Mandalay City and Osaki Town. In Mandalay, there have a committee, Mandalay City Development Committee (MCDC), to manage the municipal solid waste and wastewater from industrial, domestic, and hospital. The committee makes the visions for solid waste management. These are to keep the city clean, make the city beautiful and pleasant, and enable the city dwellers to enjoy pleasant lives (Than Hutt, 2016). The MCDC tries to implement and doing the missions to fulfill the visions. These missions are to manage the municipal solid waste, maintain the drainage

system cleaned, conserve the urban environment, and take care of the public health (Than Hutt, 2016).

In the above mission, the role of municipal solid waste management is important because they cannot well manage solid waste, it can block city drainage systems (drainage channels) and wastewater does not flow freely in the drainage channels, coming up to the street. This problem is occurring in the raining season every year and affects the urban environment. Due to the flooding of rainwater on the road and street, the disposal site can produce a bad smell, and spread diseases from rats and flies. Therefore, MCDC needs to consider the reduction of landfill sites area or introduce incineration plants or separation of solid wastes for the recycling process to reduce the amount of solid waste that goes to final disposal sites.

In Osaki Town, there is no incineration plant, and they face the landfill site was nearing the end of its useful life. Therefore, they consider how to solve the problem, and chose the best way that is eco-friendly and easy to follow the process. There are three choices for the landfill site. These are (1) build an incinerator, (2) build a new landfill site, and (3) extend the life of the existing landfill site (Shoji, 2021). The above techniques have both advantages and disadvantages. For the first, they should consider the problem of construction and maintenance costs. For the second, they should choose a landfill site that is far from the resident's area. For the last, they establish garbage separation rules and explain them to residents (Shoji, 2021). Finally, people from Osaki Town chose the last answers for solving the end of useful life for landfill sites.

When starting the separation of solid waste for recycling, the participation and relation between residents (household, business), government, and enterprises (recycling center, garbage collectors) play an important role. Government explains and gives guidance to residents on how to dispose of waste and give permission and outsourcing to enterprises. The enterprises collect waste from households and businesses. There have many advantages of the Osaki recycling system; reduces landfill waste, extends the life of the landfill site, reduces the per-person cost of garbage disposal, generates income from the sale of recyclable garbage, and can create a job. The amount of landfill waste reduced about 85% from 4,382 tons in 1998 to 670 tons in 2018. Reducing the amount of landfill waste can increase the life of the landfill site. The recycling center in Osaki Town handles recyclable garbage from 100,000 people (including neighboring municipalities) and employs about 40 people (Shoji, 2021). The other interesting thing in Osaki Town is the management of kitchen waste and garden waste. The separate disposal of kitchen waste and the process of kitchen waste management can produce heat energy, and heat energy can produce electricity. The final remaining waste product of kitchen waste can use in the fields and garden as a fertilizer. This process can reduce the problems that are occurring due to the kitchen such as bad smell producing, and leakage of wastewater from kitchen waste.

In Mandalay City, the disposal method is the combination of all waste from households such as cans, bottles, kitchen waste, garden waste, plastic bottles, and plastic bags. MCDC uses the curbside collection and dustbin. There is no separation of waste types in Mandalay. There is

private business for reuse bottles in factories and recycle tin and can, but the amount is very few and the amount of reuse and recycle cannot affect on reduction of waste disposal. According to the weakness of the collection and separation system, there have many problems remaining; lack of public awareness and cooperation in solid waste management systems (SWMS), no practice in waste segregation, weakness in collection and transportation facilities, insufficient budget allotment due to the small amount of garbage tax, weak in law enforcement on SWMS, and weak in final disposal management (Than Hutt, 2016). These problems have consequences, a direct health hazard for the community and workers, and environmental contamination due to improper management of the final disposal site. According to the virtual tour of Osaki Town, I would like to introduce the waste separation system and law concern with it. I think this is the best way to solve the above problems and the final disposal site's end-of-life problems because making new landfill sites and incineration plants are not suitable for not only Mandalay but also Myanmar because my country, Myanmar, is a developing country.

References

Mandalay. (2021, June 19). In Wikipedia. https://en.wikipedia.org/wiki/Mandalay

Shoji Matsumoto, Kenji Nakamura, (2021, May 25), Global Standard: Osaki Town (toward a sustainable town)

Than Hutt, Mandalay City Development Committee, (2016, June 16), Overview on Solid Waste Management in Mandalay City

FUAD MD AKTER FARUK

LESSONS LEARNED FROM THE THREE MUNICIPALITIES

Osaki Town: A proper cooperation, collaboration and trust among the town dwellers, enterprises and government is the blueprint of recycling system. By changing the shape of products on the market, all the reused or recycled items can be circulated around the town. These procedures may drive the economy by using existing resources and also may convey this practice by intergenerational circulation.

Nishiawakura Village: The village dwellers are implementing 100 Year Forest Management Project by renewable energy business, creating local venture of adding value to timber and promotion of interchange for regional economic circulation.

Kamikatsu Town: A green leaf may add aesthetic value in food menu—by this little but innovative idea, the town dwellers earn as the major agricultural income and opened a new eco-tourism sector. Also the dwellers are separating around 45 categories items to revive local economy, attract young generations to settlement.

APPLICABILITY TO MY COUNTRY BANGLADESH

Every day about 5,000 tons of waste is being generated by 2 crore people in Dhaka, the capital of Bangladesh. The area of this megacity is just 360 km^2; and Dhaka North City Corporation and Dhaka South City Corporation are the assigned authorities for municipal waste management and they are trying to mitigate this waste related problems by taking newer initiatives (Prodhan & Kaeser, 2019). Some researches show that, Bangladesh will generate around 2.2 billion tons waste per year by 2025, and by 2050, it may reach at 4.2 billion tons per year (Hoornweg, & Bhada-Tata, 2012). However, the existing waste management system is not up to the mark, when only about half of generated waste is being collected and dumped in open landfills (Prodhan & Kaeser, 2019). This huge generated waste seems to be beyond control of authorities alone until the city dwellers come forward together to solve it (Rahman & Alam, 2020). Most people are not concerned about environmental pollution, not aware of household waste can be reduced or separated. The concern rules are not properly monitored and law-enforcement are not implemented (Hai & Ali, 2005).

I think the concerned authorities may campaign countrywide on the ZERO WASTE concept from the learning of Kamikatsu. Some programs may be taken as:

- From school level, kids will learn about the 3R concept, waste separation, environmental pollution, etc.

- Regular arrangement of exhibitions, fairs, workshops, etc. for rural people to increase their consciousness on 3R of wastes.

- Reward for result on waste management related researches. Tax concession for proper reduction of waste with separation.

My recommendations: the concerned authorities may campaign countrywide on the '100 Year Forest Management' concept from the learning of Nishiawakura. Some programs may be taken as:

- Reward for rooftop gardening; such as holding tax concession. Create new open space with forestry around the city.

- Use the river bank for forestry.

- Countrywide exhibitions, fairs, workshops, etc. on forestry to increase people's awareness. Agro-forestry can be a vital issue as Bangladesh is an agrarian country.

SUGGESTIONS FOR THE MUNICIPALITIES

Aging people and generation gap may rise as problematic issue in near future. Consequently, smart agriculture use in intergenerational circulation may be the best alternative regarding this situation.

Everyday waste will be increased as population. Therefore, the 5R strategy may need to be promoted by environmentally friendly shopping campaigns to grow consciousness among the people.

References

Hai, F.I. & Ali, M. (2005). A Study on Solid Waste Management System of DCC: Effect of Composting & Landfill Location. UAP J. Civil Environmental Engineering, 1(1), 18-26.

Hoornweg, D. & Bhada-Tata, P. (2012). What a Waste: A Global Review of Solid Waste Management.

Urban Development & Local Government Unit, World Bank, Washington DC, USA

Prodhan, S.U. & Kaeser A. (2019). Municipal Solid Waste Management in Dhaka City: Present Status, Problems & Probable Solutions. In Islam, (Eds.), Environmental Thoughts, Part-I, 2019 (pp. 80- 118). Centre for Management Research & Information technology. Toyza Publications.

Rahman, M.S. & Alam, J. (2020). Solid Waste Management & Incineration Practice: A Study of Bangladesh. Int. J. Nonferrous Metallurgy, 9, 1-25. https://doi.org/10.4236/ijnm.2020.91001

HOANG THI MY HANH

We had a great opportunity to visit three towns in Japan through the field trip: Osaki Town, Nishiawakura town, and Kamikatsu Town. All three towns are on the way to becoming SDGs Future Cities by different ways, such as zero waste, high recycling rate, and forest business. However, besides achievements, these towns are facing many challenges to achieve their targets.

In Osaki Town, waste sorting is classified into 27 categories. Osaki Town promotes a council that includes local mass media, financial enterprises, etc. to improve the cooperation among stakeholders, which is the critical factor for the Osaki Town's success. Moreover, Osaki Town also shares their valuable knowledge and experience with other towns, including cities in developing countries like Indonesia.

In the second municipality, Nishiawakura Village, the 100-year forest business is the most achievements of this town, starting from efforts to improve life quality and environmental improvement. However, many forest labor forces are leaving Nishiawakura Village due to the urbanization progress and do not engage in forest protection and development. So then, the town has constructed Village Local Venture School, establish venture business roots in timber production.

In the last town, Kamikatsu Town seems it has many achievements as well as many challenges. Kamikatsu has established a very detailed separation system with more than 45 categories, making here become the first town in Japan to declare zero waste. However, like the above towns, Kamikatsu Town has a shrinking population, of which more than 60% is over 65 years old. The aging population is the most significant challenge for this town currently.

After four days of virtual trip, I found three towns share some similarities as follows:

High recycling rate based on focus sorting waste at source. The classification system will depend on each town. However, waste will be sorted into organic and solid waste, making it easier in treatment later.

All towns take advantage of social group participation. For example, a council that includes different stakeholders from production to consumption will assume different roles in promoting town SDGs. The town's success will not come from top-down action but rely on the multilateral cooperation.

Young generation is the critical factor to maintain sustainability in the future. All three towns' successes are hampered by lacking working labor, rare successors due to a low birth rate, high life expectancy, fewer job opportunities. Therefore, revision of immigrants' policies and support from the Government to attract the young generation to town is necessary.

Vietnam is an Asian developing country with about 90 million of population. In contrast with Japan, Vietnam possesses a high birth rate and stable population growth. However, with the rapid population and urbanization, Vietnam towns are also facing the leaving of the young generation; not many young people want to live on agriculture in rural areas, which used to be the main economic activities. The generated waste volume is estimated to reach around 69 million tons in 2020 and 91 million tons in 2025 (Nguyen, 2017).

Although the central government of Vietnam has established a 3Rs mechanism (reduce, reuse, recycle) to decrease waste volume, it seems it is not working efficiently. The top-down implementation without social participation is the reason why the country's waste volume is still increasing. Lessons from Osaki and Kamikatsu may be helpful for my country. In the future, Vietnam needs to establish specific legal frameworks and policies on waste management focus on the 3Rs mechanism. The Vietnamese Government should take the central role in production control, promote and apply technology development into waste management. And the most important one is to improve citizen engagement and raise awareness in daily activities such as waste separation, reduced unnecessary packages, and redesigned products into reusable ones. All social stakeholders, i.e., central/local governments, manufacturers, enterprises, communities, households, etc., have to participate and understand their responsibilities in building a cleaner society for our future generations.

Although the Vietnam's situation shares some same things with Kamikatsu Town, Vietnam is also trying to solve the lack of labor force problems in rural areas. And, currently, the best thing we can do is to release the immigrant policy, increase financial support mechanism, improve infrastructure and education facilities to attract new labor to rural areas.

Reference

Nguyen T. T., 2017, State of the 3Rs in Asia and the Pacific: The Socialist Republic of Vietnam, United Nations Centre for Regional Development.

KHIN ZAW WIN

LESSONS LEARNED FROM THE THREE MUNICIPALITIES

Three municipalities which we visited virtually in this virtual trip have different unique conditions and are possessing different resources depending on their existence and backgrounds. They utilized their local resources properly to reach the road to respective SDGs towns and their basement are different in defining those SDGs towns goals for them. The lessons learned from each municipality are discussed in the following one by one.

Osaki Town's success was built mainly depending on the power of residents and public responsible participation. They have no special and costly mechanism for extending the lifespan of landfill site. While the choice in the national scale of Japan is on the incineration for reducing waste amount and volume, they chose the simplest way but a difficult issue as they need full participation of the residents to get a successful mechanism. They understand that the public participation is the basis to the sustainable success of their mechanism. They pay attention to the improvement of the residents continuously. Also, they separate the roles of stakeholders including government, residents and enterprises and take their roles and responsibilities fully. That is the main three pillars for the success of Osaki system and standing highest recycling rate in Japan for 12 consecutive years. They could close one of the sources to waste disposal which is green waste including kitchen waste and forest residues. That accounts for about 60% of the total waste and only 40% are left. More than composting and producing fertilizer, they could build the Rapeseed Eco-project for the resource recycling. That may become a trademark of their industry. One noticeable thing is that they ship their recyclable materials through the enterprises. For this shipment, they must fulfill the requirements of the receiver such as cleanness. That also depends on the residents. Based on that simple process, they could achieve so many impressive awards and recognitions and extend their model to the international cities.

In case of Nishiawakura Village, they used two main pillars for their SDGs town target, which are Forest Industry and Local Venture. As they possess abundant forest resources in their area, they set the relevant components such as 100-year forest business, renewable energy business and local venture. The 100-year forest concept is a sustainable concept by the present generations to the future ones. For renewable energy, they developed various energy sources available including hydropower, firewood boiler, solar power, biomass power generator, and wood chip boiler. Being enabled to stand alone without connecting to the central grid and using the energy generated from various local power sources is an impressive initiative for the countryside areas away from the central grid system. The idea of establishing a local venture school for persuading immigrants from other areas and creating opportunities suited with the local conditions for them is found as an interesting way to reduce depopulation. Another thing which impresses me is the introduction of education system dealing with SDGs in the primary school level together with the practical and participation to have a contact with the nature as well as "My SDGs Action Declaration" at the junior high school. They are establishing their target of SDGs town from the foundation. Connecting the field works to the research through the establishment of Nishiawakura Muramarugoto

(meaning 'whole village' in Japanese) Research Institute is for the efficient production by the town.

In Kamikatsu Town, a unique business, which may be the popular demand only in Japan, was found, which is Happa (leaf) business (Irodori). Decorating dishes with the leaves (not for eating) and preferring that kind of dishes is strange for a foreigner. The history how the founder of the company IRODORI passed to reach such as successful and main supportive business to the Kamikatsu citizens make me energetic. It is also found that updating and sharing ground market conditions and information to the suppliers are key factors for fulfilling the demands of the market and maintaining the quality of the products. About one-third of the total sales from this business is obtained in 25-26 December of the year being a preparation period for the popular New Year festivity cuisine in Japan called osechi. It is also noticeable that the education policy of the prefecture is one of underlying factors to depopulation in the town. The tourism industry they initiated have choices for different layers, including general participants, companies and groups or individuals and education sector.

What these three areas have as the same issue is depopulation as other rural areas of Japan do. Among these three areas we visited virtually, only Nishiawakura Village could escape from depopulation and the rest ones are still facing challenges. They usually consider reducing depopulation through immigrants including so-called I-turn and U-turn in their future strategies, plans and activities.

In short, recognizing what they possess and exploring how they can proceed is the secret of the success of each municipality. Exploring hidden values is thus the first step, and implementing the activities which are accompanied by those values and resources may be the lights for other small cities and rural areas of the world to get the SDGs targets we want.

APPLICABILITY IN MY COUNTRY (MYINGYAN MUNICIPALITY)

After learning from the three municipalities, how those lessons could be applied in Myingyan Town which is located in the central dry zone of Myanmar is considered. Myingyan municipality has various challenges for proper waste management and local industry. The Osaki system might be too beneficial and applicable in Myingyan Town's waste management although implementation to get full and responsible participation of the residents might not be a smooth way compared to Japanese behaviors and weak existing rules and regulations. It may be economical as the recyclable materials could be shipped to the nearest second largest economic city in Myanmar, which is Mandalay, and recycling businesses are developing to some extent there. In case of possessing resources, it is near one of the hotspot areas in tourism industry of Myanmar, which is Bagan, the ancient city of Myanmar. Establishing a successful and model recycling system and using that benefit together with tourism in Myingyan may increase its values and standing point as an impressive town in Myanmar as well as increase the incomes to the town residents.

SUGGESTIONS FOR THE MUNICIPALITY(-IES)

As the three municipalities virtually visited have sharing platforms about their activities, that is a mutually beneficial mechanism for all of them. They can see what others are approaching and it should be kept going. More than persuading immigrants to their areas, they should also emphasize to increase their own resident population per family. That should be included in their strategies such as birth encouragement plans. That may contribute to positive impacts to the national scale. As Osaki Town implemented, other two municipalities should share their successive models to municipalities in Japan and the world which are possessing similar conditions and resources for improving SDGs achievements around the world. For Osaki Town, human capacity is the main source, so they should improve that resource sustainably. In case of Nishiawakura Village and Kamikatsu Town, they should prepare for the possible impacts as theirs is built on the natural resources which they own and are sensitive to climate change and other global issues.

LE THU HIEN

First of all, I would like to thank Professor Naoko Kaida for her enthusiastic guidance, and the guests from Osaki, Nishiawakura, and Kamikatsu during the online field trip. I am really grateful for the course's efforts to organize an online field trip in the Covid-19 situation. Coming from a developing country like Vietnam, I very admire and am surprised by the achievements of Japan. This report summarizes the lessons I learned from the course and applies them in Vietnam.

OSAKI TOWN

From having difficulty due to lack of capacity at the landfill waste in the past. Nowadays, this town took advantage of its own hardship to rise to the top leading municipality in recycling rates in Japan for 12 consecutive years. This success is due to the creativity, effort, and perseverance of the local government, and the resident. Start with opening many classes to raise resident's awareness about sorting garbage for recycling. The excellent coordination of residents and authorities in applying theory to practice the "Osaki system" is the most valuable lesson. It is not easy to separating garbage into 27 categories, but Osaki Town did it with a recycling rate of up to 82.6% (preliminary results for FY 2019, No. 1 in Japan). This can increase the useful life of landfills, make a lot of profit from recycling waste and create more job opportunities. No resting on victory, Osaki Town continues to develop the idea establishing the "Osaki SDGs Promotion Council" launched in January 2021 to promote collaborations between Osaki and businesses, built plan laboratory to accept researchers and people from businesses, promotion the circular economy promote SDGs, make renewable energy, this town is the pride of Japan that has a positive influence on other areas of the country, and even over the world.

In my opinion, the above lessons can be applied to central cities with high intellectual standards in Vietnam such as Da Nang City, Hanoi Capital, Hai Phong City, Ho Chi Minh City, and Can Tho City. Especially, Da Nang City has the most potential to succeed because it is famous for environmental protection, and its residents are always willing to absorb advances in science according to the government's policy, which is a pioneer city eliminating homeless people, selling street food on the sidewalk, built clean tourist city. If successfully applying more waste recycling, it will be a driving force to promote other cities in Vietnam to follow. Although this plan brings many hopes of renewing the country's thinking, it can take a long time because the foundation of Vietnam is still very weak.

NISHIAWAKURA VILLAGE

The small village opposed merging and still decided to remain autonomous, while the village's financial constitution was the weakest in the prefecture with a small population and danger of decreasing. Not having been knocked down by the immediate difficulties, this village has succeeded beyond expectations with its attempt to revive the village based on a long-standing forestry foundation. The unique idea of the village named the "Initiative with a 100-year Vision of Forests" is the most meaningful lesson, that is both contribute to preventing

global warming and stabilizing income for the residents by providing wood and wood-based livelihoods. In addition, the village's forest is well managed to keep the river water stable, contributing to increasing electricity generation by using water energy. It saves kerosene fuel, and provides products and other services by using renewable energy, such as solar heat and wood biomass. With the clever use of wood biomass, the village has been selected by the government as one of the "Eco-Model Cities" leading to the realization of a regional model that maximizes the use of local resources while achieving both a low-carbon footprint and sustainable development. Besides that, the education policy combines with tourism development, in which, it stands out ideas "Local Venture School" attracted interest and immigrated to the village. The biggest lesson from this village is the innovation in thinking that has created huge values for the sustainable development of the socio-economic system.

It is exciting to think about applying lessons from Nishiawakura Village to the highlands regions of Vietnam such as Daklak Province, Daknong Province, Gialai Province, and Kontum Province, which have large reserves of primary forest. Especially, Daklak Province and Daknong Province, which used to be the same province but have just been separated, have very large forest biomass in the past, but deforestation for industrial trees such as coffee, pepper, rubber, cacao, has significantly decreased the forest reserve.

It is a pity that recently the value of those industry trees has been decreasing leading the residents to cut down all of them. The application of "Initiative with a 100-year Vision of Forests" would create jobs for residents who live by forestry, regional economic development, contribute to climate change reduction.

KAMIKATSU TOWN

The small town with an aging population was the first town in Japan to set itself a target of zero waste, thus attracting attention within the country and from the world. The town residents' sense of self-discipline and solidarity is admirable, and they have gained a keen awareness of the need to reduce waste completely have together to fulfill the principles of the "3Rs" of reduce, reuse, and recycle: they compost kitchen waste and food scraps at home; and not having a garbage truck collection service, they take their garbage themselves to the town's single waste collection center to separate it into more than 45 different categories. The smart management mechanism of the local government does not provide garbage collection service but offers financial assistance to residents for purchasing household raw garbage processors to voluntarily protect their own living environment, suitable for tourism, and this is a useful lesson for other areas. Besides that, this town is famous for happa business (irodori), sustainable agroforestry management, meeting the community's overarching ecological progressive harmonic revitalization attracting tourist, young immigrants to an aging town, and continues to focus on Japan's future circular economy.

Sapa Town and Da Lat City in Vietnam are the first two places that come to mind when I want to apply lessons from Kamikatsu Town. It is famous for ecotourism, growing flowers to product souvenirs, and the residents can have stable income from tourism, so they can buy waste recycling machines for home use. The population is mostly elderly, who have a lot of time for

sorting and recycling waste, and they are willing to go to the waste collection center if the place is culturally connected and beautifully designed like a coffee shop. Indeed, the management structure is the Kamikatsu Town's building architecture is so delicate that it makes anyone want to learn.

NGUYEN THI MAI ANH

LESSONS LEARNED FROM LOCAL SDGS TOWNS IN JAPAN

The “Local SDGs towns: Small, remote towns in Japan with good practices” field trip was held virtually in May. This course introduced students to three towns in Japan that promote to meet sustainable development goals, namely Osaki Town (Kagoshima Prefecture), Nishiawakura Village (Okayama Prefecture), and Kamikatsu Town (Tokushima Prefecture).

Osaki Town is known for its Global Standard Circular Local Management Model. This town aspires to achieve its 2030 goal of sustainable development, starting with the Osaki Recycling System. The operation of this system reduced the amount of waste generated in the town by 85% between 1998 and 2018, contributing to extending the life of the landfill site and keeping the environment clean and odor-free. To achieve that, the government and local people have made efforts to classify garbage into 27 categories. By 2019, the recycling rate here reached 82.6%, ranking first in the country. The core issue of this success lies in calling the community to action and pursue the goal. In it, women play a pioneering and important role in the system. Children are educated from elementary and junior high school using recycling business as teaching material. In addition, the income from the sale of garbage is used to establish a scholarship fund for 20 students who immigrate to town (United Nations, n.d.). It can be said that Osaki Town has taken really strong actions to spread and maintain its model successfully.

Nishiawakura Village is the second case introduced in the course with lessons on building a Low-carbon Model Community Based on Renewable Energy and exchange with Cities and Support for start-ups with the theme of “High-quality Countryside”. One of the core issues here is age, the aging rate is 37% higher than the average aging rate of Japan. In that context, the local venture is Nishiawakura Village’s solution to attract immigrants to live and work in this small village. Nishiawakura Local Venture School makes it easier for them to integrate into local life with participants' passionate businesses located in the right location. After the final selection, the selected can start their own businesses and win training opportunities, subsidy and other support (Japan for Sustainability, 2017)

Finally, Kamikatsu Town's Happa business, zero waste and support for young immigrants model, the first town declares zero waste in the country was introduced. This town aims to be a zero waste society with no garbage with the classification of garbage into 45 categories, the most divided amount in Japan. Zero waste has been made a brand of Kamikatsu. This brand is used in environmental education programs, collaborative projects to plan a circular community. In addition, to emphasize its role and image, Kamikatsu Town focuses on education and eco-tourism, from consumptive tourism to environmental symbiosis tourism to help reduce pressure on not only nature but also culture and local community life, contributing to the sustainability of the model.

SDGS LESSONS AND VIETNAMESE CONTEXT

Besides the impressions and lessons from each of the above regions, the most impressive thing for students from different countries is that there are three localities mentioned in the program as case studies and these are not the only three SGDs towns in Japan. In fact, according to my finding, the network of Japan's municipalities' actions on the SDGs includes 30 cities and regions selected as “Future City” and/or “Eco-model City” with the establishment of SDGs Promotion Headquarters that comprises all Cabinet ministers in order to secure close cooperation between relevant administrative agencies in implementing measures for the SDGs and effectively and effectively promoting the SDGs measures (Fujino & Asakawa, 2017). In my personal view, it means that Japan is investing a large network throughout the country and has a tight organization to work towards the goal. Therefore, it makes the most important contribution to the success of many localities, including the case studies in this field trip.

During the course, a question arose to me, if Vietnam organizes this course, what case studies should be considered in the lectures. However, it is not easy to find the answer in the current context of Vietnam. In Vietnam, sustainable development is a consistent policy of the Party and State and is an issue that attracts the attention of society. The Government has promulgated Vietnam’s Agenda 21 (2004), Vietnam's Sustainable Development Strategy for the period 2011-2020 and most recently the National Action Plan to implement Agenda 2030. However, Vietnam has not created a strong “campaign” in the community about SDGs and shortcomings in organizational structure. Therefore, the above orientation of Japan can be a lesson for Vietnam.

Factors that are expected to be favorable for Vietnam may be the government’s available policy on SDGs, the aging problem is not a concern for a country with a golden population structure like Vietnam today. Another thing is that Vietnam has a close international cooperation relationship with Japan as well as many countries around the world. However, Vietnam also faces many challenges if it is to implement this lesson successfully. The first is finance. The second is the organization of the apparatus. The third is that the community’s awareness of the SDGs is still incomplete and inconsistent. Fourth, social and cultural characteristics have significant differences between the two countries. For example, in waste sorting, collection and transportation programs in these towns, women play a leading and pivotal role. Personally, this is because Japanese women often choose not to work and stay at home after marriage, so they have more time for household chores. This contrasts with the current social trend in Vietnam, where women increasingly want to be more independent in finance and career, so they are quite busy to do meticulous housework. Finally, the last thing that could be the fifth disadvantage is the population aging trend, which is an inevitable trend that Vietnam can achieve by 2040 (General Statistics Office of Vietnam, 2020). It can be seen that Vietnam needs to prepare very carefully and have long-term plans if it wants to pursue Japan's SDGs model orientation.

SUGGESTION FOR KAMIKATSU TOWN

One of the common and core problems in Japan is the aging problem, and Kamikatsu Town is no exception. Therefore, this locality needs to face and tighten the implementation of policies to attract and retain young people and their families to immigrate. It can simultaneously carry

out educational activities to help immigrants know and integrate with the town's lifestyle and SDGs model. Besides, this town can also use and further spread the zero waste brand by bringing unique handmade products and recycled products made from local waste to participate in campaigns such as Environmentally Friendly Shopping Campaign or own a similar campaign. This can be beneficial in strengthening Kamikatsu's brand and conveying a stronger message of sustainability in society.

References

General Statistics Office of Vietnam. (2020). Vietnam population size key findings. Retrieved from http://consosukien.vn/quy-mo-dan-so-viet-nam-nhung-phat-hien- chinh.htm

Japan for Sustainability. (2017). Nishiawakura's Initiative Based on People Discovering Their Own Desires. Retrieved from https://www.japanfs.org/en/news/archives/news_id035920.html

Junichi Fujino, & Kenji Asakawa. (2017). Taking action on the SDGs in Japanese cities. Retrieved from https://www.iges.or.jp/en/publication_documents/pub/discussionpaper/en/6108/IGES+DP+SDGs+City+en+%281%29.pdf

United Nations. (n.d.). Osaki Recycling System of Japan (separation - collection - processing) achieved 83.4% recycling rate with 27 items separation by community and makes not only Environmental but also Economical and Social Outcomes. Retrieved from https://sustainabledevelopment.un.org/partnership/?p=30108

DELMARIA RICHARDS

LESSONS LEARNED FROM THE COURSE AND THEIR APPLICATIONS TO JAMAICA

Numerous documents have been created to align with the sustainable development goals (SDGs) in Jamaica. Moreover, strategic reviews have been done to integrate SDGs in hopes of strengthening plan implementation frameworks. Nonetheless, they lack practicality, that is, the utilization of current and or future example projects displaying the achievements thus far. There are few records of community-based projects for SDG advancement. For example, the Vision 2030 Jamaica- National Development Plan has elements of the SDGs within but no examples of how the strategies are applied. Great emphasis is applied to improve policy coherence and capacity building in policy integration while neglecting participatory projects with specific embedded benchmarks and assessment tools.

Consequently, the review strategies proposed are namely for policy reviews rather than assessing the achievement through community participation. The approach directly aligns with passive state-centered politics, where policies are drafted but not enacted well. Drastic improvements are necessary to achieve the country's vision of becoming a developed country by 2030. Several strategies employed in the three areas (Osaki Town, Nishiawakura Village, and Kamikatsu Town) can be applied. These include; the use of good catchphrases to appeal to the psyche of citizens when widely publicized, finding a niche in which the community has a comparative advantage to create sustainable businesses for socio-economic growth, adopting better waste management practices, instituting uncomplicated rules along with systematic regulation for greater compliance, plus, ensuring stakeholder input to enhance policy cohesion as well as applicability. The latter is discussed further.

Stakeholder input is paramount when creating sweeping policy changes. The stories of the towns are very motivating. Through community participation, along with the capacity building of all stakeholders, all three towns and villages are achieving their goals. Seemingly the bottom-up approach employed has led to inclusive growth for all involved. The models demonstrate an active way to change the mindset of a nation for sustainable growth is to encourage direct involvement. Furthermore, it is evident a bottom-up approach works better for compliance because when citizens create the rules they are prone to conformity. Moreover, the ability to be involved in policymaking gives them a sense of pride, especially knowing their voices are heard.

Generally, political command and control techniques are employed in Jamaica. The policymakers create the projects and or legislations, make rules, then impose unto the citizens the expectation of acceptance, adoption, and submission. Although capacity and institution building are often discussed in sustainable development, the associated actions lack community visibility. Additionally, there is limited information sharing; even if active projects are underway, related information is hard to access, unlike the three case studies. Information gathering of practical SDG projects and their assessments need to be done then made public.

The major takeaway is, having community members achieve planned goals by strategic execution enhances longevity. Subsequently, a bottom-up community development technique with inclusivity is effective for policy enactment to tackle social issues. This includes aspiring to achieve sustainable development goals. For a social system to be fully functional, all stakeholders must understand the mission by cross-sectional information sharing with government officials, businesses, and residents through meetings, discussions, and agreeing to changes.

RECOMMENDATIONS FOR THE THREE COMMUNITIES

All the presentations within the program were awe-inspiring, rendering essential information for small communities' inclusive development by SGDs. All projects currently being undertaken have significant distinctive values for each community. The comprehensive precocious models leave little room for suggestions regarding improvements. Nonetheless, the suggestions below might have value for further enhancement of the communities.

Suggestions for Osaki Town: Investing in energy recovery from biowaste and forming international friendships

- According to Mr. Matsumoto and Mr. Nakamura in a presentation on May 25th, 2021, Osaki Town continuously reduces landfill waste to increase the landfill's lifespan, which is a good start. However, we learned that a Japanese community could survive without landfilling, as in the case of Kamikatsu Town. Therefore, to further reduce final disposal, organic waste should be recycled for energy recovery. Biogasification might be an expensive venture, but the sewage plant's lifespan is ending thus, livestock, food, and green wastes can be combined with human excrement for bioenergy generation in the form of electrical and steam energies. This option is appropriate because food plus green wastes account for more than 60% of all generated wastes.

- In addition, sister city relationships can be formed with cities abroad to boost investment.

Suggestions for Nishiawakura Village: Nishiawakura's story is very inspiring. We see how stringent changes can be effectively implemented for sustainable development, regardless of scope. Nevertheless, a few considerations for improvement are listed below.

- Aquafarming is already underway using eels by A0 (A-Zero) Co., Ltd. This can be expanded to include the raring of Kio (Nishikigoi/*Cyprinus rubrofuscus*), since these fetch a high price in domestic and international markets.

- The number of deer outnumber the residents. Hence, for deer control, a bid can be tendered inviting businesses to engage in deer farming, where the venison is sold, and skin used for creating sustainable fashion (for example, cosmetics, jewelry, plus deerskin leather). In addition, the waste from deer can be used in compost.

- Soil content monitoring: Currently, LiDAR is used with GIS for monitoring and modeling in precision agriculture (PA), measuring height, plant structure, land clearing, density, etcetera. However, this remote sensing technique seems to be for topographic analysis. Therefore, using data from JAXA's GCOMW-1, which gives information regarding soil moisture concentration and soil carbon at 50 km resolutions, is recommended. Information from 2013 to 2017 is available. Furthermore, it will be replaced by a superior satellite called GOSAT-GW, which encompasses many climate-change-related standard products by 2023. Although the program ended in 2017, data is found on JAXA's Portal, https://gportal.jaxa.jp/gpr/. For more information on how this satellite works. See: Oki, T., Imaoka, K., & Kachi, M. (2010). Concepts and applications of GCOM- W1 and W2. Int. Arch. Photogramm., Remote Sens. Spatial Inf. Sci., 38(8), 86-90.

Suggestions for Kamikastu Town: Attracting foreign investment, promoting energy recovery, and expanding forestry utilization are good inputs for the future.

- Sister city relationships can be formed with cities abroad to boost investment.

- International interns can be taken as part of homestay programs. This might lead to an expansion of the international market share while encouraging immigration. Additionally, it might create an influx of business interests.

- Household compost can be done collectively then; the surplus packaged and sold to market.

- The kitchen and garden waste can be coupled for greater compost output or for biogasification to produce steam and or electrical energy

- There should be greater use of forest resources. For example, a limited number of small craft items can be made and sold to order or trees used to produce bioenergy from biomass-reflective of Nishiawakura Village's project.

- The number of deer outnumber the residents. Therefore, for deer control, a bid can be tendered for a business to engage in deer farming, where the venison is sold, and skin used for creating sustainable fashion (for example, cosmetics, jewelry, plus deerskin leather. In addition, the waste from deer can be used in compost.

- Bamboo or log rafting can be done on rivers. It might be attractive to adventure tourists. Bobsledding in the mountains is also a fun tourist activity. The latter is an excellent way to observe nature without depleting it. This is done in Jamaica.

Final Impression: All three case studies illustrate the importance of inclusive development through stakeholder participation. There is full engagement through consultation, informing, and participation; giving benefits to ventures, regulations, plus individuals they directly

impact. Although there are no set procedural guides for stakeholder participation and no one-size-fits-all method to ensure success, it is essential to first understand the issue being addressed, then engage stakeholders from the outset to build a sense of pride, continuance, and strengthen community bonds.

References

D&B TRAVELS. (2017, June 3rd). MYSTIC MOUNTAIN - BOBSLED Ride - Ocho Rios, Jamaica 4K[Video]. YouTube. Retrieved from https://www.youtube.com/watch?v=C0N6vL6PF6U

Nonoyama, S. (2021). Sustainable Community Planning: Sustainable development in Kamikatsu way. pangaea, LLC.

pangaea, LLC. (n.d.). IRODORI. Retrieved from https://vimeo.com/

pangaea, LLC. (n.d.). ZW_en. Retrieved from https://vimeo.com/

SDSN Malaysia. (n.d.). SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK A GLOBAL INITIATIVE FOR THE UNITED NATIONS [Online image]. https://sdsn.org.my/2020/01/30/six-transformations-to-achieving-the-sustainable- development-goals/

The United Nations Educational, Scientific and Cultural Organization SDG-Education 2030 Steering Committee Secretariat. n.d. Sustainable Development Goal 4 (SDG 4) [Online image]. https://sdg4education2030.org/the-goal

JOSEPHINE BRENT YEANGA

OSAKI TOWN, KAGOSHIMA PREFECTURE

Osaki is a town which is located in Soo District, Kagoshima Prefecture, Kyushu Region in Japan, the southern part of Kagoshima Prefecture and it faces the Pacific Ocean. Osaki Town has total population of 12,831 and been doing recycling since 1998.

At the late of the waste generation Osaki Town faced some challenges for the confidence in the Town's success. There was no incineration plant which was a serious problem for the town, the waste generated was dump in the landfill site which make its limited, the landfill was approaching the end of its functionality, the only way forward was to prolong the life of the landfill by building new sites but, it was expensive, building an incinerator is a matter of establishment and conservation which takes many efforts. The construction of the new landfill in contrast to the residents of the surrounding area, in order to prolong the life of the existing landfill, it is necessary to establish rules of garbage classification and specific explanations to the residents that will make them comfortable to embrace the good ideal of sorting. There were burden on the local residence to separate waste in the early stage. They were successful in reducing their waste by 84% and won award by Japan SDGs in 2018.

NISHIAWAKURA VILLAGE, OKAYAMA PREFECTURE

Nishiawakura is located in the northeast of Okayama Prefecture with the population of 1,416 people. It confronted persistently diminishing population and a feeble economy. To change the present circumstance, village people began to foster themselves. At long last, with manageable ranger service, the town turned into a model for the accomplishment of territorial renewal. The 100-year woodland business stood out from everywhere Japan. This 100-year backwoods idea was begun with the endeavors of making high quality life in open country and low carbon society. Most counterfeit timberlands of the Nishiawakura have been planted after war period, which comprised of sugi and hinoki. Imported wood was reasonable around then and neighborhood ranger service was tested. Hence, less consideration was given to woodland.

KAMIKATSU TOWN, TOKUSHIMA PREFECTURE

Kamikatsu Town is a modest community situated in Shikoku Island with 100-170 m over the sea level. It has the number of inhabitants in under 1,500 individuals, 53% of which have a place with maturing populace. The town is around 110 km^2 in region where 88% of the land is involved by the timberland. Notwithstanding, 80% of the backwoods are planted trees. Kamikatsu Town has three unmistakable highlights: Happa business called Irodori, zero waste administration and manageable the travel industry. The Irodori organization made a business opportunity for beautiful leaves to embellish customary Japanese cooking, and set up the Irodori brand. Ranchers, a farming helpful, the Irodori organization is occupied with this endeavor together. The Irodori organization arranges ranchers, and offers advancement, showcasing, correspondence with clients.

Autonomous ranchers supply leaves to the organization. The normal time of ranchers is 70 years of age, and greater part are ladies. The complete deals volume of the market for beautifying leaves as a component of the customary Japanese food adds up to 1,000 million yen (9.6 million dollar).

References

Edahiro, J., 2018. Nishiawakura's Initiative for Self-Dependence Attracting Motivated Young People to Migrate to the Village and Start Businesses. Retrieved 15th June 2021, from https://www.japanfs.org/en/news/archives/news_id036016.html.

Global Standard: Osaki Town - Toward a sustainable town – “世界標準、大崎に向けて鹿児島県大崎町役場“ used in SUSTEP Online Trip, May 25, 2021

Nishiawakura website, from http://www.vill.nishiawakura.okayama.jp.

Roger Ong, R., (2020 July 9). Kamikatsu’s Zero Waste Center “WHY”: It’s finally complete. Retrieved from https://zenbird.media/kamikatsus-zero-waste-center-

Yance Arizona 2020. Multi-Dimensional Challenges, Multi-Sectoral Innovations: The Resilience of Common Forest Management in Japan, from https://www.sylff.org/news_voices/28043/. Cited on 2021 17, June.

ADOM SETH

OSAKI TOWN (KAGOSHIMA PREFECTURE)

Osaki Town is located in Kagoshima Prefecture in Japan. It lies between 31° 26′ 32″ N 130° 58′ 39″ E. The total population is about 12,831 people with 6,720 households. It covers about 100.67 km^2 land area. Agriculture is noted as the main occupation in the town. Some farms products from Osaki Town include freshwater eel, fruit, chicken meat and pure kudzu powder among others. There was a critical issue of landfill solid waste disposal in the town. In the late decades, the town council build waste recycling plant and began waste recycling. About 27 waste segregation strategy was adopted. Among all kitchen waste is highly recycling to produce manure for farming. The town achieved 80% of solid waste recycling target higher above national recycling of 20%. In 2018, they received 2nd Japan SDGs Award by the state government. About 40 people are employed by the town for waste recycling services. Revenue generated through waste recycling is about 140,000,000 Japanese yen, which provide sort of educational funds to residence. Major challenge noted is low level of population growth in the town. Policies have been implemented to attract immigrant and encourage marriage in the town to boost their future population.

NISHIAWAKURA VILLAGE (OKAYAMA PREFECTURE)

Nishiawakura Village is located in the northeast of Okayama Prefecture with a population of 1,416 people as of March 2021. It covers 57.93 square kilometers of land area, of which about 95% is mountainous forests. About 84% of the forest zone is dominated by Japanese cedar and cypress trees (sugi and hinoki). After World War II, people began plantation to serve as economic value for individual dwellers. This plantations grew to abandoned stage due to improper management. The village conceived 100-year forest concept, entrusted forest management into cooperation with intended aim to redefine and recreate a healthy countryside living, preventing landslides in the mountainous areas of the village as well and be low carbon society. One effective strategy adopted was an initiation of comprehensive approach of forestry cooperatives. Currently about 1,600 ha of private forests are managed by the village. It achieved mass production of wood products like furniture's, plywood among others. The forest serve as source of traditional fuel for biomass energy generation. After 17 years efforts, it has become a model of local economic revitalization, selected as SDGs Future City in 2019. In September 2015, the area adopted Sustainable Development Goal agenda 2030, aiming for zero carbon emissions through forest initiatives. The population of the area experience continuous decline which may treat future sustainability of forest business in the town.

KAMIKATSU TOWN (TOKUSHIMA PREFECTURE)

Kamikatsu Town is a small town located in Shikoku Island with 100-170 m above the sea level, with a population of less than 1,500 people, 53% of which belong to aging population. Total land area is approximately 110 km^2, forest occupied about 88% of the land area. The town has three unique business features known as Irodori, zero waste management and sustainable tourism. Irodori involves in decorative leaves as business. These leaves are mostly used in

Japanese societies to design foods and living environment. In 2003, Kamikatsu became a first Japanese town to initiate zero-waste policy. This strategy centered on '3Rs', i.e., reduce, reuse, and recycle, with about 45 type waste segregation approach. The town achieved more than 80% of overall waste generated through recycling and composting. It is good destination to explore sustainable tourism and leisure activities during holidays. Kamikatsu Town was nominated as SDGs Future City in 2018. It has a long-term commitments toward a sustainable town. Even though they have made significant move towards SDGs, there is a need for capital investment to expand it efforts.

In conclusion, many efforts have been made in various Japanese towns with diversity to increase sustainability, ensure countryside economic revitalization and repopulate the existing numbers of people. Despite efforts made by these towns there are still pitfalls by future treat of continuous reductions of human resource essential for development. Percentage of aged population still peaking up. Therefore, the government of japan should embark on long-term rural enterprise development program, encourage tax free allowance of opening new lucrative business in Japan countryside's to ensure redistribution of urban population across over villages. Also, special incentives should be giving to people who live in countryside to ensure better livelihood enhancement comparatively to those in cities. These would complement immigrant into countryside to de-centric urban overpopulation.

References

Edahiro, J. (2018). Nishiawakura's Initiative for Self-Dependence Attracting Motivated Young People to Migrate to the Village and Start Businesses. Retrieved 15th June 2021, from https://www.japanfs.org/en/news/archives/news_id036016.html.

Planning Environment Division (PED). (2020 January 01). Challenges and goals of Kamikatsu Town. Retrieved from https://zwtk.jp/2020/03/01/

Shizume, C. (2020). Kagoshima's Osaki Town's ambitious plans to achieve SDGs by 2030, November 23, 2020, Retrieved June 13, 2021, from https://zenbird.media/kagoshimas-Osaki-towns- ambitious-plans-to-achieve-sdgs-by-2030/

SUSTEP Field Trip Report
Local SDGs in Japan: Learning from Good Practices from Selected Three Small Municipalities

Written by the participants of the SUSTEP Field Trip Local SDGs Towns in Japan, May-June 2021
Edited by Naoko Kaida

Sustainability Science, Technology and Policy (SUSTEP) Program, Master's Program in Environmental Sciences and Doctoral Program in Sustainable Environmental Studies, Graduate School of Science and Technology, University of Tsukuba
June 2021