



Rural Futures

**Prospective Pathways for
the Asian Rural Institute**

May 2025

Rural Futures

Prospective Pathways for the Asian Rural Institute

Claremont McKenna College Team:

Charlotte Jordan, EnviroLab-Gould Student Fellow, Claremont McKenna College

Chisato Kamakura, EnviroLab-Gould Student Fellow, Claremont McKenna College

Jiyeon Kim, EnviroLab-Gould Student Fellow, Claremont McKenna College

Albert L. Park, Bank of America Associate Professor of Pacific Basin Studies, Claremont McKenna College

Andrew Wald, AICP, Another World Planning & Design

Branwen Williams, George R. Roberts Professor of Integrated Sciences, Claremont McKenna College

Diana Zhou, EnviroLab-Gould Student Fellow, Claremont McKenna College

Supporters of this study:

The Japan Foundation

EnviroLab, Claremont McKenna College

The Office of the President, Claremont McKenna College

The Gould Center for Humanistic Studies, Claremont McKenna College

Berger Institute for Individual and Social Development, Claremont McKenna College

Kravis Department of Integrated Sciences, Claremont McKenna College

Contents

1: Introduction	5
2: ARI Rural Leaders Training Program	9
3: ARI Values and Campus Design	25
4: ARI and Climate Resiliency	41
5: ARI and the Future of Farming in Japan	51
Appendix: ARI Graduate Survey	62
References	70



Project No.	Date	Year	Project Name	Group	Task
1			White pea	Aug 2011	
2			Red leaf	2011 (Aug 2011)	
3			Iceberg	10 by	
4			Red leaf	15 by 10	
5			Iceberg	10 by 10	
6			Iceberg	10 by 10	

1

Introduction

Albert L. Park

2007 was a monumental year. It marked the first time in human history that more people in the world live in urban areas than the rural. Currently, the trend of people migrating to cities to live and work has only been increasing. By 2050, nearly 68% of the world's population is expected to live in cities. Despite the upward trend of urban migration, nearly half of the world's population today still live in the rural and consider it their primary place of work and residence. For these people, the rural is their home, and they continue to maintain the rural as a valuable place for humans and nonhumans. Indeed, the rural, mostly through agricultural endeavors, is the main source for food and energy. Without it, cities would collapse. Besides the rural nourishing the urban through food production, it is home to dynamic, diverse communities where residents are engaged in different types of work, such as careers in the healthcare and biotech industry, the creative economy and education. Finally, the naturally rich environments of the rural have increasingly made rural areas into valuable sites of biodiversity in the face of climate change and environmental destruction.

Despite the efforts of rural communities to protect their ways of living and boost economic opportunities, rural areas throughout the world face a number of challenges that are well known, including

Section 1

depopulation, declining economic opportunities, the breaking down of social infrastructures and growing pollution. Globalization as an economic process, in particular, has furnished new economic opportunities through the expansion of trading networks and easier access to capital and investments, but, overall, this process has laid down pathways that have favored the urban over the rural. It has therefore contributed to the growth of problems in the rural. Economic drives under globalization, such as financial reforms and the growth of the tech industry, have positioned the urban as the primary sites of production, consumption and exchange, which has led to an increasing number of people leaving the rural for cities.

Rural Japan faces a number of challenges in this period of globalization. Among the greatest challenges, Japan is encountering a steep decline in its rural population. The majority of residents in the rural are aging, which is leading to worries about how to maintain agricultural production and how to take care of older adults and the elderly. These concerns have been compounded by the fact that schools have closed down in many rural areas due to few children and towns have been vanishing as an increasing number of houses and buildings have been abandoned. On top of everything, there is scarcity in social services, including medical care, in the Japanese countryside.

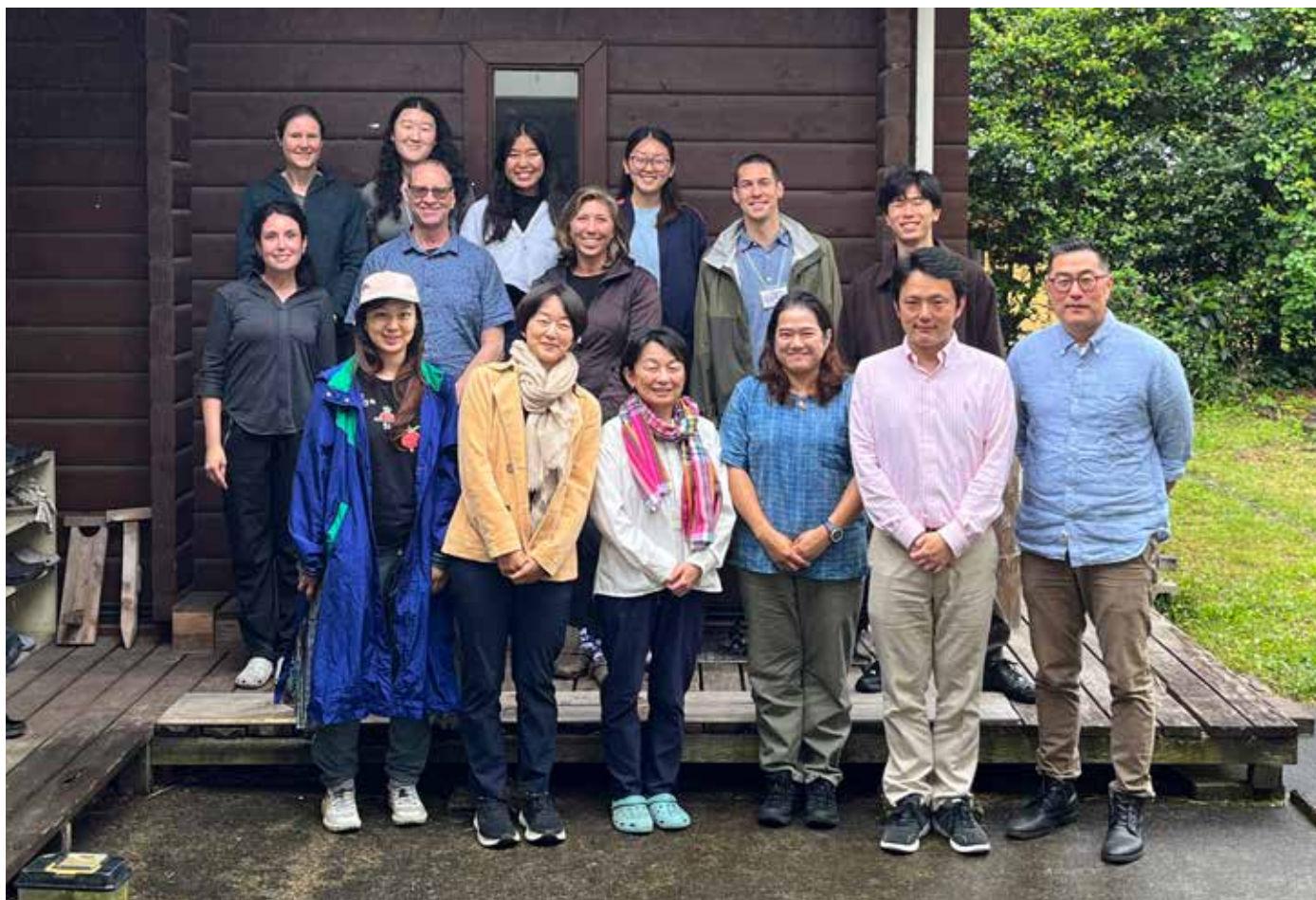
Founded in 1973, the Asian Rural Institute (ARI) has been a pivotal force in taking on these rural issues. As an educational center in Nasushiobara, Japan, ARI has been training people from Japan and other parts of the world, including areas in Africa, Southeast Asia and South Asia, on how to become rural leaders. It teaches them how to use their skills, talents and interests to help local communities thrive in face of challenges caused by globalization today. ARI, in particular, has emphasized a path for rural renewal through a sustainable approach that is anchored by organic farming. Teaching the principles

and techniques of organic farming to its students has been a way to not only educate them on how to safeguard the lives of those who live in the rural, but also how to protect nonhuman life and the overall environment. ARI's core mission has been to cultivate its students through a holistic approach that promotes care for all forms of life.

This study on ARI is based on a partnership between EnviroLab and ARI. EnviroLab is an initiative at Claremont McKenna College (The Claremont Colleges, Claremont, California) that studies the intersection between society, science/technology and the environment (envirolabasia.claremont.edu). Since 2023, EnviroLab has been engaged in a project, Sustainable Futures: Overcoming Disparities, which has been supported by The Japan Foundation and Claremont McKenna College. This project has been tracing various ways communities in Japan and elsewhere have negotiated the disparities caused by globalization. One of the chief goals of this project has been to forge partnerships between the academic community and local communities and groups in Japan in order to understand how they have confronted issues in the rural and how they have designed approaches to take on these issues. Beginning in the fall of 2023, a team of academics and students from Claremont McKenna and practitioners began a study on various areas related to ARI and rural Japan, including its curriculum, its campus, the natural environment of ARI and the future of farming in Japan in the face of rural depopulation. Preparing this study involved various activities, including meetings between the Claremont McKenna Team and ARI staff, workshops on rural life and globalization, site visits to ARI where we interviewed staff and students (known as students), fieldwork in rural Japan and research on globalization, rural life and farming. Active communication between the team and ARI laid down pathways for dynamic dialogue and for learning from each other.

Far from being an exhaustive study that covers every part of the institution, this study focuses on a few areas of ARI, which were determined in conversations between the team from Claremont McKenna and ARI. Devoting resources and attention to a handful of areas has allowed the team to produce an in-depth analysis of those areas and to provide a few considerations to ARI. More than anything, this study serves as a “mirror” that can hopefully help ARI to further evaluate its program and mission and reflect on the present and future course of rural life and agriculture in Japan and elsewhere. It also aims

to be a mirror that helps academics and students in higher education to think about how to build partnerships with local communities and develop alternative ways of learning outside of the classroom and the boundaries of the academic community. This study is a testament to the value of building robust relationships between local communities and academia based on mutual respect and cooperation in order to design approaches for dealing with the most pressing issue in society. The Claremont McKenna College team thanks ARI for this partnership.



Members of the larger “Sustainable Futures” team during their visit to ARI in May 2024. Contributors to this report include Albert Park (1st row, 6th from left), Andrew Wald (2nd row, 4th from left), and Branwen Williams, Jiyeon Kim, Diana Zhou, and Chisato Kamakura (3rd row from left). Tomoko Arakawa, ARI’s director, is in the first row, third from left.



Jon

Wheat
Cereals
Beans
Mix Veggs
Spring Leaf
Fruits

2

ARI Rural Leaders Training Program

Chiasato Kamakura, Jiyeon Kim, and Diana Zhou

The Rural Leaders Training Program at the Asian Rural Institute (ARI) is a nine month program focused on cultivating skills around sustainable agriculture, community development, and leadership with participants coming from rural communities around Asia, Africa, Latin America, and the Pacific. ARI's motto, 'That We May Live Together,' is upheld by the institute's three core values: servant leadership, foodlife, and a community of learning. Propagating these values, ARI strives to empower participants from diverse rural contexts to be effective grassroots leaders, devoted to their communities with integrity and commitment. This study aims to assess graduates' experiences of ARI's training program and in their home communities to gauge the program's strengths and potential areas for deeper consideration.

To understand past participants' experiences during the Rural Leaders Training Program and following their completion of the program, the EnviroLab student research team surveyed ARI graduates and interviewed staff members. The following report will first discuss previous studies conducted on ARI's curriculum and graduate impact, the methods used in this study to evaluate graduates' experiences, and the study's key takeaways. In discussing the survey results, the report will highlight the patterns found in graduates' experiences during and after

Section 2

their time at ARI. After discussing these findings, points for consideration and exemplary case studies will be highlighted in response to common difficulties faced by ARI graduates.

Past ARI Studies

Since ARI's founding in 1973, there have been two formal studies conducted to evaluate the Rural Leaders Training program's curriculum and graduates' impact. The first study—titled “Bridging the Grassroots”—took place between 2013 to 2014 and was conducted by the Fetzer Institute, a private organization based in Kalamazoo, Michigan. In addition to this report, a graduate impact study of the Rural Leaders Training Program was conducted by Beverly E. Abma, external research coordinator and independent consultant, and Steven Cutting, internal research coordinator and ARI staff member, from 2014 to 2016. The study—titled “Leading at the Grassroots”—emphasized qualitative insights into the ARI community, diving into ARI's processes, participant learnings, graduates' unique home contexts, and so on.

The study conducted by the Fetzer Institute collected data on 124 graduates from 20 countries in the form of either a survey or interview. Additionally, 21 current and past staff members along with the program's 31 participants from the 2013 cohort were interviewed. Essays and reflection papers from 2008 to 2013 participants were also evaluated. Collecting data from graduates, staff, and participants, this study assessed the Rural Leaders Training Program and developed recommendations for future program development. Beyond the curriculum's core teachings, the report highlighted broader influences of the program, such as an enhanced awareness of gender norms and equity facilitated by ARI's flat social and organizational structure, personal development in areas like confidence and motivation, and

implementation of learnings beyond the local context with international development programs and networks. The report also dove into challenges faced by graduates upon returning to their home communities. These included personal life changes (e.g., marriage, death, illness), challenging local and organizational norms when implementing new ideas, and external pressures (e.g., local instability, conflicts, natural disasters).

The following two-year study conducted by Abma and Cutting between 2014 and 2016 consisted of visiting 229 graduates in their home communities. The researchers conducted a thematic analysis of 202 individual interviews and qualitative field notes taken when visiting graduates, their communities, and their sending bodies. In analyzing whether graduates were able to implement their ARI learnings upon returning home, this study found that the practicality of their plan and its alignment with their sending body's ideology and financial capacity were the most important factors for success. The researchers also dove into the specific geographical, political, and social contexts of the interviewed graduates' home regions as these factors played a significant role in shaping graduates' actions in their home communities. This holistic analysis of graduates' impact allowed the researchers to form recommendations for ARI's future steps as they pertain to participant recruitment and preparation, participant experience, post-graduation monitoring, and ARI's long-term continuity.

As the third study of ARI's curriculum and graduate impact, this report serves to continue a comprehensive evaluation of the impact of ARI's curriculum on graduates after they return to their respective home communities. By collecting data from graduates across all graduation years and regions, this particular report aims to offer a longitudinal perspective—either affirming existing considerations or uncovering new insights and feedback that may

have previously been overlooked. Conducted by the EnviroLab student research team from Claremont McKenna College, this study offers a third-party, non-religious-affiliated insight into ARI graduates' experiences and application of the Rural Leaders Training Program.

Methods

The team constructed the survey in Spring 2024 after the team spent Fall and Winter 2023 researching, evaluating, and assessing the broader landscape of rural revitalization, development, sustainable farming, and Japan-specific eco-agricultural environments. The team developed the survey questions through nine semi-structured interviews with ARI staff, as well as surveys and interactions with 2024 program participants between May 13 and 18. These staff interviews allowed the researchers to ask specifically about the current training curriculum, longitudinal change, and participant feedback from the perspectives of the onsite staff. At the same time, surveys were distributed to current participants of the 2024 cohort to get a sense of their experience as participants in the program. From these responses and observations, the research team formulated an ARI graduate survey to understand their application of ARI teachings back home, constructive feedback towards the curriculum, and the efficacy of their ARI education. The team drafted the graduate survey in Summer 2024, with the surveys first distributed to graduates on 31 October 2024. The team closed the survey in December 2024 and began assessing the results in January 2025.

Steven Cutting, Director of Alumni Relations at ARI, distributed the survey through mass email to all graduates on their mailing list. Prior to each survey, each respondent gave their informed consent to voluntarily participate in the study and be recorded for research purposes. A description of

the survey and its intended goals was provided to familiarize the respondents of the survey. A special emphasis was made to ensure that all respondents understood that their answers were kept anonymous and that no personal information would be shared beyond the research team. In total, 94 usable responses were recorded.

The 28-question survey was separated into four areas, detailed below:

- **Demographic Questions**
The first section was designed to understand their cultural, gender, and religious background in order to assess if their following responses are in any way correlated to their demographics.
- **Quantitative Data**
The second section used a Likert scale¹ that asked the participants to rate their experiences at ARI. These questions aimed to determine if there were any differences in graduates' experiences based on their demographic differences, including gender, religion, and cultural background. Other questions targeted graduates' level of learning and application of the ARI curriculum post-graduation. Respondents were also given a chance to elaborate on scaled responses.
- **Qualitative Data**
The third section focused on qualitative data gathering, asking the participants to explain their experience post-ARI, such as their sending body, challenges they faced in their community, and their application of the ARI curriculum.
- **Integration into Japanese Culture**
The last section, with two questions, aimed to understand how graduates were able to understand, integrate, and participate in Japanese culture while at ARI. *The analysis of this portion of the survey is included in a later section of this report.*

Section 2

Because the surveys collected both qualitative and quantitative results, the research team visualized the collected data by presenting pie charts of each quantitative question, first by overall response, then each data point was plotted based on cultural, gender, and religious identity. Then, the researchers used the qualitative responses to explore the connection between each respondent's ARI curriculum and their post-graduate outcome using themes adapted from the variables they mentioned in their responses.

The evaluation team encountered certain constraints during data collection and undertook mitigation strategies to overcome as many of the restraints as possible.

- Due to limitations in time and financial resources, the team collected data through a voluntary survey distributed by email to all graduates. In the process, there may have been resistance, hesitation, and language barriers in sharing data and information, considering that participants may be wary of sharing critiques of ARI with a research team that is affiliated with the institution. The research team used the survey introduction and background information to clarify that their information would be confidential and to explain the purpose of the survey, which was to gather constructive feedback for ARI to improve its curriculum for future participants. Overall, this survey methodology allowed for broad survey distribution and a large sample size, considering the study's limited reach and time frame.
- The survey largely resembled the previous two studies of ARI and yielded similar results regarding program management and implementation of ARI teachings. The research team recognizes this overlap, but hopes that the renewal of the survey from 2014 to 2024 will provide new information

on how ARI curriculum and the effectiveness of their teachings have changed in the last ten years, identifying new areas for consideration and highlighting recurring areas of notice.

- The research team was unable to gather the information about the graduates' graduation year from ARI. The absence of this data resulted in the research team's inability to assess whether the information the graduate was providing was time-relevant to the current ARI curriculum or whether it may refer to a version of ARI's curriculum from the past.

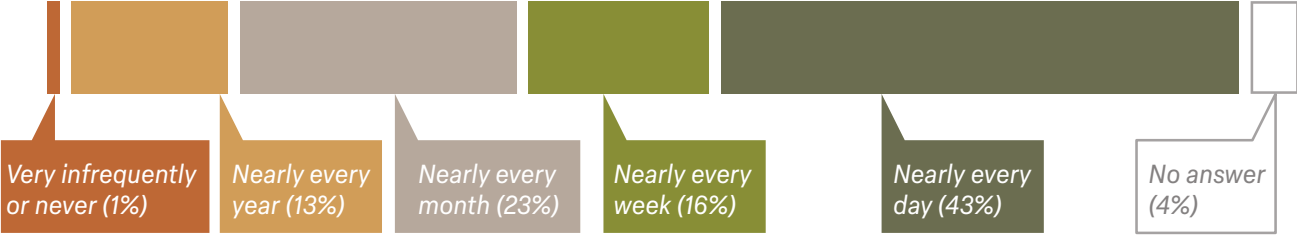
Results

Overview

The majority of responses were consistent across gender, religion, and cultural background. 82% of graduates recall and apply their learnings from ARI on at least a monthly basis, and 92% of graduates feel confident in their ability to increase engagement in their home community. However, 93% of graduates reported facing difficulties in applying ARI's sustainable development practices and teachings to their home communities on a daily, weekly, monthly, or yearly basis. Furthermore, 49% of graduates agree that many improvements should be made to the curriculum, indicating the need for continued evaluation and evolution of the training program.

There were also notable differences across religious acceptance. 20% of Buddhist graduates, 33% of Hindu graduates and 20% of Muslim graduates answered "strongly agree" to the question, "At times, I did not feel welcome at ARI due to my religion." In contrast, only 1% of Christian graduates gave that answer. These responses indicate a need for greater focus on ensuring that every participant feels welcomed and empowered to raise their concerns during their time at ARI.

Question 14: How frequently do you recall and apply your learnings from ARI?



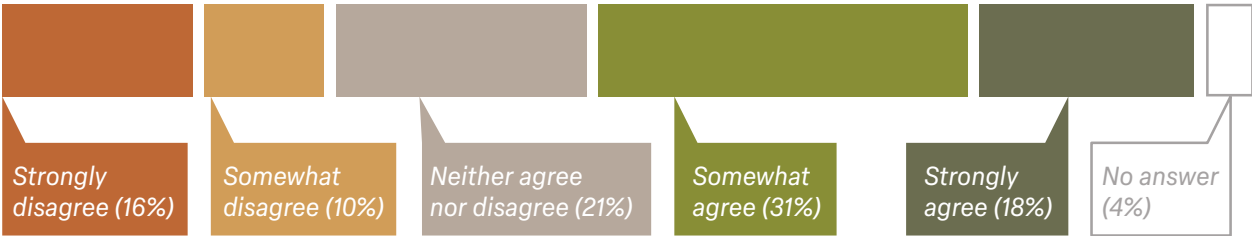
Question 15: I face difficulties in applying ARI’s sustainable development practices and teachings to my home community.



Question 16: After my time at ARI, I feel confident in my ability to increase engagement in my home community.



Question 18: There are many improvements that should be made to the ARI curriculum.



Section 2

A full breakdown of survey results and graduate demographics can be found in the appendix/supplemental materials section at the end of the report.

Common Obstacles Experienced

While graduates generally expressed very positive sentiments about their time at ARI, particularly appreciating the hands-on, virtue-focused training style, they also provided constructive feedback in the qualitative, free-response questions. This yielded four key takeaways regarding common challenges they faced upon return to their home communities.

- **Funding Challenges**

Most participants reported funding challenges as their primary obstacle upon returning to their respective communities. They detailed their experiences of financial troubles, where they struggled to source the necessary funds to achieve their goals. Graduates' sending bodies were often unreliable as funding sources, especially if the initiatives graduates wanted to embark on were independent from the sending bodies' work. These difficulties are a compounding of their communities' circumstances, including barriers to access from government and local services such as exploitation, persecution, and lack of food safety and related regulations. Graduates expressed a desire to be connected to partners or organizations who would be willing to fund their work as a means of lessening the financial burden upon returning back home.

- **Lack of Accreditation**

Graduates also expressed their concern over the lack of a valid certification following their completion of the training program, believing that a diploma would grant them more credibility. While many graduates have gone on to find success regardless, including a Malaysian graduate

who runs the country's only certified organic rice farm, it is still worth noting that certain graduates who face significant barriers in community revitalization and development may benefit from locally or nationally certified credentials in addition to their ARI completion certificate.

- **Community Resistance**

In a similar vein, graduates faced major challenges in changing their communities' perspectives regarding organic farming. Many of the participants' communities still practice traditional agriculture, and it remains a challenge to convince them to switch to organic farming, discontinue the use of pesticides, conserve biodiversity, and practice food safety. One graduate explained that his peers were "oppose(d) to our [organic farming] methods until they saw the results of our trials." Graduates' communities also often experienced hardships that hindered them from embracing change, such as poverty, food insufficiency, health, and religious coups. These circumstances have compounded over time, even leading one Indonesian graduate to describe their greatest challenge as "the chronic degradation of our community life." Some communities have experienced extreme insecurity, such as war and political coups, that prevented them from effectively implementing change. One such graduate speaks regretfully about her inability to help her community as she intended, as they "had to run for [their] lives." While many graduates do eventually find some success, they must first overcome a significant resistance to change from community members and organizations in their home communities.

- **Lack of Infrastructural Support**

Moreover, infrastructural support is often lacking to accommodate these changes, such as an outlet to sell organic products. This speaks to the broader challenge of implementing new farming

methods—it is an all-encompassing effort on the part of the graduates and their communities. There is no easy way to implement long-term change in an already apprehensive community, particularly in a state where, as one Liberian graduate explains, “there [was] fatigue in the country.” To combat this, many graduates have turned to youth leadership education as a way to both support the next generation and bring about changes in a more timely manner.

Graduates’ Suggestions

Graduates’ responses also included a number of curriculum recommendations. Some suggested paying greater attention to the individual circumstances of each participant, such as the state of their home communities, tailoring their education more specifically to the problems they face back home. For example, one graduate from the DRC wished the curriculum had included training on reclaiming chemically hardened soils—a specific skill needed in his community. He believed that his educational experience would have been strengthened by an “integration of more diverse perspectives and the consideration of specific local problems through case studies,” rather than participating in more theoretically-oriented activities. Another graduate from India suggested that participants be given special training in a specific area after completing the general curriculum as a way of empowering graduates post-ARI. These critiques are in agreement with a growing body of research suggesting that both soft and hard skills are complementary elements that comprise successful performance.² ARI’s principles-based educational structure is already highly effective at instilling soft skills, such as open-mindedness and resilience. Participant experiences may be further enhanced by exploring ways to incorporate even more real-time feedback from recent

graduates into the training of current participants, in addition to the mid-year surveys given to participants during the program. A cyclical approach like this may not only improve the program, but also help recent graduates feel connected to and supported by ARI staff as they transition back to their communities.

There were a number of concerns regarding ARI’s adaptations to growing changes in the world, such as climate changes and inflation. One graduate hoped that more emphasis on pressing environmental issues would be placed in future years, while another suggested giving an extra allowance and aid to graduates for establishing startups in their home communities since many simply were unable to start their own small-scale farming initiatives given their circumstances.

It should be noted that the graduates represent many different phases of the ARI curriculum—their educational experiences may not fully reflect the staff’s current educational intentions and changes implemented.

Discussion

ARI’s graduates reported a high degree of confidence in the Rural Leaders Training Program’s instruction of sustainable agriculture, both in theory and practice. ARI has targeted the areas of agriculture and livestock, and the program enhances participants’ understanding of agriculture through critical analysis and application. ARI has integrated organic farming techniques into their curriculum with success and aided participants in adapting ARI-learned techniques to their home community through individual projects. This demonstrated significant change to the curriculum from earlier surveys, where participants reported that instruction can sometimes be too theoretical and they did not have adequate

Section 2

time and instruction on how to apply what they have learned at ARI to their home environment, especially considering differences in soil, climate, and vegetation between Japan and their home environments. However, in the ten year gap, staff and participants demonstrated changes to the program focused on the adaptability and transferability of the ARI education. These actions aligned well with ARI's mission to "learn by doing," as articulated repeatedly in the staff interviews. Insights from staff interviews and graduate surveys indicate that ARI has made significant changes in their curriculum in this aspect, taking participants on study tours across Japan, facilitating more hands-on experience on the farm, and incorporating summer independent projects for participants to design a project plan for when they return home.

Additionally, ARI's focus on servant leadership was shown to be widely appreciated by graduates. From the previous two surveys and the current research data, graduates strongly believe that ARI's leadership training and emphasis on spiritual and emotional growth were invaluable. Graduates especially identified morning gathering, where participants worshipped, shared their feelings, and sang together, as playing a central role in their development as leaders that promote activities and resources from the grassroots. The overwhelming majority of ARI graduates praised ARI's value-based learning system, developing them not just as organic farmers but also evolving their personal character, leadership skills, and worldviews.

However, despite reported improvements in ARI's curriculum and their support for graduates, many still encountered difficulties implementing their ARI teachings when they returned home to their communities. This sentiment echoes the past two reports, as participants reported ARI could have prepared them more practically to meet their communities' specific needs, such as incorporating local circumstances and looking at particular case studies.

The top three areas that graduates identified as barriers to implementing changes were financial constraints, a lack of accreditation, and difficulties in community organizing. The following section identifies similar organizations that may serve as a reference for ARI going forward as the institution considers how to best incorporate these aspects into their curriculum.

Financial Constraints

The ARI graduate survey demonstrated the need for ARI to provide extra support to participants and graduates in regards to addressing financial challenges. Of the surveyed graduates who provided suggestions for how ARI could have better prepared them to face challenges in their home communities, around 36.8% highlighted funding difficulties as a challenge requiring more support. These graduates stated that they would have wanted ARI to either be a funding source for their community projects, to link them to willing funding sources, or to teach them how to raise funds and develop project proposals for projects led by underprivileged groups, which often makes it difficult to obtain government funding. In order to address these challenges, this section will dive into ARI's current financial structure, propose ideas in response to graduates' comments, and highlight a few educational institutions similar to ARI, which may serve as references to better help graduates tackle these financial difficulties.

Currently, ARI is registered as a private legal school body (*gakkō-hōjin*) in Japan. Receiving no financial support from the Japanese or a foreign government, ARI is financed entirely by donations (45%), scholarships and tuition (22%), domestic income generation activities (22%), grants (4%), and other sources (7%). ARI's expansive partner network, encompassing schools, NGOs, NPOs, churches, and philanthropy groups, provide fundamental

ARI's recent partners include:

- American Friends of ARI (AFARI)
- ARI Supporters Association
- Asian Rural Welfare Association
- Caritas Japan
- Catholic Relief Services
- Episcopal Relief and Development
- Evangelical Lutheran Church in America
- International Christian University
- Japan Student Services Association
- Japan Evangelical Lutheran Association
- JICA - Japan Overseas Cooperation Volunteers
- National Council of Churches in Japan
- The Presbyterian Church USA
- Rotary Club
- St. Olaf College
- Tochigi Business Association
- Tokyo Union Church
- United Church of Canada
- United Church of Christ
- The United Methodist Church
- USPG - Anglican in World Mission
- Wesley Foundation Japan
- World Council of Churches

support (e.g., funding, education exchange, facilitation of participant training components) for ARI's programming.

ARI maintains sustaining relations and financial support from individuals who have been previously affiliated or connected to the institute in some way. One example of this is the American Friends of ARI, a nonprofit 501(c)(3) organization registered in Connecticut, which aims to provide direct financial and capacity building support for ARI participants and graduates. The organization's board of directors consists of Paul Hastings, president and CEO of the Japan International Christian University Foundation, Beverly Abma, external research coordinator for the "Leading at the Grassroots" report, and Angie Xiong, who visited ARI as a college student. AFARI's Tarr Fellowship Program awards four to six successful ARI graduates of more than two years with a \$2500 project grant and capacity building, professional development, and project implementation support for a project idea born out of their ARI training. AFARI also fosters collaboration between ARI graduates within certain regions through the Rural Leaders Network

Hubs. The nonprofit awards micro-grants of up to \$2000 for select projects proposed by ARI graduates within these hubs. Beyond financial support for ARI graduates, AFARI has a scholarship fund, which was established in 2016 with an endowment from Ellen and Jim Marsey. Each year, 5% of this fund provides scholarships for ARI participants.

In addition to the scholarship opportunities made available through AFARI, the ARI Supporters Association also strives to provide scholarships for the Rural Leaders Training program by hosting bazaars at ARI flea markets and at ARI's Harvest Thanksgiving Celebration. Item donations, from stationary to gardening items to canned goods, are collected by the association and the proceeds from selling these items goes towards funding the scholarships. ARI has many opportunities for bridging financial divides for participants and graduates. It is important to ensure graduates are aware of the AFARI Tarr Fellowship and micro-grants, but it is also important to connect graduates to larger funding sources that may span from private sector investments or donations and governmental subsidies or grants.

Section 2

To address the challenge graduates may face in accessing and awareness of different opportunities for financial support, it may be helpful for ARI to develop a centralized, user-friendly online database that allows graduates to filter and search for funding sources to finance their projects. This site can be introduced to participants during their training to ensure awareness and use of the tool after graduates return to their home communities. Each listed funding source can include a brief description of criteria for the funding, any past ARI graduates who may have received or applied for the funding, and a short outline of application requirements. This layout would allow graduates to easily find funding sources relevant to their organization and community project. Additionally, including whether past ARI graduates have received the funding would increase the feeling of achievability and accessibility for graduates who often struggle to acquire such funds. Graduate contact information may also potentially be included on the list to facilitate communication and mutual support between ARI graduates.

In teaching participants how to approach grant writing, project proposals, and fundraising for projects led by underprivileged groups, we will refer to some similar organizations who have incorporated these aspects into their programming. One example is the Agro-ecology Learning alliance in Southeast Asia (ALiSEA).³ This alliance is supported and coordinated by Gret, an international development and solidarity NGO governed by French law with funding predominantly from the French Agency for Development, European Union, French Ministry of European and Foreign Affairs, and French public funds. Active in 28 countries on all continents, Gret is driven by the goal to fight poverty and inequality. ALiSEA aims to create a strong, visible, and credible network of agro-ecological initiatives and actors in the Greater Mekong sub-region to promote agro-ecological practices among policymakers, consumers, and farmers.

In order to achieve its goals, ALiSEA created agro-ecology-centered national and regional networks, an online regional knowledge sharing platform (i.e. ALiSEA's website, Facebook page, and quarterly newsletters), joint studies and research, thematic workshops and educational events, and a small grant facility.⁴ Some examples of ALiSEA's workshops—each of which target specific networks either at regional, national, or international scales—include experience sharing regarding community market resilience in Cambodia ⁵, organic farming and certification processes in Laos ⁶, and transitioning towards agroecology in Asia and the Pacific within key intervention areas, such as implementation, finance, policy, education, technology.⁷ These workshops allow participants to learn how to navigate different processes (e.g. certifications, entrepreneurship, market dynamics, etc.), find inspiration in applicable case studies, and engage with speakers to gain clarity on how they may address their specific community needs. Though virtual webinars and events are highly dependent on graduates' access to reliable technology and internet connectivity, it would be an opportunity for ARI to provide more support to graduates navigating challenges upon returning to their home communities. Since many graduates face financial difficulties, it may be helpful to arrange both staff and graduate-led webinars related to entrepreneurship and sustainable finance to provide examples of what may work in different contexts and give graduates an opportunity to share their experiences and struggles with the broader ARI network.

Accreditation

To address concerns regarding accreditation, ARI may consider partnering with accrediting bodies in graduates' home countries. By providing detailed documentation of the ARI curriculum to corresponding educational agencies, graduates may gain recognition

from a home organization in addition to their ARI completion certificate. This way, graduates may feel less of the burden of having to prove that their education still holds credibility to others outside of ARI. Moreover, providing support to graduates in attaining local accreditation may incentivize other community members in their home communities to also seek similar educational certifications. The opportunity to earn a formal certification in organic farming or sustainable agriculture, for instance, may capture a larger local audience, allowing graduates to catalyze greater community mobilization. This structure grants not just greater credibility to the ARI graduate, but also gives them a structured approach to community outreach and development.

As an example, the accreditation process for Indonesia, a country with a high number of ARI graduates, are outlined below for reference:

1. **Submit training certificate** to a Lembaga Sertifikasi Profesi (LSP)⁸—professional certification bodies under Badan Nasional Sertifikasi Profesi (BNSP)⁹, the National Agency for Professional Certification—for evaluation and mapping to Indonesia’s KKNi (Indonesian Qualification Framework).¹⁰
2. **Align training outcomes** (e.g., sustainability, cooperative development, agricultural management) with Standar Kompetensi Kerja Nasional Indonesia (SKKNI)¹¹—Indonesian national work competency standards.
3. **Establish partnerships and pathways:**
 - a. Local agricultural institutes or Politeknik Pertanian (Agricultural Polytechnics)
Offer accreditation for ARI graduates as an extension or elective to existing agricultural training programs.

- b. NGOs or BUMDes (Village-Owned Enterprises)¹²

Create and execute training programs aligned with ARI’s training curriculum, providing formal certification co-endorsed by both the organization and an LSP first to the ARI graduate, then to anyone else who completes the program.

- c. Offer the training as part of a Diklat (Pendidikan dan Pelatihan)—nationally recognized short-term training program¹³

Work with an LSP specializing in agriculture and/or community development to package ARI’s training curriculum as a Diklat, providing a nationally recognized certification to the ARI graduate and those who complete the program.

In the beginning stages of these partnerships, ARI staff may play a more active role in connecting graduates to the right people and resources, as individual graduates may not have the means to do so themselves. Additionally, ARI staff may foster collaborations between new graduates and older graduates who have had success in similar initiatives of their own. Finally, graduates and staff may consult external knowledge sources, such as ALiSEA, for country-specific guidance regarding this process.

However, as demonstrated in both past reports and the present survey, many graduates have still been able to pave their path towards initiating community change through individual efforts. As such, the above considerations for dual or partnered accreditation would not need to be, nor should be expected to be, implemented across all graduating participants. Instead, it will serve as an additional resource for participants and new graduates who express a desire for more structured approaches to community development, particularly those who

Section 2

may not have the ability to return to their sponsoring organizations upon graduation. It is also necessary to acknowledge that this framework adds a significant amount of work to ARI staff, many of whom also may not have specialized expertise in this domain. As such, the practicality of implementing this support framework must be carefully weighed against the current staffing capacity of ARI.

The topic of accreditation itself also raises another issue: how does one provide adequate accreditation for a program as unique as the Rural Leaders Training Program? As the authors state in “Bridging the Grassroots,” graduates’ work extends beyond the application of organic farming and leadership skills and into community building and sustainability, reflecting the impact of the values-based training participants receive at ARI. The strength of ARI lies in its uniqueness as an organization and training program. Placing greater emphasis on receiving external accreditation from outside organizations may undermine the one-of-a-kind training that these graduates have received. Therefore, further investigation on graduates’ varied needs and home circumstances (i.e. home country, type of sending body, etc.) would be helpful to explore before any implementation of additional accreditation processes. Given the self-selecting nature of this survey, ARI staff may also consider conducting an internal random sampling survey to current participants and graduates to more holistically gauge the demand for and prevalence of formal accreditation.

Community Organizing

As discussed in earlier sections, graduates reported difficulty organizing their local community into action. Many participants have reported that inter-agency and intergovernmental cooperation has been lacking. This presents a significant challenge,

as local NGOs often lack the individual capacity to implement larger, positive changes and maximize their effectiveness within their local communities. Barriers to collaboration include exploitation, persecution, inadequate laws, and related regulations. With this as the basis, other organizations similar to ARI were referenced, especially in examining their capacity to connect grassroots organizations to local and national governments and their collective action capabilities. From this analysis, three types of organizations were identified as potential organizations for ARI to reference when considering changes in three key areas of community organizing: governmental cooperation, socio-cultural barriers, and collective action.

With respect to coordinating intergovernmental cooperation, ARI may consider partnering with organizations, as they would have the means and methods to connect grassroots organizations like ARI and the participants’ organizations with governmental bodies that can foster policy change. One such example would be Landesa. Landesa Rural Development Institute is a nonprofit organization that partners with governments and organizations to develop pro-poor and gender sensitive laws, policies, and programs that strengthen land rights for people experiencing extreme poverty.¹⁴ In their region- and country-specific programs, Landesa partners with government officials, local leaders, and rural residents to develop scalable, practical, and innovative solutions to food insecurity, conflict, climate change, and lack of women empowerment. Landesa’s reforms have helped alleviate poverty, reduce hunger, and ease conflict over land for more than 720 million people.

An example of a successful Landesa program is the Women-led Collective Advocacy for Climate Action project, where Landesa leverages its organizational strengths and partnerships with the International Land Coalition and regional partners to provide project coordination and technical support

to local civil society organizations.¹⁵ A regional partner in the Maldives with the project explained that “coalition allows meaningful exchange of knowledge and offers an avenue for collaboration, especially towards capacity building and advocacy—otherwise not possible.” With limited resources, a local NGO faces significant challenges in sharing information, strategizing, implementing, and integrating solutions. Landesa demonstrates the importance of working in coalitions and capacity building, which are facilitated through the resources of a global NGO network. In the future, ARI may consider incorporating network building across agencies, organizations, and governmental scales into their curriculum, furthering participants’ collaborative efforts when designing and implementing projects in their home communities. Collaboration with larger NGOs can serve as a way for participants to connect with local, regional, and national authorities to facilitate legitimate and feasible community changes while maintaining a grassroots approach, which is key to representing local communities and fostering participatory change.

Another key area that graduates identified as a barrier to community organizing is socio-cultural conflict. While many participants praised the multireligious and multiethnic atmosphere of ARI, ethnic and sectarian divisions in their home communities, aggrandized to a larger scale than they were at ARI, proved to be significant barriers to implementing changes. Many participants reported that one of the main challenges to implementing their learnings from ARI is prolonged armed conflict due to unresolved ethnic or sectarian divisions that disrupt stability, increase displacement, and exacerbate resource competition. A major disruption to one Myanmar participant has been the ethnic-based insurgencies coupled with the 2021 coup d’état. Alongside ethnic and sectarian strife, navigating gender biases has also been cited as a difficulty by some graduates.

With that in mind, we highlight United Religion Initiative (URI) as a potential model for ARI and ARI graduates to consider for ethnic and sectarian-based conflict resolution in order to bring communities to a common ground where the instructions on sustainable agriculture can take place. URI is a global grassroots interfaith network that cultivates peace and justice by bridging religious and cultural differences.¹⁶ URI’s mission focuses on working with local and global initiatives in Cooperation Circles. These Cooperation Circles enhance the capacities of each of their local and global partners together to promote conflict resolution and reconciliation, environmental security, education, women’s and youth programs, and advocacy for human rights. URI, like Landesa, thrives off of its extensive network and resources that it is able to provide to local leaders, such as opportunities to link with potential funders and resources, training and capacity-building opportunities by URI staff, and opportunities to collaborate across borders, faiths, and cultural partners.¹⁷

Particularly, regarding environmental issues, URI has teamed up with the UN Environmental Program’s Faith for Earth Initiative that prioritizes faith-based organizations to provide immediate, on-the-ground care and support because of the trust in their communities that can inspire action, social change, and transformation.¹⁸ While URI’s involvement with UNEP’s Faith for Earth Initiative can serve as a model for faith-based environmental programming with the support from national and international organizers, URI’s work in peacebuilding and conflict transformation is likely the most highlighted area of their work, and can be extremely beneficial for ARI and ARI participants. Through partnership with Friends of the Earth International, the largest international network of grassroots environmental organizations, URI Cooperation Circles brought Muslim, Christian, and Jewish communities together to promote sustainable management of water resources and alleviate pollution in the Jordan

Section 2

River. URI was able to promote this program not only because of the network from Friends of the Earth International, but also through the endorsement from the local governments of Palestine, Israel, and Jordan. URI also has resources from its global and regional URI partners to design programs on conflict resolution, emphasizing health-based approaches informed by neuroscience and epidemiology. ARI and its graduates may consider partnering with global interfaith networks like URI to increase their capacity and knowledge base in addressing the complex situations of sectarian and cultural strife, furthering peace-building efforts, conflict prevention, and community collaboration.

Considerations for ARI

Our research demonstrates that the Asian Rural Institute continues to embody its core values of foodlife, servant leadership, and a community of learning. Through our analysis, we have identified key issues ARI may explore for the future development of the Rural Leaders Training Program and the long-term sustainability of the institute's educational mission. The following three key points summarize the key considerations discussed:

- Expand awareness and access to funding sources for graduates by exploring solutions such as a funding source database and webinars geared towards knowledge sharing and workshopping strategies between members of the ARI network.
- Partner with accrediting bodies in graduates' home countries to provide a higher level of certification and support upon return from ARI.
- Foster connections with global networks to help graduates build organizational capacity.

*Opposite page:
The authors of this section exploring ARI's herb garden. From left are Jiyeon Kim, Chisato Kamakura, and Diana Zhou.*





3

ARI Values and Campus Design

Andrew Wald

ARI's campus is made up of multiple buildings and structures, farm fields and other outdoor spaces, pathways and circulation, signage, and other physical elements. These elements work together to create the physical environment where the everyday life and activities of ARI take place. This section asks: how well does the design of ARI's physical campus reflect and reinforce the institution's core values? While ARI has intentionally designed individual buildings to emphasize its core values, it does not appear that ARI has applied such a rigorous design approach to its whole campus. The campus has evolved organically over many years and appears to prioritize function and practicality over the deeper philosophical values of the organization.

The following analysis is based on on-site observation of the ARI campus over a four-day period in May 2024, conversations with current participants and staff, online survey responses from past ARI participants, and materials published by ARI. The section begins with an overview of the site and the elements that make up the campus. Next is a critical examination of how ARI's core values—its “Three Pillars” and fourteen “Key Concepts”—appear in its physical campus. The section concludes with a discussion of possible design principles and considerations which may guide ARI's campus development in the future.

Section 3

ARI Campus Description

ARI's campus is built on a series of terraces on the eastern slope of a steep, wooded hill. A small Shinto shrine occupies the forested summit above the campus (west) and the shrine access path cuts east to west through the center of ARI's campus. The campus is accessible via a narrow, paved lane that runs along the eastern edge of the campus. This connects at both ends to the main road which leads to the city centers of Nishi-Nasuno and Otawara to the south, and a local highway to the north. The hilly topography, forest, and property boundaries create physical constraints that have guided the layout of ARI's buildings, fields, and circulation.

The ARI campus covers approximately six hectares of land, not including the forested area and off-campus fields. The campus can be roughly divided into three main programmatic zones. The zone south of the shrine path contains the living, education, and community buildings. The middle zone, just north of the shrine path, mainly contains structures dedicated to farm operations. The north zone is dedicated to open farm fields. There are some exceptions to this organization. For example, there are smaller garden plots scattered throughout the south and middle zones. Most agricultural activities take place in the north and central zones, but food processing takes place in the southern community area. Most non-agricultural uses are clustered in the south zone, but ARI's administrative offices, visitor reception, and retail shop are in the central zone.

The area south of the shrine path is mainly space dedicated to living, education, and community functions. It includes the following spaces:

- **Koinonia House**, which features a large circular fellowship hall used for meals, large assemblies, and social activities. This hall is the center of community life on campus.

- **The Kitchen** forms the southwest wing of Koinonia House. The kitchen includes areas for cooking, serving, dishwashing, and storage for crops.
- **The Classroom and Library** form the north-east wing of Koinonia House. This wing also includes a conference room and common area.
- **Oikos Chapel** is an approximately 120-year-old Japanese farmhouse that was transported to ARI and redesigned as a chapel. Outside the chapel entrance is a covered amphitheater built into the hillside. This is the spiritual center of the ARI campus.
- **Manna House**, located just south of Koinonia House and the kitchen, is a commercial food processing facility. It includes a butchering facility, bakery, and food storage.
- **Dormitories** house participants and volunteers. There are separate women's and men's dorms, located to the south and west of Koinonia House, respectively. Near the men's dorm, there is a smaller residence for guests and staff.
- **Staff Houses** are located at the southeast edge of the campus. There are three detached houses for staff with families, and one larger shared staff residence.
- **Small Fields**, including two vegetable fields and a fruit orchard adjacent to the men's dormitory, and one vegetable field with an aquaponics system adjacent to the staff houses.

The central area, just north of the shrine path, is the campus' administrative and farm operations center. Spaces here include:

- **The Farm Shop**, ARI's central hub for farm work. The large, two-story timber structure

ARI Campus Plan Diagram: Existing Layout



Section 3

provides space for organizing and staging farm tasks, sorting and weighing harvested produce and eggs, cleaning tools and materials, and storing hand tools, bulk material and supplies, machine equipment, and harvested crops.

- **The Admin Building** is attached to the Farm Shop and includes the main visitor reception area, offices, the director’s room, and a computer lab.
- **The ARI Shop** is also housed inside the Farm Shop, where visitors can purchase food produced at ARI, as well as books and gifts.
- **The Work Shop** includes a wood shop and metal shop for repairs and small building projects.
- **The Mixing Room** is where animal feed is prepared.
- **Animal Pens** include two pig pens with an attached biogas generator, three poultry houses, and a goat house (which was not in operation as of 2024).
- **Other farm buildings** located throughout the central zone include high-tunnel greenhouses to grow seedlings for rice and other crops, a shed for mixing fertilizer, garages for large equipment, concrete pens for compost and manure, and various storage units. In the south zone, there is also an aquaponics system with concrete fish ponds, although this did not appear to be in use in 2024.

The north zone is the primary farming area. This area includes:

- **Farm Fields** on three terraces, each managed by a different team of ARI participants. Each team’s terrace is divided into four fields and planted

with various vegetables and grain on a rotation schedule.

Other key spaces on campus include:

- **The Forest**, which covers the slopes west of campus. The forest provides wood and organic matter to use on the farm, as well as recreation space. A recently constructed walking path winds its way through the forest, with trailheads behind Koinonia House and near the shrine.
- **Parking areas**, including visitor lots in front of Koinonia House and the Farm Shop and a lot for ARI vehicles and staff.
- **A path network** links the various spaces on campus. Most movement on campus takes place on foot, however work trucks and farm equipment can traverse the steep and narrow dirt tracks to reach the various areas of the farm.
- **Nasu Seminar House** is located just east of the campus, and is owned by a separate organization, the Student Christian Fellowship. ARI uses the Nasu Seminar House to host visitors and large groups. It includes residential accommodations, a meeting room, a living room, kitchen, and a separate off-grid cottage.

ARI’s values and campus design

The design of individual spaces, their arrangement in relation to one another, and their composition as a holistic environment can be read as a manifestation of an institution’s or community’s values. Over the last 50 years, the non-spatial elements of ARI’s culture, curriculum, training programs, and public communications have been thoughtfully crafted to impart the organization’s core values to its participants and

broader community. As a place-based learning community, ARI should be equally intentional in designing its physical spaces and campus to project its values.

Life at ARI revolves around a set of clearly defined values, which the organization promotes as “an alternative foundation for building a sustainable society.” ARI’s guiding motto is “That we may live together.” This ideal is supported by ARI’s “Three Pillars”:

- **Foodlife**, the idea that food and life are interdependent and essential to human society;
- **Servant Leadership**, the idea of selflessly serving others based on the life and teachings of Jesus Christ;
- **Community of Learning**, the idea that the practice of life in community with others is an important source of learning.

ARI also teaches fourteen “Key Concepts”:

- **Life of Sharing**
- **Living in Harmony with Nature**
- **Empowering the Marginalized**
- **The Value of Rural Life**
- **Awareness/Mindfulness**
- **Independent Learning**
- **Learning by Doing**
- **Community Building**
- **Dignity of Labor**
- **Food Sovereignty**
- **Personal Growth**
- **Diversity**
- **Equality**
- **Spiritual Growth**

How, specifically, has ARI’s campus been designed to promote these values? Below are three examples of spaces that were intentionally designed around ARI’s core values.

Koinonia House

This building, completed in 2012, is the primary community center on campus. Of 36 ARI graduates who completed a survey about ARI’s campus, over half (21 respondents, or 58%) identified Koinonia House as the place on campus that best represents ARI and its values. Koinonia House’s central feature is its circular main hall, which serves as ARI’s dining hall, large assembly space, and living room. The round hall has entrances on multiple sides, has no interior columns, and is filled with circular tables. Open areas for socializing and relaxation are arranged around the perimeter, creating “rooms” for a variety of group and solo activities, without being physically isolated from the main space. In designing this space, ARI’s goal was to create an inclusive, communal environment with no physical cues that might privilege certain positions and impose hierarchy. This design supports ARI’s guiding motto of living together and reinforces its key concepts of a life of sharing, equality, community building, and avoiding marginalization.

Although Koinonia’s kitchen is kept separate for health and safety, its design allows most activity to remain visible and connected to the main hall through large open windows. When people arrive in the Koinonia hall before mealtime or linger afterwards, they can see, hear, interact with, and even choose to join their fellow community members who are on cooking and dishwashing duty that day. The Foodlife pillar is emphasized when community members can see their peers transforming ARI’s crops into its daily meals. The Servant Leadership pillar and the concepts of Dignity of Labor and Equality

Section 3

Koinonia House features an open, transparent design meant to foster a culture of equality and inclusion.



Clear sightlines into the Koinonia House kitchen ensure that food preparation (and the people who do it) are not relegated to “back of house” status. Foodlife work is always on display as an integral part of ARI’s culture.



are also elevated. Participants reported that it sends a powerful message of equality to see ARI leadership and special guests washing dishes and doing other menial tasks alongside participants and volunteers.

Oikos Chapel

The Oikos Chapel is an adaptive reuse of a 120-year-old Japanese farmhouse that was transported to the campus from a nearby town. The Greek word “Oikos” means “home” and is also the root of the words economy, ecology, and ecumenism, which feature in ARI’s core values. It was officially opened in September 2014 and serves as the “spiritual home” of the ARI Campus.

The main chapel space largely retains the traditional architectural character of the original house, with the addition of several rows of modular wooden

risers for seating. Oikos Chapel inverts the traditional spatial hierarchy of a Christian church, which typically features a raised altar and pulpit that elevate a preacher above the congregation. The focal point of the Oikos Chapel is a sunken space that puts the speaker at the lowest position in the room, a design feature that symbolizes servant leadership.

The Chapel’s prominent use of natural materials is a hallmark of traditional Japanese architecture that also suggests the key value of living in harmony with nature. The Chapel interior shows off an exposed timber structure, natural wood finishes, earthen walls, and an overall lack of artificial or engineered materials. Dried rice stalks pressed into the walls are a decorative feature that subtly suggests heads bowed in prayer while also serving as a reminder of ARI’s Foodlife pillar. The decision to reuse and adapt an existing building instead of building new with virgin materials reduces waste and minimizes the overall carbon footprint.



The interior of Oikos Chapel features a modified groundplane that inverts the hierarchy of a traditional church.

The chapel preserves the traditional Japanese farmhouse architecture from the floor up.

Section 3

The decision to “upcycle” an existing farmhouse is also an excellent example of ARI’s commitment to the value of rural life. ARI’s Oikos project not only saved a humble rural structure but elevated it to become one of the most important spaces on its campus. Rural adaptive reuse projects like Oikos Chapel push back on notions that rural life is impoverished, obsolete, or something to be discarded and replaced. They demonstrate that vernacular spaces, everyday artifacts, and traditional lifestyles of rural communities are beautiful, useful, valuable, and worthy of reinvention.

Farm Shop

The Farm Shop is an example of a modern agricultural building that embeds ARI’s principles in its design. Like the traditional farmhouse used for the Oikos Chapel, the Farm Shop uses heavy timber construction, but with modern methods. The building is designed to meet the functional needs of a 21st century farm, while using locally-sourced, renewable materials and nodding to traditional Japanese architecture. The flexible and lightweight timber construction is also resilient—the farm shop was under construction when the 2011 Tohoku Earthquake struck, and because its structure was not damaged, the building was ready for use just two months later. The decision to build with locally-sourced timber is an excellent example of ARI’s key concept of “living in harmony with nature”.

The Farm Shop was designed with a deep “front porch” that creates a sheltered indoor-outdoor space along the building’s entire front façade. This space is a buzzing activity center that serves a variety of important functions. In this space, all three of ARI’s pillars are on display. The Foodlife pillar is obvious, since the Farm Shop porch is the central hub for farm activities. ARI participants gather here each day to assign and coordinate their daily

foodlife tasks. It is where tools and materials are assembled at the start of the work shift, and where they are collected, cleaned, and returned at the end of the shift. It is also where the harvests are collected, weighed and recorded, and washed before being taken to the kitchen.

The pillars of Servant Leadership and Community of Learning are also visible here, since work—and the collective organization of work—occurs in the open at the center of the campus. This physical openness allows for ARI participants, staff, volunteers, and visitors to see and interact with their fellows at work, including many tasks that may be dirty, tedious, and unglamorous. The space allows people to not just observe the work, but to join in, ask questions, offer advice, or keep company. The bays of the Farm Shop are left open during the day, meaning there are no locked, concealed, or restricted areas. People may enter and explore, see and understand how the Farm Shop is used, and take and return tools and materials freely. The openness of this work environment directly promotes the Key Concepts of Learning by Doing, Independent Learning, Community Building, Dignity of Labor, and Equality. By putting the daily work of Foodlife at the center of campus, the Farm Shop affirms the Value of Rural Life and the people who do that important work (Empowering the Marginalized).

The three buildings described above—Koinonia House, Oikos Chapel, and the Farm Shop—were all designed to embody and reinforce ARI’s core values. However, there are other buildings on campus that do not rise to this standard. Just as importantly, the overall campus not appear to have been planned, designed, and maintained with the same level of intention as those individual buildings.

For example, while the Farm Shop uses a custom, environmentally-conscious design with



The Farm Shop's upper level shows off sustainable design features, including an exposed timber structure, ample daylighting, and natural ventilation.



ARI volunteers washing used starter pots at the Farm Shop's "Front Porch". This area provides a sheltered but open space for many non-field farm tasks.

Section 3

The Workshop (left) and many smaller farm structures (right) are made of steel framing and metal sheeting. These “junk” structures clutter the campus and detract from the beauty of the rural landscape.



The Mixing Room is a generic warehouse that is dark, stuffy, and hidden away. This important Foodlife work deserves a purpose-built space that provides a safe, healthy, and pleasant environment for the people who work there.



Prefabricated, modular, and portable structures like these dot ARI's campus and rural Japan in general. A better choice would be to build with regionally-sourced, renewable materials and informed by vernacular architecture.



locally-sourced timber, the workshops, feed mixing room, garages, and other storage structures do not. They use pre-engineered or prefabricated structures, with artificial and industrial materials like steel frames, steel pipe scaffolding, corrugated metal, and plastic panels—they go against ARI’s concept of Living in Harmony with Nature. These buildings don’t honor the beauty, local character, and traditional craftsmanship of vernacular rural architecture like the Oikos Chapel does—they are ugly and place-less structures that do not celebrate the Value of Rural Life. Spaces like the workshop and mixing room are dark, poorly ventilated, cluttered, and hidden from view—they do not highlight the Dignity of Labor. If these spaces are rebuilt in the future, they should be thoughtfully designed to be:

- Pleasant and dignified places to work
- Integrated into the campus and rural landscape
- Made of sustainable, locally-sourced materials as much as possible
- Constructed with simple methods that emphasize local knowledge, skills, and labor.

The living quarters are another element of the campus that do not fully live up to ARI’s core values. One early ARI participant from the 1977 cohort fondly recalled that in the early days, participants slept together on the upper floor of the workshop building, since there were no dorms at that time. They said that while rough, this living arrangement embodied the motto “that we may live together”. Another ARI participant noted that the dorms were important place to experience cultural diversity and learn to get along with other people. Today, however, ARI has separate on-site residences for male participants, female participants, single staff, staff with families, and visitors. ARI participants stay in group dormitories, while staff may live in dorms, single-family

detached residences, or off-campus. These different buildings are isolated from each other in different corners of the campus and lack common spaces that can be shared by all residents. This arrangement could reinforce divisions between male and female participants and between participants and staff. This separation of housing also divides ARI participants, who are from rural communities in developing countries, from staff and visitors, who tend to be from Japan and wealthier countries. In the future, ARI should consider building housing that:

- Is more integrated by gender, position, and nationality, i.e. separate rooms but mixed buildings
- Is consolidated in one area to create a clear residential campus
- Includes indoor and outdoor residential common spaces that can be shared by all members of the ARI community.

Discussion and Considerations

The March 11, 2011 Tohoku Earthquake had a profound effect on ARI and its campus. Though no people were injured at ARI during the earthquake, many key buildings were critically damaged. ARI’s current Koinonia Hall (including dining hall, kitchen, classrooms, and library), Oikos Chapel, administrative offices and visitor reception, men’s dormitory, guest house, staff housing, and pig pens were all constructed between 2011 and 2014 to replace buildings that were damaged in the earthquake. The Farm Shop was already under construction at the time of the disaster; when construction was completed in May 2011, it was used to house ARI’s administrative offices—a temporary measure that eventually became permanent.

Section 3

The earthquake, while tragic, presented a unique opportunity for ARI to transform its campus and spaces. In a 2012 reconstruction update, one of ARI's directors wrote: "The cracked and twisted buildings left after the quake are being replaced, one by one, by stronger, more energy-efficient and eco-conscious structures that can be used for years into the future. This is an amazing blessing far beyond all expectations." The earthquake gave ARI the opportunity to redesign key buildings like the new Koinonia hall and Oikos Chapel to embody core ARI values like community, equality, environmental sustainability, and rural life.

On the other hand, ARI's rapid response to the crisis may have prioritized immediate action over long-term strategic planning. ARI's leadership drafted and approved the "ARI Disaster Reconstruction and Funding Plan" within just a few months after the earthquake and guided the campus rebuilding process. Remarkably, all planning, fundraising, demolition of old buildings, and design, construction, and activation of new buildings was completed within four years of the earthquake, all while ARI continued its regular programming and engaged in a host of other disaster relief activities. Understandably, ARI prioritized restoring its regular operations as quickly as possible. ARI replaced what it lost on a building-by-building basis, but may have missed opportunities to rethink and reshape its campus as a whole.

A campus is not just an accumulation of buildings that are designed individually—just like a good building is not simply a collection of rooms that can be designed in isolation. A campus must be planned and designed as a total entity made up of buildings, active and passive outdoor spaces, and circulation that function together as a whole organism. While ARI has individual buildings and spaces that have been well-designed and support the organization's values, the full campus has not received the same

careful treatment. ARI would benefit from a strategic campus development plan that considers how the campus as a whole can evolve to better serve ARI's core values as well as its functional needs. Further, ARI could consider taking a rural design (as opposed to urban design) approach to its campus. Dewey Thorbeck, an American architect and pioneer of the rural design discipline describes this approach as "the spatial arrangement of rural landscapes and the buildings within them... best exemplified by thinking of buildings and rural towns as objects within the larger open landscape." This would challenge ARI to think of its buildings and outdoor spaces not just in relation to each other from a functional standpoint, but also to situate that collection of spaces within the larger natural and cultural ecosystems of its local surroundings.

First, ARI can develop a unified set of design principles and standards for its buildings, open spaces, and wayfinding signage. Future campus development should follow this shared design language. For example, to promote its mission of sustainability and "Living in Harmony with Nature," ARI could develop a preferred material palette for all future buildings that prioritizes local timber construction and minimizes the use of plastics and non-renewable manufactured materials. To promote "The Value of Rural Life", ARI's design guidelines could draw on local, rural, vernacular architecture, especially design elements that have evolved as responses to the region's climate and environment. The goal should not be to emphasize the "Japaneseness" of the designs, but rather, foster an awareness and appreciation for their local, place-specific qualities. When ARI participants return to their home communities, they should be able to identify and promote design practices that are informed by their own local culture, climate, and resources, and which "Value Rural Life" in their local context.

ARI should also consider the future organization of its campus. Although the campus is compact, its hilly topography and winding paths create a fragmented environment that is difficult to understand as a whole, even when looking at a map. A near-term solution would be to design and implement a uniform signage, interpretation, and wayfinding system that clearly identifies each building and points the way to neighboring areas of interest. This would not only help visitors avoid getting lost but also will clarify how each area of the campus is physically and programmatically linked to the others. All signage and wayfinding design should complement the building design standards, to create a unified campus aesthetic that reinforces the idea of ARI as an intentional community and a special “place” or “world” that is different from its surroundings.

ARI’s campus would benefit from establishing a clear center that can serve as a primary point of arrival, welcoming, and orientation, and that can tie its different buildings and activity zones together. On a traditional American college campus, the main “quad” serves this role; in an American or European town, it might be a central park, market square, or church plaza. This type of central open space is not a typical feature of rural Japanese villages; however, ARI’s mission is not to create an authentic rural Japanese experience, but rather to build an environment that fosters relationships and community-building according to its own values. The most logical place to create a central gathering place would be the current ARI staff parking lot: it sits at the public entrance to ARI, directly between the Koinonia House and Farm Shop/Administration buildings, and is where the paths to the men’s and women’s dormitories and the Shinto shrine converge. This is the crossroads of ARI’s Foodlife, education, community, administration, and residential functions, and is a natural focal point of the campus. ARI should consider relocating the staff parking area (perhaps near the staff housing) and its various temporary storage



The current ARI entrance lacks a clear sense of arrival and direction. It is cluttered with different signs and wayfinding that are hard to read.



The staff parking lot and a cluster of portable structures occupies the central point of ARI’s campus. This space could be reimagined as a community hub that links the front entrance (hidden behind the portables), Koinonia House (visible on the right), the Farm Shop (to the left), the dorms, and the shrine.

structures. In their place, ARI could design and construct a new “village square”, a landscaped outdoor community space that serves as the campus’ main entrance, crossroads, and gathering point.

Finally, ARI should seek future opportunities to reorganize its campus buildings, for both functional reasons and to better support ARI’s values. Of course, many key buildings, such as Koinonia House, Oikos Chapel, the Farm Shop, and the Men’s Dorm were constructed relatively recently and are therefore unlikely to change for many years. However, other structures are older and could be rebuilt in new locations at the end of their service life. For example, the Women’s Dorm is an older building that was repaired after the 2011 earthquake. In the future, it could be rebuilt next to the Men’s Dorm, creating a single residential mini-campus shared by all ARI participants and volunteers.

Older farm buildings like the workshop, mixing room, fertilizer sheds, garages, and storage could also be consolidated in a new custom-designed,

permanent buildings that would complement the current Farm Shop. The existing Farm Shop building can be extended to the north, where there is currently a prefabricated shed. A second Farm Shop building could be built on the footprint of the current workshop and garage, to house new workshops, small machinery, and general storage. Garages for large equipment could be consolidated in the existing timber shed adjacent to the current mixing room. A new feed and fertilizer facility could be built on the terrace west of the Farm Shop, where there are currently high-tunnels for rice seedlings; this site would be closer to the animal pens and compost areas than the current mixing room location. New greenhouses could eventually be built on the footprint of the mixing room, overlooking the main farm fields. All future farm buildings should be built to the same high standards as the current Farm Shop. In particular, they should use predominantly natural materials, incorporate sustainable building practices, use locally-informed construction methods, and be designed so that all work and activities can take place in a visible, open, and communal environment.



4

ARI and Climate Resiliency

Branwen Williams

Human actions, including the burning fossil fuels which increases the amount of greenhouse gases in the atmosphere, are warming the Earth (IPCC, 2023). While greenhouse gases allow much of the sun's energy to pass through the atmosphere to reach the Earth's surface, they capture some of the energy that the Earth sends back up into space as this "re-radiated" energy has different characteristics than the sun's energy. Greenhouse gases, including carbon dioxide, capture the re-radiating energy, thus keeping the energy in our Earth system, causing warming.

Global warming has recently reached nearly 1.5 deg Celsius above the 1850s, which are largely considered to be pre-industrial times (Vlock & Jacobs, 2025). This warming causes more extreme hot weather days, warmer nights, and extreme weather events that can include more extreme droughts and floods. Higher temperatures increase evaporation which moves water from the surface of our earth, including plants, to the atmosphere, which can increase droughts, stressing water resource. In turn, more water in the atmosphere will cause more rainfall, leading to more intense storms and flooding events. Furthermore, the warming is melting ice which leads to rising sea levels. The combined warmer water and higher sea level means that storms coming ashore will impact progressively further inland regions.

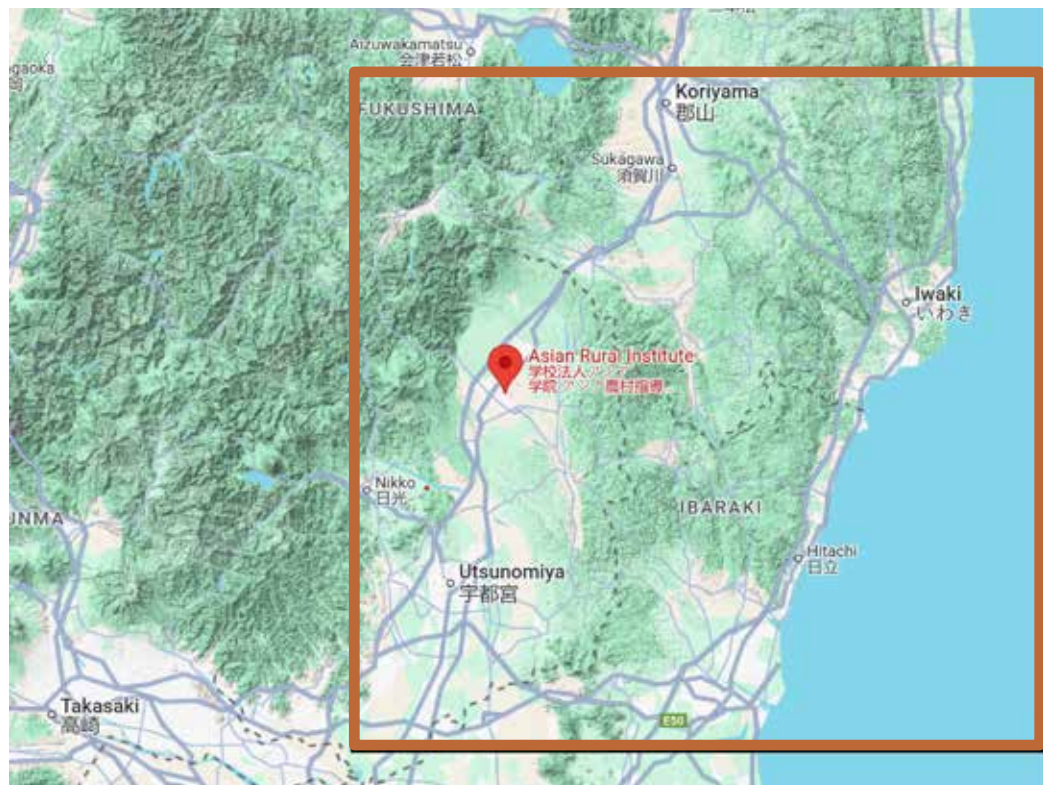
Section 4

Climate models, which are computer simulations that numerically describe processes within Earth's natural systems including the ocean, atmosphere, land, ice and living things, can make projections of future climate conditions. While the scientific community is still working to refine these models, taking into account our constantly improving understanding of our earth system, the amount of warming that these models project primarily depend on the actions that global society pursues going forward and the resulting burning of fossil fuel and land use. A useful way to think about future global actions are as example pathways that society might choose to follow. Shared Socioeconomic Pathways (SSPs) scenarios of projected socioeconomic global changes that would dictate future environmental changes (Riahi et al., 2017). These scenarios take into account possible population growth, degree of education and urbanization, and country level gross domestic product.

Put into a climate model, these SSPs can then project future climate conditions. Of the identified SSPs, SSP2 – “Middle of the Road” has been identified as most likely (Scafetta, 2024). Thus, we'll use this scenario for projections of future climate. These model projections can identify future possible changes in climate, including average temperature, minimum temperature, maximum temperature, and rainfall patterns.

The Asian Rural Institute (ARI) is located in Nasushiobara, Japan (36.96 °N, 139.90 °E) (Figure 1). Using the climate model projections, and drawing from the scientific literature, we highlight the primary climate stressors impacting the region and identify potential pathways to be considered for increasing local resilience. In this case, we define resiliency as implementation intentional strategies to reduce the current and future impacts of human-caused climate change.

Figure 1. Location of Asian Rural Institute relative to weather station data at Nikko and Utsunomiya. The black box represents the land area averaged to create the gridded temperature and rainfall data. The box represents the approximate location of 139.688-141.562 by 36.250-37.500, although only the data over land are included in the analysis here.



Climate impacts at ARI

Japan spans a large north-south transect across latitudes, and thus local climate varies between the southern and northern regions of the country. Physical geography, including mountain ranges where elevation decreases temperatures and coastal areas where climate swings are more moderate due to the influence of the ocean also impacts local climate. The seasonal monsoon changes the prevailing direction of the winds such that the summer monsoon brings warm humid area from the southeast over the island arc while the winter monsoon brings colder air from the northwest. In the mid-latitudes with ample summer moisture, the Köppen climate classification (Beck et al., 2018) defines Nasushiobara as humid subtropical climate (Cfa) characterized by warm to hot summers and cool winters with heavy snowfall (Figure 2). The Kuroshio current bathes the eastern side of Japan, bringing water warmed from

the equatorial region to the country. Combined with the monsoon, the warm water creates a hot humid summer climate and cooler winters. Under global warming, the projected changes in temperature and rainfall are expected to shift the climate characteristics of the area (Figures 2,3 and Table 1).

Historical information about changes in climate in Nasushiobara are available from nearby weather stations location in Utsunomiya (WMO Station ID: 47615) and Nikko (WMO Station ID: 47690). Station data were obtained directly from the Japan Meteorological Agency (JMA) via their Tables of Monthly Climate Statistics (“Japan Meteorological Agency | Tables of Monthly Climate Statistics,” n.d.). Data are also available from climate models that provide historical, current, and future projections for locations identified using latitude and longitude coordinates. Here, we used the Coupled Model Intercomparison Project Phase 6 (CMIP6) which

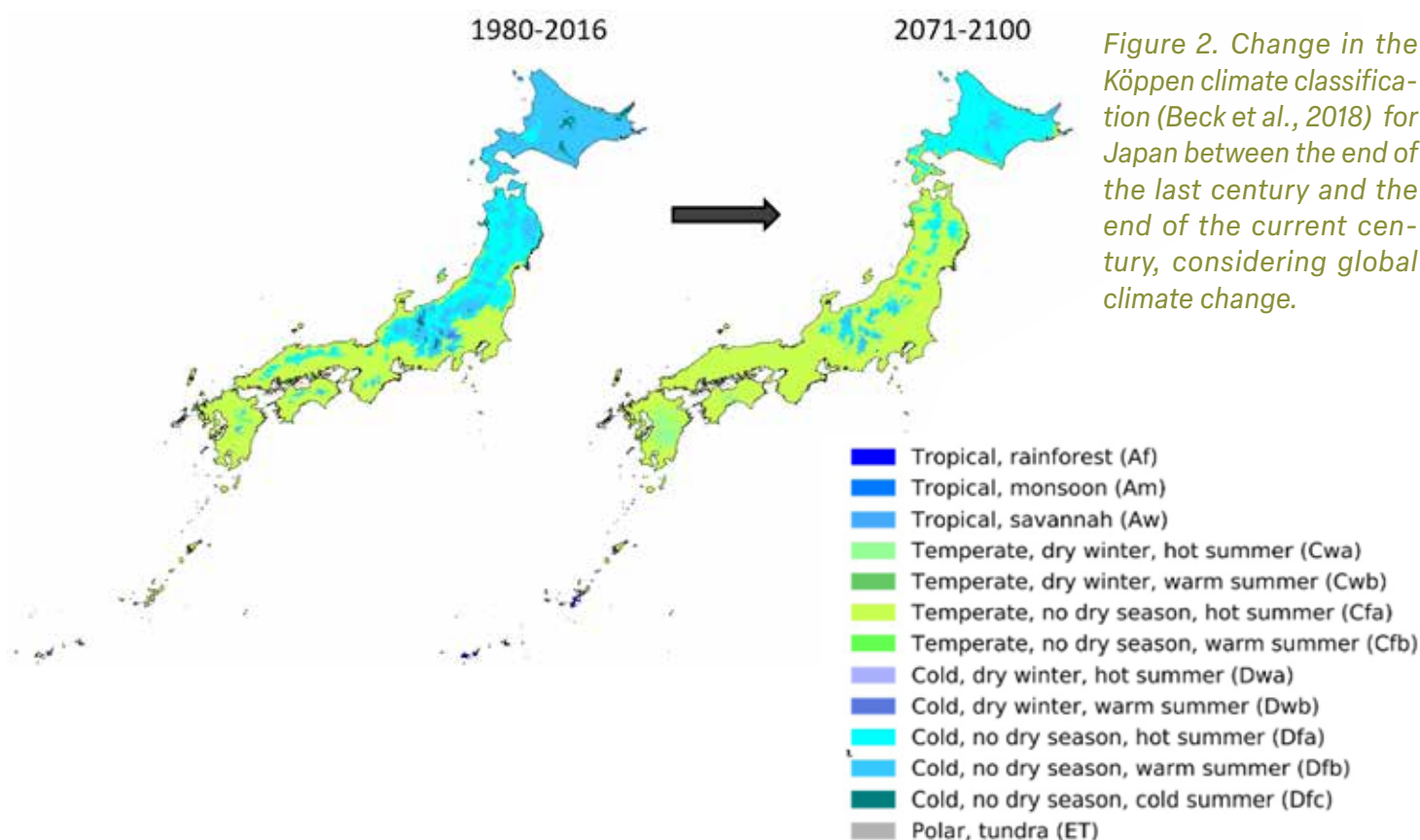


Figure 2. Change in the Köppen climate classification (Beck et al., 2018) for Japan between the end of the last century and the end of the current century, considering global climate change.

Section 4

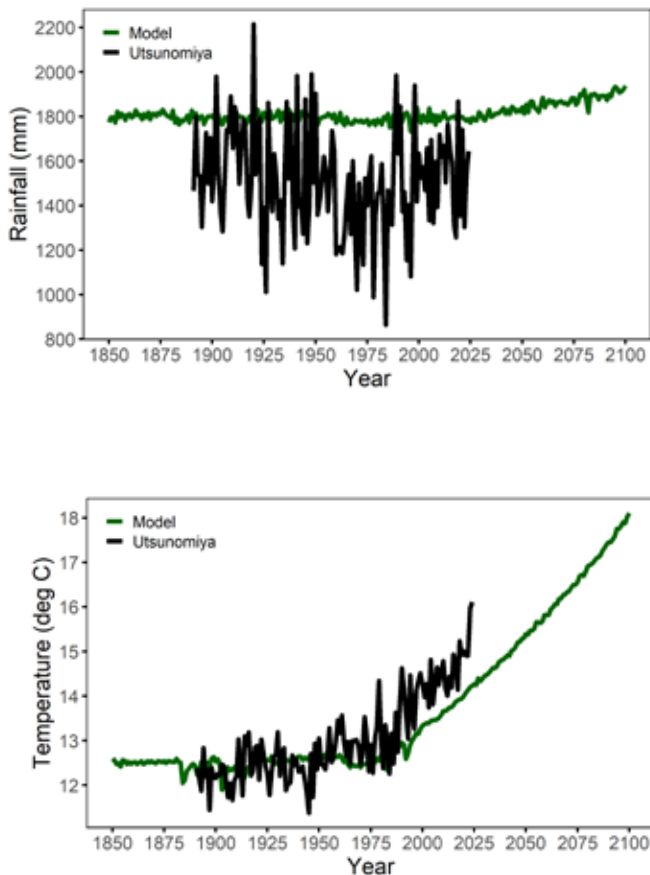


Figure 3. (A) temperature and (B) rainfall data for the weather station in Utsunomiya and model output from CMIP6 for a square encompassing ARI.

represents a suite of internationally recognized and validated climate models (Eyring et al., 2016) for the land surface area within the box of $36.25\text{--}37.50^\circ\text{N}$ by 139.688 to 141.562°E . There may be additional sources of local weather information that would be useful to investigate, likely available from the JMA.

Temperature and rainfall were averaged into three 30-year buckets to compare changes in these climate metrics with time. Historical temperatures were similar between Utsunomiya and the model output, but lower for Nikko (Table 1). The higher elevation of Nikko at approximately 800 m compared to Utsunomiya at approximately 100 m and Nasushiobara at approximately 360 m, as well the less urban landscape and further distance from the moderating effects of the ocean make Nikko cooler than Utsunomiya, and likely Nasushiobara, too. Thus, we'll explore changes in climate in Utsunomiya and the model output as more representative of those in Nasushiobara. In Utsunomiya, average temperature increases from $12.3 (\pm 0.4)^\circ\text{C}$ to $14.5 (\pm 0.6)^\circ\text{C}$ between the early 1900s and the early 2000s (Figure 3). During the same window, monthly minimum temperatures increase from $0.6 (\pm 0.8)^\circ\text{C}$ to $2.72 (\pm 0.9)^\circ\text{C}$ and monthly maximum temperatures increase from $24.4^\circ\text{C} (\pm 0.8)$ to $26.5^\circ\text{C} (\pm 1.1)$ (Figure 3; Table 1). Thus, average monthly, minimum, and maximum temperatures increased 2.2°C in approximately one century. In the model output data that compasses ARI but also the surrounding area, average temperature increases from $12.4^\circ\text{C} (\pm 0.03)$ to $13.6^\circ\text{C} (\pm 0.09)$ between the early 1900s and the early 2000s, and to $17.2^\circ\text{C} (\pm 0.5)$ by the end of this century (late 2000s). During the same window, monthly minimum temperatures increase from $3.0^\circ\text{C} (\pm 0.07)$ to $4.2^\circ\text{C} (\pm 0.3)$, and to $7.8^\circ\text{C} (\pm 0.6)$ by the end of the century while monthly maximum temperatures increase from $22.7^\circ\text{C} (\pm 0.07)$ to $23.9^\circ\text{C} (\pm 0.35)$ to $27.4^\circ\text{C} (\pm 0.5)$ by the end of the century (Figure 3; Table 1). Thus, the model output shows a more modest 1.2°C warming during the past century than

the weather station data, yet a total warming of 4.8 °C by the end of the century (Figure 3; Table 1).

When considering changes in rainfall, Nikko receives substantially more rainfall than Utsunomiya and the model output, with a total exceeding 2000 mm a year and a minimum monthly of tens of mm and a maximum monthly amount of around 500 mm (Table 1). Utsunomiya and the model output show similar total annual amounts of rainfall but the Utsunomiya weather station shows more variability between monthly minimums and maximums (Figure 3). While no significant trend in rainfall is present through the past century, the model output suggests that rainfall will increase by the end of this century (Figure 3; Table 1). Rainfall in general is harder to

capture in climate model projections because of the complex processes that determine rainfall patterns. In Japan during the summer, the land heats up faster than the water which brings winds from over the ocean on shore. These winds carry lots of water vapour that they have picked up while over the warm ocean. Once on land, the air will rise and cool, releasing the water vapour as rain. There is some thought that these processes will be enhanced in the future due to warming temperatures which will amplify the movement of water on shore during the summer. This agrees with the increase rainfall documented in the model output. Rain might also increase in Japan during typhoon events. While it is difficult to capture how typhoons might change in the future in the models, there is some thought that

	1891 - 1920			1944 - 1973			1995 - 2024			2071 - 2100		
Temperature (°C)	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
Nikko	---	---	---	6.5	-4.9	18.5	7.4	-4.2	19.3	---	---	---
Utsunomia	12.3	0.6	24.4	12.8	1.0	25.1	14.5	2.7	26.5	---	---	---
Model	12.4	3.0	22.7	12.6	3.3	22.8	13.6	4.2	23.9	17.2	17.2	27.4
Precipitation	Tot	Min	Max	Tot	Min	Max	Tot	Min	Max	Tot	Min	Max
Nikko	---	---	---	2240	31	548	2171	21	545	---	---	---
Utsunomiya	1622	19	331	1435	18	299	1546	12	342	---	---	---
Model	1904	101	221	1794	101	219	1791	100	216	1891	97	238

Table 1. Temperature and precipitation data for two locations near ARI and for an approximately 1.5 x 1.5 latitude x longitude square that encompasses ARI. See Figure 1 for the approximate location of the gridded data square. For temperature, the average monthly, minimum monthly, and maximum monthly values averaged for the 30-year window are presented. For precipitation, the total annual, minimum monthly, and maximum monthly averaged for the 30-year window are presented.

Section 4

there will be fewer but more intense storms. The increased intensity of the storms may contribute to more rainfall and flooding during the short windows that a storm occurs. There is also some evidence that storms are making it further north in the northern hemisphere than they had previously (Knutson et al., 2019; Normile, 2019).

Future outlook

ARI will experience rapidly increasing temperatures each decade, with both winters and summer warming equally (Table 1). The rate of warming is faster than the globally average, potentially reflecting the contributions of the warm Kuroshio Current (Y. Zhang et al., 2020). Changes in rainfall are unclear: model output suggests a slight increase in rainfall although the model does not capture the wide range in natural fluctuations in rainfall evident in the weather station data suggesting that a small increase might be hidden by changes in rainfall from year to year. There will likely be an increase in strong storms with high wind and substantial rainfall. Based on this climatic analysis, ARI will experience dramatically warmer temperatures with potential increases in strong rainfall events in the upcoming decades. In an already warm and humid climate, this may lead to changes in the types of plants that can be grown, stress on the human body – particularly by those working outside during the day or that don't have access to controlled inside environments, and the potential for flooding.

Climate resiliency in Japan

Climate resiliency is defined as the ability to prepare for, recover from, and adapt to impacts of human-caused global climate change. The Japan Meteorological Agency provides data to monitor and project climate change in Japan ([Global Warming Projection / TCC](#)). This provides country-level

assessment of environmental changes used to identify vulnerabilities. The Japan Times has created a series “Boiling Point” ([Boiling Point - The Japan Times](#)) that tells stories of how climate change, particularly heat waves, impacts Japanese citizens and strategies to mitigate heat wave impacts. The Ministry of the Environment, Government of Japan, provides guidance on adaptation to climate change, including [Assessment Report on Climate Change Impacts in Japan](#) (2024), [Climate Change Adaptation Plan](#) (2021), and the [Climate Change Adaptation Information Platform](#) (A-PLAT). The alter provides examples of adaptation to protect food, against meteorological disasters, and to protect health.

Climate resiliency at ARI: crop and livestock

ARI provides a unique opportunity to promote climate resiliency of food systems through “integrated farming, making and using organic fertilizer, managing pests with local materials, and using appropriate technologies to protect the ecological system of the living soil for future generations, and have ownership over their Foodlife” ([Home - Asian Rural Institute](#)). However, this system will be impacted by warming, which will change both winter chill hours and summer peak temperatures, the timing of the shoulder (spring and fall) seasons, and the timing of peak temperatures and peak rainfall. These shifts in temperatures and rainfall will impact planting of crops, watering strategies, and potentially choice in crops grown.

Our analysis did not capture any changes in seasonality, such that winters are not warming faster than the summers. However, overall, winter chill hours will be reduced; this means any fruit or vegetable that require chill hours might not get the hours needed. With higher temperatures, the traditional

winter season will shrink, such that the fall will occur later in the year and the spring will occur sooner. Thus, this will shorten the winter season and create a longer summer season. This may alter when plants might get started growing. Warmer summers mean that it may become too hot for some crops and livestock during the summer.

The timing of peak temperature and rainfall patterns might shift differently, introducing asynchrony in hot summer weather and rainfall. However, qualitative examination of the Utsunomiya station weather data suggests that both peak warming and peak rainfall have both moved slightly earlier in the summer such that historically the warmest month was August, and now sometimes (but not always) it is July. Similarly, historical peak rainfall was in July or August, and now sometimes it is also in May and June. The model simulations don't appear, at this time, to be appropriate tools to explore how these might change in the future because the climate models capture average conditions and not necessarily extreme events. More local-specific, regional models might be needed to address changes in peak rainfall timing.

Climate resiliency at ARI: human health

Increasing temperature directly harm human health (Ebi et al., 2021). With warming, the ARI community will become vulnerable to heat-related illness (hyperthermia), which might include heatstroke, heat exhaustion, heat cramps, and heat rash. This is particularly true in humid areas, where a “wet-bulb” temperature of 35°C marks our upper physiological limit (Raymond et al., 2020). However, personal and community decisions can help moderate the influence of hot temperatures and reduce the potential for harm. For example, the use of a wet or frozen

tenugui towel as a neck wrap or placed under a hot will help cool, ample hydration with ice cold water, the wearing of lighter, more breathable fabrics and a hat to protect from the sun and overheating.

Since heat stress would mostly likely occur during peak day hours, changing the daily schedule so that outdoor activities occur earlier and later in the day and not during lunch and early afternoon hours. Instead, low impact or indoor activities could be schedule during the peak temperature hours of the early afternoon. Furthermore, high intensity outdoor activities could be rescheduled to avoid periods of extreme heat, if a heat wave persists for multiple days. Education on heat-related illness symptoms and vigilance to ensure that if someone starts to suffer from heat-related illnesses they are treated immediately is important to reduce potential harm.

The inside environment can be climate controlled, which can provide relief from the impacts of outside high temperatures. Air conditioning (AC) both decreases temperatures and reduces humidity. However, it is also energy extensive – contributing, in turn, to increased climate change unless the AC can be fueled using non-fossil fuel sources (solar energy, for example, instead of natural gas). Using solar panels to power AC can both make the interior environment more comfortable while reducing energy impacts. However, retrofitting buildings for air conditioning and/or active solar can be expensive and sometimes infeasible. Thus, other strategies to cool interior spaces are needed. The two main “passive” strategies for cooling indoor environments, such that they don't require energy use to be effective (Triana et al., 2020) are 1) the reduction of direct solar radiation from hitting a building, particularly openings in the wall including windows. For windows, external coverings are more effective than internal coverings (e.g., tree blocking the sun from reaching the window compared to curtains inside a window). 2) promoting natural ventilation due to

Section 4

Passive cooling at work: Koinonia House has deep eaves that help shade its windows and walls from the sun.



pressure or temperature differences. This can occur from cross-ventilation, stack effect ventilation, ventilation under the building, ventilation through the roof, ventilation through intermediate spaces, and also the use of colder air at night time to flush out the warmer air from the daytime. Active ventilation through small or whole building fans might help ventilate where natural processes are insufficient. This requires energy, but fans, as a whole, use less energy than AC. There is also evidence that providing external cues in one's environment to suggest cooling can trick a person into gaining a sense of coolness. These include switching to cool colored interior décor, cool-feeling music, cool incense and aromas, and fūrin, or wind chimes ([Japan Times](#)).

Heat waves can disproportionately impact communities in higher-density urban landscapes with reduced tree cover where infrastructure absorbs and retains heat (Ellena et al., 2020; Sultana, 2022). Local experiences with regional temperatures can

be altered based on the surrounding area such that an “urbanized” environment will increase ambient temperature, which is termed the urban heat island (UHI). The UHI results from changes in the amount of the sun’s energy that is reflected back to space versus that which is absorbed and increasing temperatures, a decrease in evaporative cooling, the extrusion of heat from buildings into the ambient air, and a change in the texture of the landscape (roughness) which reduces movement of heat to the atmosphere (Taha, 1997; Zhao et al., 2014). On the ARI campus, future development could consider the UHI when building new infrastructure. The use of techniques to reflect incoming sun’s energy, such as “cool roofs”, and increase evaporative cooling will reduce the impact of future development (Alavipanah et al., 2015; Heaviside et al., 2017; Vahmani et al., 2016; C. Zhang et al., 2021). By reducing building temperatures with cool roofs, air conditioners will need to run less. This further reduces temperatures because air conditioner heat rejection contributes to UHI

(Luo et al., 2020). Development of buildings and planting of trees should be designed to amplify outdoor and indoor ventilation and not serve to block natural winds.

Climate resiliency at ARI: environmental impacts

While rainfall is projected to increase, models are currently unable to capture the wide range in rainfall currently experienced in the region and the uncertainty around changes in seasonal rainfall patterns due to the monsoon and storms is very large. There is some thought that there might be an increase in dramatic rainfall events, which could contribute to local flooding. Thus, in addition to warming, increased rainfall leading to flooding during storm events might be of concern. Areas that already flood during storms will become more flooded in the future, and areas that have not historically been subject to flooding might become vulnerable. Landscaping should be designed to move rain water away from vulnerable regions, including buildings, to bioswales or river beds, that can serve to capture and store water during these high rainfall events and allow the water percolate into the ground.

A final concern is that climate change will occur while natural or other human-caused disasters, either resulting from climate change or unrelated, will also occur, causing amplified stress on resources. For example, extreme typhoon events or earthquakes will still occur in Japan and may tax public resources during emergency responses. Thus, considering the self-sufficiency of ARI when public resources become limited, for example thinking of energy resiliency and potable water supplies. Identifying vulnerability of ARI if public services were to be reduced and pre-emptively bolstering these would be wise.

Considerations for ARI

Climate change will notably impact ARI by increasing temperatures and changing rainfall patterns. ARI might want to consider what crops and livestock might become more favourable under these future conditions, particularly specific cultivars adapted to heat stress (Fahad et al., 2017). Continuing to promote sequential planting and harvesting (crop asynchrony) is also an effective strategy to stabilize agricultural production (Egli et al., 2020).

It will get hotter, particularly during the rainy season and the combination of hot temperature during periods of high humidity will make it difficult to cool the body. ARI might implement heat-health action practices (Domeisen et al., 2023) to support community well-being by reducing the risk of heat-related illness. ARI might consider revising their schedule to put indoor activities in the mid-afternoon during summer months and focus on outdoor activities in the morning and evening. Passive strategies to increase ventilation and evaporative cooling might be considered before energy-requiring active strategies such as adding AC.

Regionally, ARI can serve as model to help reduce global impacts of climate change locally by maintaining greenspaces, building community-oriented heat-health practices, and maintaining food security in a rapidly changing world.



5

ARI and the Future of Farming in Japan

Charlotte Jordan

A Review of Depopulation in Japan and its Effects on Rural Communities

Referring to “the collapse of a regional society’s functions from population outflow and its process progressing in a vicious cycle” (Tsutsumi 32), the concept of “depopulation” first solidified in the 1960s as the opposite phenomenon to overcrowding. After its population peaked at 128.08 million in 2008, Japan entered an ongoing period of drastic depopulation, seeing the loss of one megacity (a city with a population of over one million people) every five years (Hara 1).

There are multiple contributors to Japanese depopulation. For instance, Japan is experiencing a trend in low fertility rates impacting most of East Asia due to an increase in women in the workforce and subsequent decrease in fertility of those women; looser and later marriage practices that, due to Japanese cultural expectations of procreation within marriage, delay the decision to have children; and the decision of an increasing amount of couples to not have children at all (Hara 3). The strain on population maintenance caused by fewer births is further exacerbated by steady deathrates, as Japan has one of the oldest

Section 5

populations in the world. Additionally, as with the rest of the world, every facet of the Japanese nation was impacted by the COVID-19 Pandemic, and in the case of population, the impact was negative (Hara 2). As a result, the amount of births cannot counteract the larger amount of deaths, causing the population of Japan to dwindle.

Depopulation is not experienced equitably in Japan, particularly based on demography and geography. Demographically, the working age population (ages 15-64) is most sharply affected by depopulation trends, decreasing by over 10 million people between 1995-2015 (Hara 1). Geographically, rural areas have been suffering from depopulation locally long before the country began experiencing

it nationally, specifically in the 1950s with the rise of urbanization. While 80% of Japan's population belonged to rural areas in 1920, by the end of the 50s the urban population surpassed the rural, and by the 90s, the urban population now comprised the 80% of the population held by rural areas just decades before (Tsutsumi 22). Rural areas also lost geographic mass, as urbanization of outlying farming villages converted even more of the rural population into urban population (Tsutsumi 22).

Rural depopulation has its own contributors that compound with the drivers of national depopulation, leading to much higher rates of depopulation rurally than nationally. Rural areas are often predisposed to experience the negative effects of depopulation more

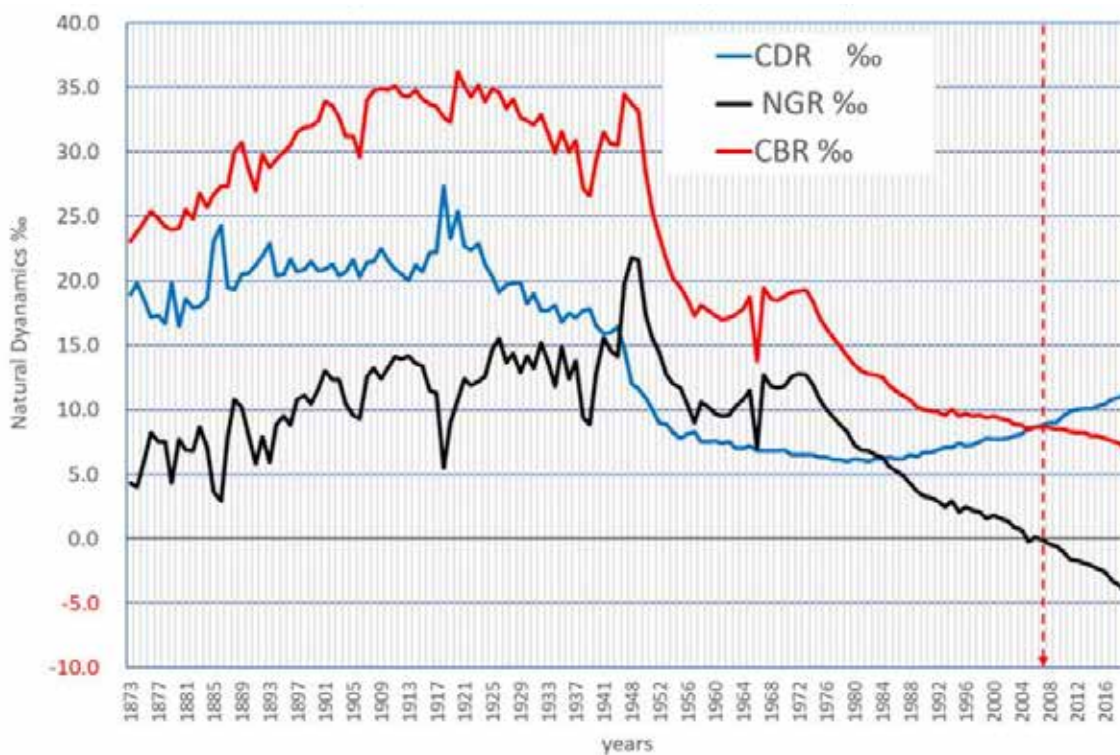


Figure 1: Long Term Development of Natural Dynamics in Japan where CBR is Crude Birth Rate, CDR is Crude Death Rate, and NGR is Natural Growth Rate. Reprinted from Hara, Toshihiko. *The Causes and Consequences of Depopulation in Japan*, www.oeaw.ac.at/file

severely due to “rural deprivation,” or the physical, economic, and social remoteness rural areas experience in the periphery of urban areas (Tsutsumi 33). In Japan, the seeds of rural deprivation were planted with the onset of industrialization, as rural areas were pushed to sink most of their investments into production infrastructure, leading to the neglect of living infrastructure—as a result, rural areas were more likely to experience lack of schools, the forced scaling down and/or closing of medical facilities, and difficulty reaching cultural facilities (Tsutsumi 33). As such, rural depopulation is also driven by an aging population, a lack of successors as the younger generation moves to urban areas, and a lack of available marriage partners (referred to as the “bride/groom shortage”) (Tsutsumi 37). All of these contributing

factors meant that, in 1995-2000, the population increase-decrease rate was -5.4% (indicating depopulation) in already depopulated areas like rural municipalities, as compared to the nation 1.1% rate. This statistic is not so shocking considering the population increase-decrease rate has been negative in rural areas since 1987 (Tsutsumi 48).

As the most major industry in rural areas, the suffering of the farming industry reflects the declining rural population. Between 1950 and 1995, the percentage of Japanese agricultural workers plummeted from 45.4% to 5.3% for several reasons (Tsutsumi 28): with the advent of urbanization came a “rural exodus” as an increasing number of farmers picked up side businesses or dropped farming altogether,

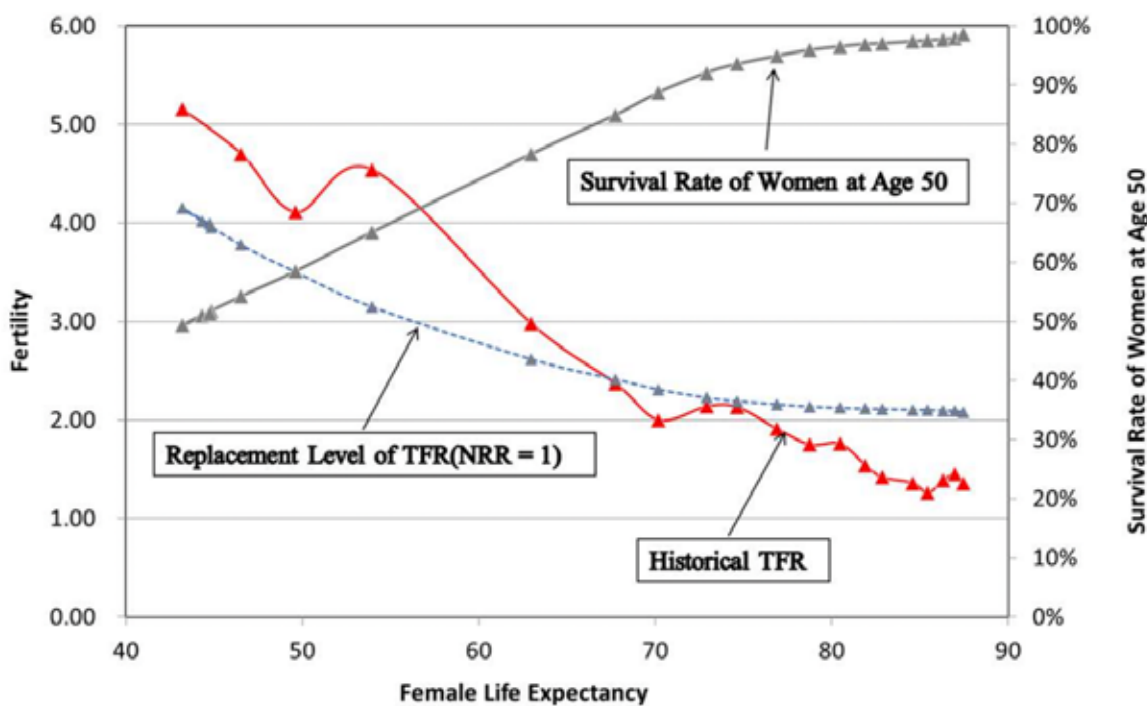


Figure 2. Women's life expectancy and fertility change. Reprinted from Figure 1: Long Term Development of Natural Dynamics in Japan where CBR is Crude Birth Rate, CDR is Crude Death Rate, and NGR is Natural Growth Rate. Reprinted from Hara, Toshihiko. *The Causes and Consequences of Depopulation in Japan*, www.oeaw.ac.at/file

Section 5

due in part to an industry wide overreliance on engineering works/expensive machinery that was exacerbated by geographic distance. Others gave up their businesses as more corporations began to run agriculture as opposed to individual farming households, which was partly at the encouragement of government policies. Additionally, land became less available as the national government tried policies that reduced rice acreage to adjust national food production, and more and more farmlands were converted into residential areas (Tsutsumi 29). As such, rural areas and the farming industry in Japan are the most directly and disproportionately affected victims of depopulation and its detrimental effects.

Depopulation as a Global Issue

Japan is far from the only country currently experiencing depopulation: ahead of Japan in depopulation rates are several Eastern European countries, whose birthrates fell dramatically after the USSR collapsed, and nations neighboring hubs of emigration like the USA or Australia (“Countries with the highest rate of population decrease”). However, all these nations are experiencing depopulation for approximately the same reasons—low birthrates and high immigration rates (“Countries with the highest rate of population decrease”). Japan is thus unique, as its depopulation arises from its aging population, cultural norms around marriage (a different cause for lower birth rates), and stricter emigration policies.

Because Japan does share the depopulation factor of low birth rates with these other nations, it is worth considering the efficacy of these countries’ attempts to raise fertility rates. A common method of fighting depopulation is incentivizing childbirth with tactics like “baby bonuses,” tax incentives, and paid parental leave (“How do countries fight falling birth rates?”). However, Anne Gauthier, professor of comparative

family studies at the University of Groningen in the Netherlands, found that these cash-based policies usually have little observable impact on fertility rates (“How do countries fight falling birth rates?”); in one rare case of success, France was able to lift its birth rates with financial incentives, though their success likely came from the equal care they put into balancing out the potential negative impacts on a family that an additional child might have, such as subsidizing childcare and lowering working hours for parents of young children (“How do countries fight falling birth rates?”).

Additionally, though their causes for depopulation may differ, most countries facing depopulation also see their rural areas impacted more heavily and negatively than their urban centers, just as Japan is experiencing. Because lack of resources and opportunity is a leading driving force for rural depopulation in most countries, a solution rising in popularity and creativity is investing in solutions that encourage people to remain in their rural hometowns. Spanish academics Lourdes Garcia del Portillo and Pablo Martinez de Antigua proposed launching an “Online Rural High School” that kept teens from having to leave their rural hometowns for education. Similarly, a study on rural depopulation in mountainous areas of China found that increasing non-agricultural job opportunities with better economic returns would encourage a significant amount of the rural population to remain in their hometowns (Yu 18).

Another effective method of combatting depopulation is supplementing the existing population with immigrants and subsequently supplementing suffering industries with immigrant laborers. This strategy was implemented in Norway, where scholars discovered that, for this policy to be a successful solution to depopulation, the government must invest in retaining the immigrants they attract. In this case, Norwegian scholars engaged their immigrants with community programs and voluntary

activities to encourage emotional investment and loyalty that eases permanent or semi-permanent immigration (Kvalvaag).

Responses to Depopulation in Japan

Japan has adapted some of these approaches to its own handling of its depopulation crisis while devising nation-specific policies. As mentioned in the prior section, Japan has implemented monetary incentives to encourage a rise in fertility rates, aptly named “baby bonuses” (Faber). Additionally, in June 2023, the administration of Prime Minister Kishida announced the “Direction on Strategy for Children’s Future,” which aims to stop the declining fertility rates by offering financial assistance to young couples raising children (Urata). With a possible budget of about three trillion yen, the policy includes “expanded economic assistance for child delivery and higher education”, abolishing the income cap for the fund covering children’s high school tuition, improving work environments for young parents, and improving the quality of childcare (Urata).

However, the Japanese government seems to have prioritized immigrant integration as the most promising solution to depopulation, despite Japan’s historically strict immigrant policies (Faber). Though the new measures still consider the usefulness of the immigrant to determine whether they are allowed in and for how long, this new plan still qualifies as a loosening of the immigration restrictions set by the 1952 Immigration and Control Act, which only permitted the immigration of individuals with work visas or individuals of Japanese descent/with Japanese families (Faber). These new measures include “issuing more short-term visas, increasing the maximum residency period from three to five

years, and shifting the immigrant registration system from the local to the national government to remove the requirement for re-entry permits,” as well as encouraging more students studying abroad in Japan to stay for job searches after their graduation with special visas (Faber).

These efforts at immigrant recruiting are concentrated especially on immigrants who can fill specific labor shortages in key industries like agriculture, healthcare, and construction. To do so, the Japanese government installed the Specified Skilled Worker and High Skilled Foreign Professionals programs in the late 2010s, which offer up to five-year visas with integration-oriented amenities like housing and orientations, though these programs are not as accessible because they require the prospective immigrants to pass a Japanese language proficiency test (Faber). Additional barriers to the maximum efficacy of these program is the inadequate attention paid to retaining recruited immigrants with supportive resources like language assistance, accessible education (both academic and cultural), and training in regional specific emergency responses (Faber). Additionally, immigrants in Japan are not legally protected from discrimination and face significant obstacles to becoming naturalized citizens, and thus are more vulnerable to mistreatment (Faber). As such, though Japan is taking steps to boost their population, their methods regarding immigration retention could be optimized further.

Because agriculture is one of the most significantly depopulation-affected core industries in Japan, there have been specific attempts to uplift farming solutions and agricultural production while responding to depopulation. In a supplemental, temporary solution, Japan has increased its agricultural imports in the past two decades, namely from its largest food and agricultural supplier, the United States (“Japan – Agricultural Sector”). The reliance on imports to meet domestic agricultural demands will likely

Section 5

remain the norm (barring changes in international policy under the current US presidency) until Japan can improve its food self-sufficiency (Lee).

In terms of internal solutions to the agricultural labor shortage caused by depopulation trends, Japanese farms have made concentrated efforts on the advancement of farming technology to increase the efficiency and yield of agriculture. Some farmers have been encouraged to implement emerging automated technologies that use satellite surveillance, IoT sensors (Internet of Things is the underlying network monitoring all responses), and AI predictive analytics to increase production while decreasing human labor (“Japan’s Agricultural Revolution”). Other farmers are developing innovative, climate-friendly

techniques that integrate into both cities and rural areas, such as vertical farming enhanced with hydroponics, no-till farming, and “igune” practice in agroforestry (Fuhrmann-Aoyagi et al 7).

The Japanese government has tried to support these methods with changes in policy that, to a certain extent, prioritize agricultural production. In 2023, the Japanese government launched an economic stimulus package that allocated 818 billion yen to the Ministry of Agriculture, Forestry and Fisheries, who stated their intention of using the funding for “strengthening food security and boosting agriculture, forestry and fisheries exports” (USDA). Additionally, to ensure that the methods they’re supporting are sustainable economically,

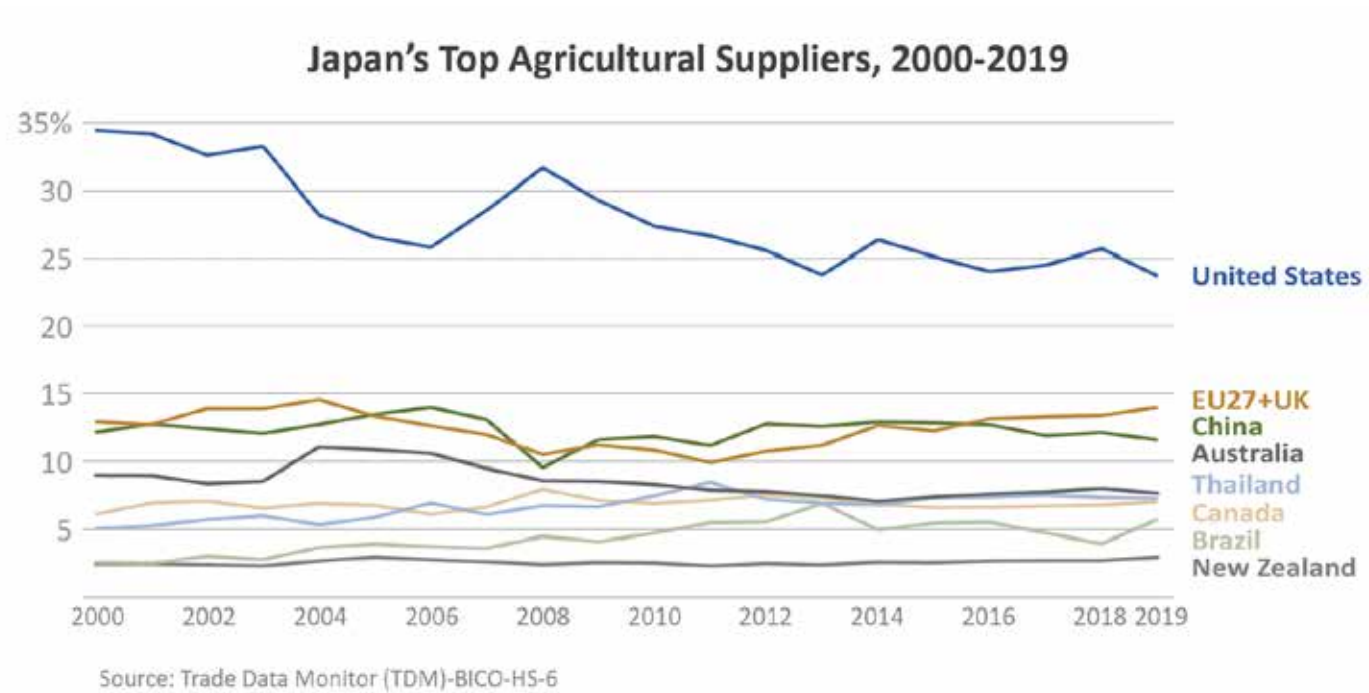


Figure 3. Japan's Top Agricultural Suppliers, 2000-2019. Reprinted from Lee, Ivan. “Opportunities for Health Food Exports in Japan.” USDA Foreign Agricultural Service, 19 Mar. 2025, www.fas.usda.gov/data/opportunities-health-food-exports-japan.

environmentally, and demographically, the Japanese government has passed measures to decrease herbicide and pesticide and subsequently the reliance of farmers on chemicals, offer economic bonuses for environmentally friendly farmers, and promote education on healthy agricultural practices (Fuhrmann-Aoyagi et al). However, an obstacle to the success of these measures is the plummeting number of farming entities in Japan as a result of the national and rural depopulation trends mentioned in the last section (Hirano and Takekawa), suggesting the additional population-building measures like immigration retention mentioned earlier in this section are vital to the success of accompanying agricultural policies.

The Japanese public seems to, in general, be open to the measures implemented by the agricultural industry and the Japanese government, including the push for labor immigration, despite the reputed insularity of Japanese culture. Anti-immigration sentiment still exists, though those holding this opinion seem to make up a minority, as 58% of respondents to a 2018 Pew Research Survey said that Japan should maintain its current level of immigration and 23% said it should allow more immigrants, with 59% even saying that immigrants and the skills they bring strengthen Japan (Faber). By May 2024, 62% of respondents to another survey supported the granting of more visas to skilled foreign workers (Faber). However, it seems that, though Japanese citizens are comfortable

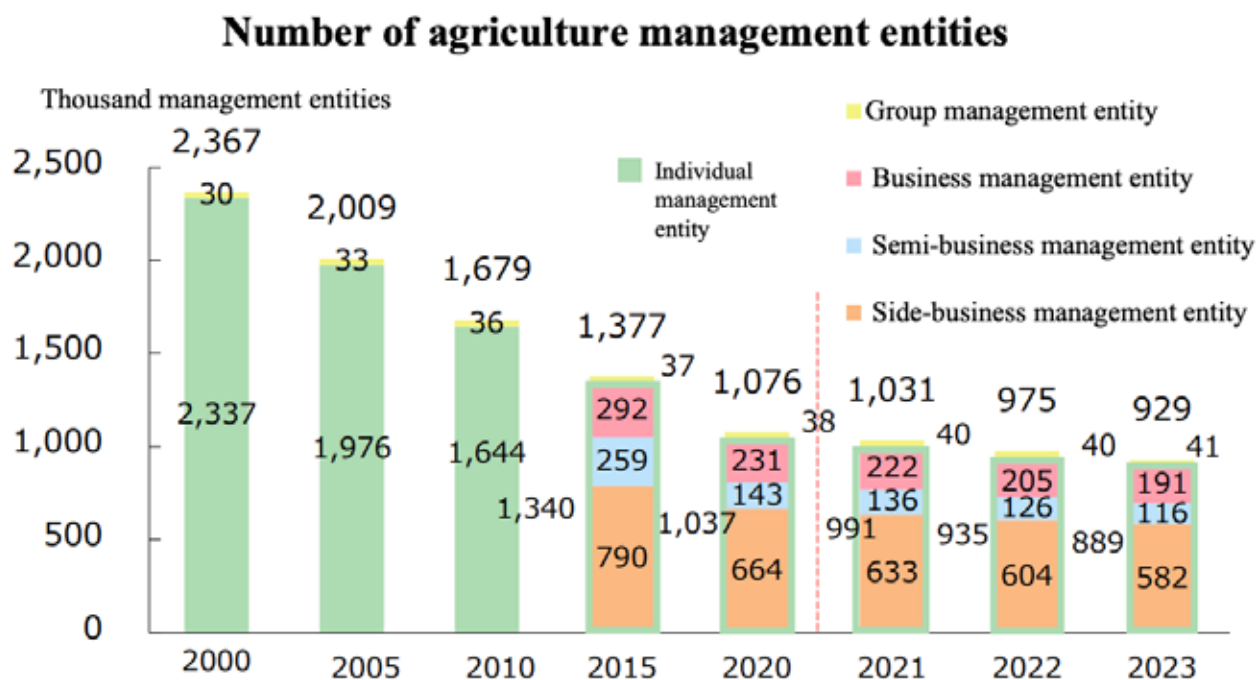


Figure 4. Number of agriculture management entities in Japan. Reprinted from the Summary of the Annual Report on Food, Agriculture, and Rural Areas in Japan (May 2024) from MAFF

Section 5

An ARI participant from Indonesia and a long-term volunteer from Japan doing Foodlife work together.



with increased immigration in concept, they may be uncomfortable with the reality of the practical measures required to see that goal through. While 68% of respondents to a 2024 opinion poll replied “agree” or “somewhat agree” to the question of whether society should “bear the financial burden of funding countermeasures to stop the decline of the birthrate,” over 70% also opposed “raising taxes, hiking social insurance premiums or reducing social security payments” (Faber). As such, it is difficult to conclude how open to depopulation response measures are when immigration and integration are involved.

Associate Professor Kikuko Nagayoshi also observed the disconnect between statistically suggested tolerance and the implicit discomfort the Japanese public seems to have with immigrants, which she attributes to Japanese cultural norms

(Otake). Nagayoshi speaks to her experiences attending Japanese schools, where she witnessed paradoxical promotions of superficial equality mixed with systemic xenophobia and discrimination (Otake); furthermore, supported by later data research and analysis, Nagayoshi identifies the “tendency in Japan of treating immigrants as visitors, though not excluding them outright.” This tendency is informed by common immigration-related fears in Japanese society, including the view of immigrants as a potential material threat (stealing jobs, straining resources) (Davison and Peng), and most especially the fear that an influx of immigrants would mean a loss of Japanese culture and core values (Davison and Peng). This cultural attitude of implicit xenophobia, limited tolerance of immigrants, and cultural homogeneity could inhibit the efficacy of increased immigration as a solution to depopulation.

Considerations for ARI

Considering the demographic needs of the Japanese nation, and considering the mission of ARI, it seems mutually beneficial to add an acculturation element to the ARI curriculum that integrates immigrant participants into Japanese society with the aim that these immigrants remain in and contribute their skills to Japan in a permanent or semi-permanent capacity.

ARI began with the intention of sharing Japan's wealth of information and resources with rural leaders of developing nations, allowing Japan to exercise its position of privilege for the betterment of other communities. Now that Japan faces its own population-related crisis, ARI can expand its pillar of Community of Learning and its key concepts

of “empowering the marginalized,” “the value of rural life,” and “community building” to implement aspects of acculturation for those participants that may be interested in staying in Japan. While ARI began with the amazing cause of outreach to rural communities in other countries, now that Japanese rural communities are suffering under the disproportionate rate of national depopulation, it may be best to divert some of its focus on rural living and efforts at rural revitalization internally. In directing some of the agricultural and community leaders it produces towards dying rural communities in Japan, ARI can ensure Japan continues to have a vibrant rural population and exemplify the values that ARI promotes.

Whether as an additional program, set of classes, or curriculum, this acculturation process can remain in line with ARI's mission of uplifting rural life and



An ARI participant from Namibia and a long-term volunteer from Japan doing Foodlife work together.

Section 5

encouraging agricultural leadership with the benefactor being Japan and its suffering agricultural industry/communities. As a net for the skilled foreign workers currently being recruited, ARI can cushion the arrival of immigrants with the resources that current programs are lacking (as detailed in Section 3), acting in a supplemental capacity for both the national and rural depopulation crises. ARI has proven itself a natural facilitator of Japanese cultural education for visitors: in the survey conducted by other authors of this report, the overwhelming majority of ARI participants who responded answered “Yes” to the question, “Did your experiences at ARI help you to learn more about Japanese culture and society?” As established in Section 3, current labor immigration programs in Japan are primarily weakened by lack of integration resources, particularly regarding cultural education—in the natural course of its existing curriculum, ARI organically provided the exact resources necessary to make immigration successful.

If ARI could already achieve this kind of cultural education as is, a more intentional push to offer additional curriculum and resources to people seeking labor immigration would very likely be much more successful than any immigration program attempted so far.

A specific aspect of cultural integration as the biggest obstacle to retaining immigrants is lack of training in the Japanese language. Without incorporating additional language education, two respondents who answered yes to the aforementioned survey question specifically mentioned that they picked up some of the Japanese language while living with their host families; one respondent even specified that they didn’t initially find the Japanese language “appealing,” attending classes and interacting with Japanese people at ARI made them appreciate “how wonderful” the language is. As part of specialized curriculum for labor immigrants, ARI can build



This bilingual educational sign was created by a former ARI volunteer.

on the existing exposure it gives its participants to Japanese language with minimal changes, strengthening the participants bonds to both their peers and their potential new home. This could look like an additional language class, an hour allotted daily to speak exclusively in Japanese, some lectures or meals held in Japanese, etc. Additionally, this skill sets up labor immigrants for success beyond ARI, a noted deficiency of existing immigration programs. In addition to the agricultural and leadership skills they develop, practice with and immersion in ARI prepares labor immigrants to become successful assets to Japan, as they become more natural and immediate members of community.

Though ARI is naturally predisposed to facilitated cultural integration for foreign participants, it is not currently optimized for this purpose. One survey respondent felt that there wasn't much opportunity to learn about Japan because their peers at ARI were from different places around the world. The international, multicultural reach of ARI is one of its many assets and should remain at the core of the institution. However, if a program is to be implemented specifically for integrating immigrants permanently/semi-permanently into Japan's population, it should hold space for the home cultures of participants while offering enough Japanese cultural education that immigrating participants feel fully informed on and immersed in the culture they intend to join. As such, immigrating participants will require an alternate curriculum that provides weekly Japanese cultural experiences and daily language practice. If these participants are to experience the entirety of ARI's existing agricultural and leadership curriculum, the suggested changes would likely have to occur as either an additional program after the initial Rural Leaders Training Program, or the added cultural education would take place concurrently with the Rural Leaders Training Program curriculum, meaning an entirely separate program for immigrants with

specialized programming and, likely, a longer duration. In either case, this addition will require additional planning, funding, and personnel to facilitate, as well as possible infrastructural needs like additional dorms or classrooms.

Additionally, should immigrating participants bring their families with them, ARI will need to accommodate an even larger group of people with even more resources. However, making these accommodations and extending integration resources to participants' families could directly relieve the specific impacts of depopulation on rural Japan. As established earlier, the community engagement that ARI can offer these individuals will likely increase population retention rates while funneling skilled workers directly into the most severely impacted areas. One survey respondent even clarified that their experience with Japanese culture and ARI was positive enough that they would like their children to train at ARI; in offering a safe, productive, practical, and educational landing pad for immigrants, ARI could act as an effective pipeline for population rejuvenation in rural Japan. Additionally, if these individuals are allowed to bring their families, and if they are offered sufficient support that they decide to stay long-term, this could solve the ongoing deficit of successors in family-run farms, ensuring a steady and stable recovery of Japan's rural communities and industry. Furthermore, an increase of farmers entering Japan's countryside, armed with the socially conscious and climate friendly teachings of ARI lessens the proposed need for industrial farms that may be even more harmful environmentally and culturally in the long run.

To summarize, though it would require additional time and resources, ARI could be an incredibly effective facilitator of long-term labor immigration, helping counteract the national depopulation crisis and revitalizing Japanese rural/agricultural areas.

Appendix: ARI Graduate Survey

ARI Graduate Survey

The questions asked in the graduate survey are found below.

Demographic Questions:

1. What is your current gender identity?
 - a. Woman
 - b. Man
 - c. Different identity, please specify
 - d. Prefer not to say
2. How would you describe your cultural identity?
For example, please describe your nationality, ethnicity, tribe, etc.
3. What is your religion?

Quantitative Questions:

Please read the following statements carefully, and choose on a scale of 1 to 5 (1 being strongly disagree, 5 being strongly agree) how strongly you agree with the statement:

4. “I felt unwelcome in the ARI environment due to my gender identity”
5. “I never felt judged or isolated due to my religion at ARI”
6. “I did not feel like my cultural identity was welcomed, seen, and accepted at ARI”
7. “I feel like I got the same quality of education and support at ARI as other participants of a different gender identity as me”
8. “At times, I did not feel welcome at ARI due to my religion”
9. “I felt like the ARI staff respected my cultural identity”
10. “I felt like my fellow ARI participants and volunteers respected my cultural identity”
11. “I felt like the ARI campus supported my cultural background.” For example, I felt comfortable practicing my religion and cultural traditions at ARI.
12. If you feel comfortable, please elaborate on any of the above responses.
13. Please read the following statements carefully. Which of the 14 ARI key concepts have you been able to apply in your work with your home community? (Select all that apply)
14. How frequently do you recall and apply your learnings from ARI?

Appendix

15. Please respond to the following statements on a scale of 1 (strongly disagree) to 5 (strongly agree).
“I face difficulties in applying ARI’s sustainable development practices and teachings to my home community” (if you agree, please share what practices and how they are difficult to apply in the text box below).
16. “After my time at ARI, I feel confident in my ability to increase engagement in my home community”
17. “I am proud of the changes and improvements I have been able to make in my home community while using my ARI education.”
18. “There are many improvements that should be made to the ARI curriculum”
(if you agree, please elaborate in the text box below).
19. “There are many improvements that should be made to the ARI campus”
(if you agree, please elaborate in the text box below).

Qualitative Questions

20. Please describe the organization that sponsored your participation at ARI. What country and community is the organization located? What kind of work do/did you do with this organization? Are you still an active leader in this organization and community?
21. After ARI, what challenges in your home community have you been trying to address? How have you been addressing these issues?
22. How much did you think ARI prepared you to address the challenges you have faced in your community? Could ARI have better prepared you? If so, how?
23. What part of ARI’s training curriculum did you find most useful? Why?
24. Please describe some of the impacts that your work and leadership has had on your home community. For example, were you able to establish a new organic farm, implement more sustainable farming practices, establish a new community program, expand social services for a certain number of individuals, build climate resilient infrastructure, etc.
(please include concrete details and numbers, if possible)

Integration into Japanese Culture

25. Did your experiences at ARI help you to learn more about Japanese culture and society?
 - a. Yes
 - b. Somewhat
 - c. No
26. If applicable, what in particular did you learn about Japanese people and Japanese culture?

The response breakdown of the demographic and quantitative questions are found below.

Gender

Gender	Number of Graduates Surveyed	Percentage of Graduates Surveyed
Man	60	64%
Woman	34	36%
Total	94	100%

Religion

Religion	Number of Graduates Surveyed	Percentage of Graduates Surveyed
Buddhist	9	9.57%
Christian	67	71.28%
Hindu	6	6.38%
Muslim	5	5.32%
No Religion	2	2.13%
Other	5	5.32%
Total	94	100.00%

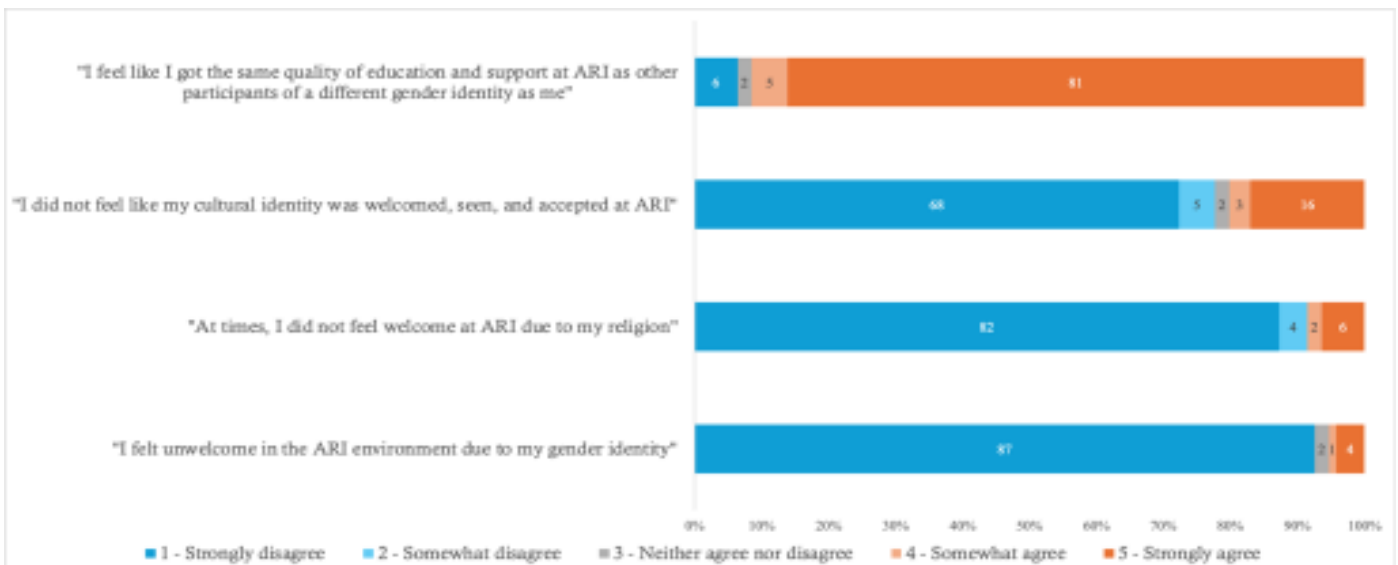
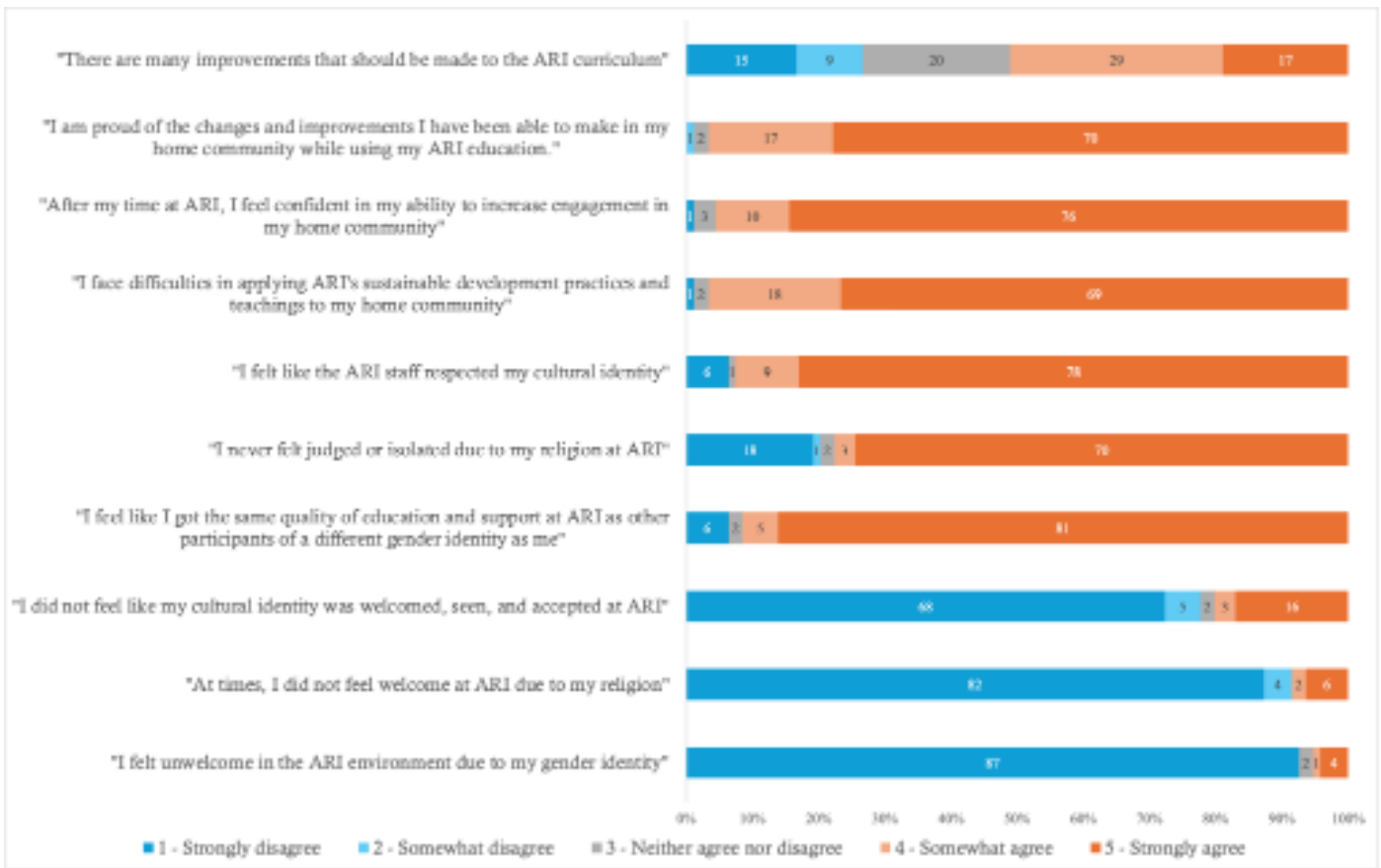
Home Country

Home Country	Number of Graduates Surveyed	Percentage of Graduates Surveyed
Bangladesh	2	2%
Bhutan	2	2%
Cameroon	4	4%
China	1	1%
DR Congo	2	2%
Ecuador	1	1%
Ghana	3	3%
Haiti	1	1%
India	14	15%
Indonesia	14	15%
Japan	3	3%
Kenya	4	4%
Liberia	2	2%
Malawi	5	5%
Malaysia	2	2%
Myanmar	4	4%
Nepal	2	2%
Nigeria	2	2%
Philippines	4	4%
Rwanda	1	1%
Sierra Leone	1	1%
South Korea	1	1%
Sri Lanka	9	10%
Thailand	3	3%
Uganda	4	4%
Zambia	2	2%
Zimbabwe	1	1%
TOTAL	94	100%

	1 Strongly Disagree	2 Somewhat Disagree	3 Neither agree nor disagree	4 Somewhat agree	5 Strongly agree	Total
I felt unwelcome in the ARI environment due to my gender identity.	87	0	2	1	4	94
I never felt judged or isolated due to my religion at ARI.	18	1	2	3	70	94
I did not feel like my cultural identity was welcomed, seen, and accepted at ARI.	68	5	2	3	16	94
I feel like I got the same quality of education and support at ARI as other participants of a different gender identity as me.	6	0	2	5	81	94
At times, I did not feel welcome at ARI due to my religion.	82	4	0	2	6	94
I felt like the ARI staff respected my cultural identity.	6	0	1	9	78	94
I face difficulties in applying ARI's sustainable development practices and teachings to my home community.	1	0	2	18	69	90
After my time at ARI, I feel confident in my ability to increase engagement in my home community.	1	0	3	10	76	90
I am proud of the changes and improvements I have been able to make in my home community while using my ARI education.	0	1	2	17	70	90
There are many improvements that should be made to the ARI curriculum (if you agree, please elaborate in the text box below).	15	9	20	29	17	90

Appendix

	1 Very infrequently or never	2 Nearly every year	3 Nearly every month	4 Nearly every week	5 Nearly every day	Total
How frequently do you recall and apply your learnings from ARI?	1	12	22	15	40	90
	1 Strongly Disagree	2 Somewhat Disagree	3 Neither agree nor disagree	4 Somewhat agree	5 Strongly agree	Total
I face difficulties in applying ARI's sustainable development practices and teachings to my home community.	1	0	2	18	69	90
After my time at ARI, I feel confident in my ability to increase engagement in my home community.	1	0	3	10	76	90
I am proud of the changes and improvements I have been able to make in my home community while using my ARI education.	0	1	2	17	70	90
There are many improvements that should be made to the ARI curriculum.	15	9	20	29	17	90



References

2: ARI Rural Leadership Training Program

- [1] A Likert scale is a 5- or 7-point ordinal scale used by participants to rate the degree to which they agree or disagree with a statement. <https://pmc.ncbi.nlm.nih.gov/articles/PMC3886444/#i1949-8357-5-4-541-Likert1>
- [2] Lamri, J., & Lubart, T. (2023). Reconciling Hard Skills and Soft Skills in a Common Framework: The Generic Skills Component Approach. *Journal of Intelligence*, 11(6), 107. <https://doi.org/10.3390/jintelligence11060107>
- [3] <https://ali-sea.org/who-are-we/>
- [4] <https://ali-sea.org/upcoming-workshops-trainings/>
- [5] <https://ali-sea.org/cambodia-alisea-network-online-thematic-session-to-share-experience-on-community-market-resilience/>
- [6] <https://ali-sea.org/alisea-network-in-laos-thematic-green-talk-ep-o2-organic-farming-and-certification-11-february-2022/>
- [7] <https://ali-sea.org/transitioning-towards-agroecology-and-regenerative-agriculture-a-contribution-to-food-systems-transformations-tarasa23/>
- [8] <https://bnspp.go.id/lsp>
- [9] <https://bnspp.go.id/lsp/3eyJpdiI6Ik9HMO5jzbFOME5ySi9LZVBzbXR5ble9PSIsInZhbHVIjjoicnZ1eHFkQjdVZ3hyRGRzZmVFbCtadz09IiwibWFjIjoiZGU4MzU4ZDk3NWlyNjJmNzc1MjBjZmViYzgxMjJhMzIxMWM3ZjBjOWZkODgoNjg3ZGMzNThkODkwZjY3Y2I3NyIsInRhZyI6IiJ9>
- [10] <https://skkni.kemnaker.go.id/tentang-kkni/penyetaraan-jenjang>
- [11] <https://sidia.kemenperin.go.id/competency/skkni/index/13/o>
- [12] <https://www.tandfonline.com/doi/full/10.1080/23311975.2024.2402083#top-content-scroll>
- [13] <https://www.diklat.online/>
- [14] <https://www.landesia.org/>
- [15] <https://www.landesia.org/qas-national-advocacy-local-resilience-womens-land-rights-climate-change-south-asia/>
- [16] <https://www.uri.org/who-we-are/mission>
- [17] https://www.uri.org/benefits_energizing_CCs
- [18] <https://www.uri.org/uri-story/20210202-unep-faith-earth-initiative-and-uri-respond-climate-crisis>

References

3: ARI Values and Campus Design

Asian Rural Institute. *2010 Annual Report*. < <https://ari.ac.jp/wp-content/uploads/2020/07/2010-Annual-Report-EN.pdf>> Accessed 10 Feb 2025.

Asian Rural Institute. *Annual Report 2011-2012*. < <https://ari.ac.jp/wp-content/uploads/2020/07/2011-Annual-Report-EN.pdf>> Accessed 13 Feb 2025.

Asian Rural Institute. *2012 Annual Report*. < <https://ari.ac.jp/wp-content/uploads/2020/07/2012-Annual-Report-EN.pdf>> Accessed 13 Feb 2025.

Asian Rural Institute. *2014 Annual Report*. < <https://ari.ac.jp/wp-content/uploads/2020/07/2014-Annual-Report-EN.pdf>>. Accessed 13 Feb 2025.

Asian Rural Institute. “Campus and Facilities.” Asian Rural Institute website. Accessed 14 Feb 2024. < <https://ari.ac.jp/en/campus/>>

Asian Rural Institute. “What We Value.” Asian Rural Institute website. Accessed 14 Feb 2025. < <https://ari.ac.jp/en/values/>>

Thorbeck, Dewey. *Rural Design: A New Design Discipline*. New York: Routledge, 2012.

4: ARI and Climate Resiliency

Alavipanah, S., Wegmann, M., Qureshi, S., Weng, Q., & Koellner, T. (2015). The Role of Vegetation in Mitigating Urban Land Surface Temperatures: A Case Study of Munich, Germany during the Warm Season. *Sustainability*, 7(4), 4689–4706. <https://doi.org/10.3390/su7044689>

Beck, H. E., Zimmermann, N. E., McVicar, T. R., Vergopolan, N., Berg, A., & Wood, E. F. (2018). Present and future Köppen-Geiger climate classification maps at 1-km resolution. *Scientific Data*, 5(1), 180214. <https://doi.org/10.1038/sdata.2018.214>

Domeisen, D. I. V., Eltahir, E. A. B., Fischer, E. M., Knutti, R., Perkins-Kirkpatrick, S. E., Schär, C., et al. (2023). Prediction and projection of heatwaves. *Nature Reviews Earth & Environment*, 4(1), 36–50. <https://doi.org/10.1038/s43017-022-00371-z>

Ebi, K. L., Capon, A., Berry, P., Broderick, C., de Dear, R., Havenith, G., et al. (2021). Hot weather and heat extremes: health risks. *The Lancet*, 398(10301), 698–708. [https://doi.org/10.1016/S0140-6736\(21\)01208-3](https://doi.org/10.1016/S0140-6736(21)01208-3)

- Egli, L., Schröter, M., Scherber, C., Tschardt, T., & Seppelt, R. (2020). Crop asynchrony stabilizes food production. *Nature*, 588(7837), E7–E12. <https://doi.org/10.1038/s41586-020-2965-6>
- Ellena, M., Breil, M., & Soriani, S. (2020). The heat-health nexus in the urban context: A systematic literature review exploring the socio-economic vulnerabilities and built environment characteristics. *Urban Climate*, 34, 100676. <https://doi.org/10.1016/j.uclim.2020.100676>
- Eyring, V., Bony, S., Meehl, G. A., Senior, C. A., Stevens, B., Stouffer, R. J., & Taylor, K. E. (2016). Overview of the Coupled Model Intercomparison Project Phase 6 (CMIP6) experimental design and organization. *Geoscientific Model Development*, 9(5), 1937–1958. <https://doi.org/10.5194/gmd-9-1937-2016>
- Fahad, S., Bajwa, A. A., Nazir, U., Anjum, S. A., Farooq, A., Zohaib, A., et al. (2017). Crop Production under Drought and Heat Stress: Plant Responses and Management Options. *Frontiers in Plant Science*, 8. <https://doi.org/10.3389/fpls.2017.01147>
- Heaviside, C., Macintyre, H., & Vardoulakis, S. (2017). The Urban Heat Island: Implications for Health in a Changing Environment. *Current Environmental Health Reports*, 4(3), 296–305. <https://doi.org/10.1007/s40572-017-0150-3>
- IPCC. (2023). *Climate Change 2021 – The Physical Science Basis: Working Group I Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/9781009157896>
- Japan Meteorological Agency | Tables of Monthly Climate Statistics. (n.d.). Retrieved February 12, 2025, from <https://www.data.jma.go.jp/obd/stats/data/en/smp/index.html>
- Knutson, T., Camargo, S. J., Chan, J. C. L., Emanuel, K., Ho, C.-H., Kossin, J., et al. (2019). Tropical Cyclones and Climate Change Assessment: Part I: Detection and Attribution. *Bulletin of the American Meteorological Society*, 100(10), 1987–2007. <https://doi.org/10.1175/BAMS-D-18-0189.1>
- Luo, X., Vahmani, P., Hong, T., & Jones, A. (2020). City-Scale Building Anthropogenic Heating during Heat Waves. *Atmosphere*, 11(11), 1206. <https://doi.org/10.3390/atmos11111206>
- Normile, D. (2019). Deadly typhoon forces Japan to face its vulnerability to increasingly powerful storms. *Science Insider*. <https://doi.org/10.1126/science.aaz9495>
- Raymond, C., Matthews, T., & Horton, R. M. (2020). The emergence of heat and humidity too severe for human tolerance. *Science Advances*, 6(19), eaaw1838. <https://doi.org/10.1126/sciadv.aaw1838>
- Riahi, K., van Vuuren, D. P., Kriegler, E., Edmonds, J., O'Neill, B. C., Fujimori, S., et al. (2017). The Shared Socioeconomic Pathways and their energy, land use, and greenhouse gas emissions implications: An overview. *Global Environmental Change*, 42, 153–168. <https://doi.org/10.1016/j.gloenvcha.2016.05.009>

References

- Scafetta, N. (2024). Impacts and risks of “realistic” global warming projections for the 21st century. *Geoscience Frontiers*, 15(2), 101774. <https://doi.org/10.1016/j.gsf.2023.101774>
- Sultana, F. (2022). Critical climate justice. *The Geographical Journal*, 188(1), 118–124. <https://doi.org/10.1111/geoj.12417>
- Taha, H. (1997). Urban climates and heat islands: albedo, evapotranspiration, and anthropogenic heat. *Energy and Buildings*, 25(2), 99–103. [https://doi.org/10.1016/S0378-7788\(96\)00999-1](https://doi.org/10.1016/S0378-7788(96)00999-1)
- Triana, M. A., De Vecchi, R., & Lamberts, R. (2020). Building Design for Hot and Humid Climate in a Changing World. In N. Enteria, H. Awbi, & M. Santamouris (Eds.), *Building in Hot and Humid Regions: Historical Perspective and Technological Advances* (pp. 59–73). Singapore: Springer. https://doi.org/10.1007/978-981-13-7519-4_3
- Vahmani, P., Sun, F., Hall, A., & Ban-Weiss, G. (2016). Investigating the climate impacts of urbanization and the potential for cool roofs to counter future climate change in Southern California. *Environmental Research Letters*, 11(12), 124027. <https://doi.org/10.1088/1748-9326/11/12/124027>
- Vlock, L., & Jacobs, P. (2025). Temperatures Rising: NASA Confirms 2024 Warmest Year on Record - NASA. Retrieved March 12, 2025, from <https://www.nasa.gov/news-release/temperatures-rising-nasa-confirms-2024-warmest-year-on-record/>
- Zhang, C., Kazanci, O. B., Levinson, R., Heiselberg, P., Olesen, B. W., Chiesa, G., et al. (2021). Resilient cooling strategies – A critical review and qualitative assessment. *Energy and Buildings*, 251, 111312. <https://doi.org/10.1016/j.enbuild.2021.111312>
- Zhang, Y., Zhang, Z., Chen, D., Qiu, B., & Wang, W. (2020). Strengthening of the Kuroshio current by intensifying tropical cyclones. *Science*, 368(6494), 988–993. <https://doi.org/10.1126/science.aax5758>
- Zhao, L., Lee, X., Smith, R. B., & Oleson, K. (2014). Strong contributions of local background climate to urban heat islands. *Nature*, 511(7508), 216–219. <https://doi.org/10.1038/nature13462>

5: ARI and the Future of Farming in Japan

- “Countries with the Highest Rate of Population Decrease.” *DevelopmentAid*, DevelopmentAid, 30 Aug. 2024, www.developmentaid.org/news-stream/post/152772/top-20-countries-with-the-highest-rate-of-population-decline.
- Davison, Jeremy, and Ito Peng. “Views on immigration in Japan: Identities, interests, and pragmatic divergence.” *Journal of Ethnic and Migration Studies*, vol. 47, no. 11, 8 Jan. 2021, pp. 2578–2595, <https://doi.org/10.1080/1369183x.2020.1862645>.
- Faber, Becca. “Improved Immigration: Japan’s Solution to Its Population Crisis.” *Harvard International Review*, Harvard International Review, 30 Oct. 2024, hir.harvard.edu/improved-immigration-japan/.
- Fuhrmann-Aoyagi, Martina Bianca, et al. “Sustainability in Japan’s agriculture: An analysis of current approaches.” *Sustainability*, vol. 16, no. 2, 10 Jan. 2024, p. 596, <https://doi.org/10.3390/su16020596>.

- García del Portillo, Lourdes, and Pablo Martínez de Anguita. Liceos Rurales Online: ¿una Solución al Despoblamiento Rural?, 2024.
- Hara, Toshihiko. The Causes and Consequences of Depopulation in Japan, www.oeaw.ac.at/fileadmin/subsites/Institute/VID/PDF/Conferences/2021/Posters/B3_full-paper_Hara.pdf. Accessed 29 Apr. 2025.
- Hirano, Katsuya, and Tsubasa Takekawa. Farming in Japan: The Challenges and Potential | Mitsubishi Research Institute, Inc., www.mri.co.jp/en/knowledge/mreview/2023113.html. Accessed 29 Apr. 2025.
- “How Do Countries Fight Falling Birth Rates?” BBC News, BBC, 15 Jan. 2020, www.bbc.com/news/world-europe-5118616.
- “Japan - Agricultural Sector.” International Trade Administration | Trade.Gov, 2024, www.trade.gov/country-commercial-guides/japan-agricultural-sector.
- “Japan’s AI-Driven Agricultural Revolution: 5 Ways Farming Transforms -.” Farmonaut®, 23 Apr. 2025, farmonaut.com/asia/japans-agricultural-revolution-ai-iot-and-sustainable-farming-reshape-tokyos-food-future/.
- Kvalvaag, Alyssa Marie. “Integration as a solution to depopulation? producing the moral and loyal resident in policies aiming to attract and retain international migrants.” *Nordic Journal of Migration Research*, vol. 14, no. 1, 31 Jan. 2024, p. 7, <https://doi.org/10.33134/njmr.640>.
- Lee, Ivan. “Opportunities for Health Food Exports in Japan.” USDA Foreign Agricultural Service, 19 Mar. 2025, www.fas.usda.gov/data/opportunities-health-food-exports-japan.
- Otake, Tomoko. “Prejudice against Immigrants Explained in Numbers.” The University of Tokyo, www.u-tokyo.ac.jp/focus/en/features/z0508_00213.html. Accessed 29 Apr. 2025.
- Tsutsumi, Kenji. “Depopulation as a Regional Problem and Reality of Depopulation.” *Depopulation, Aging, and Living Environments*, Springer Singapore, 2020, pp. 17–58.
- Urata, Shujiro. “Combating Depopulation in Japan.” *East Asia Forum*, 5 Mar. 2024, eastasiaforum.org/2024/03/05/combating-depopulation-in-japan/.
- USDA. “Japan: Prime Minister Office Publishes Agriculture Policy Priorities for Government Economic Package.” USDA Foreign Agricultural Service, 28 Apr. 2025, www.fas.usda.gov/data/japan-prime-minister-office-publishes-agriculture-policy-priorities-government-economic.
- Yu, Zhonglei, et al. “The pattern and local push factors of rural depopulation in less-developed areas: A case study in the mountains of North Hebei Province, China.” *International Journal of Environmental Research and Public Health*, vol. 19, no. 10, 12 May 2022, p. 5909, <https://doi.org/10.3390/ijerph19105909>.

