# Cultural Research on Environmental Protection Strategies of Tsukuba City, Japan: How to Integrate Traditional and Modern Thoughts to Promote Environmental Protection

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Abstract: Tsukuba City, Japan, stands as a captivating example of a modern research and education hub. Our single-case study explored the potential for integrating traditional Japanese environmental philosophies with modern environmental protection practices in Tsukuba City. We employed a mixed-methods approach, first conducting a survey with 52 participants from various environmental and cultural disciplines. The survey assessed their knowledge of traditional philosophies, perceptions of current environmental practices, and attitudes towards integrating these approaches. Our findings revealed a moderate level of self-reported familiarity with traditional philosophies, along with a belief in their potential contribution to environmental protection. Regarding current practices, participants expressed a mix of positive and negative views, with some questioning the effectiveness of existing programs and advocating for a stronger focus on community engagement. Encouragingly, the survey indicated a generally positive attitude towards integrating traditional and modern approaches. The interviews highlighted a range of knowledge regarding traditional philosophies, with some participants expressing a desire to learn more. Perceptions of current practices were mixed, with concerns raised about the over-reliance on technological solutions. A key theme emerged around the importance of community engagement in environmental efforts. Our findings suggest a receptive environment for integrating traditional and modern approaches in Tsukuba City.
Keywords: Tsukuba City, Japan, Environmental Protection, Cultural, Traditional and Modern

## 1. INTRODUCTION

Tsukuba City, Japan, stands as a captivating example of a modern research and education hub. Established by the Japanese government in the 1960s, the city boasts a rich history and a unique cultural landscape (Ikeda et al., 2021; Song & Heritage, 2020). In 1963, the Japanese government under the second Ikeda Cabinet embarked on an ambitious project – the construction of a 4,000-hectare Science City in the Tsukuba area (Murakami, 2014; Nishimaki, 2001). The specific reasons behind selecting Tsukuba remain unclear, but historical records from the Committee on Basic Problems in the Tokyo Metropolitan Area offer some clues. Firstly, proximity played a key role.

Tsukuba's location, roughly 60 kilometres from Tokyo, facilitated convenient one-day trips between the two cities. This advantage contrasted with the other three candidate areas, all situated at least 100 kilometres away. Secondly, Lake Kasumigaura, Japan's second-largest lake situated 10 kilometres east of Tsukuba, offered a readily available source of water for both daily needs and research purposes. Thirdly, the Committee favoured Tsukuba's location on the Kanto Plain. The relatively flat terrain presented fewer construction challenges compared to the other contenders with more significant elevation differences. Finally, the enthusiastic support from Ibaraki Prefecture, the local governing body, such asly played a crucial role in securing Tsukuba's selection. The vision for the Science City was twofold: fostering a world-class environment for advanced research and education, while simultaneously alleviating the growing population and industrial pressures plaguing Tokyo. Cherry blossoms have long held a significant place in Japanese culture. As scholar Motoori Norinaga (1730-1801) expressed in a poem from 1790, he saw them as symbolic of the very essence of Japan (Bichler, 2023; Bolitho et al., 2020).. Norinaga such likened the blossoms reflecting the rising sun to the "heart of Yamato" (ancient Japan). This association between cherry blossoms and Japanese identity continues to resonate today. After a lengthy hiatus due to the global COVID-19 pandemic, Japan has seen a significant rise in tourist arrivals during March and April of 2023. This surge coincides with the captivating spectacle of *hanami*, the traditional cherry blossom viewing season. Visitors flock to parks, gardens, and forests to witness the ethereal beauty of the falling petals. Beyond the visual spectacle, *hanami* offers a delightful cultural experience, with a vast array of cherry blossom-themed sweets, snacks, and decorative items capturing the essence of this iconic symbol of Japanese nature. While appreciating the beauty of blooming flowers is a global practice, the deep respect for cherry blossoms in Japan has often been interpreted as evidence of a unique cultural trait – a profound "love for nature" or a sense of "harmony with nature." This association extends beyond the realm of romantic orientalist views held by tourists; it's a perspective shared by some Japanese scholars and citizens themselves (Brecher, 2000; Jimenez et al., 2021). The word "nature" seems deceptively simple because it is a common term used in everyday conversation. Yet, beneath its familiar surface lies a rich diversity of meanings and cultural implications. Some have even called it "perhaps the most complex word in the language" (Galton, 2018). "Nature" can encompass the physical environment, the totality of organic and inorganic matter, the laws governing natural phenomena, even the inherent character of people or the essence of things. It can refer to

creation itself or even a life force akin to a god. These are just a few examples of the diverse understandings associated with this single word. According to Ducarme and Couvet, similar to many European languages, the English term "nature" has its roots in the Latin noun "natura." (Ducarme & Couvet, 2020). This Latin word already embodied the various meanings we see in English today. "Natura" itself derives from "*natus*," the past participle of the verb "*nasci*," meaning "to be born" or "to come into existence" (Hane, 2018). Because of this complex etymological history, it's almost impossible to find a perfectly equivalent term in other languages, especially those outside the European cultural sphere where these specific understandings of nature originated. The concept of nature in Japan is multifaceted. Unlike the single, all-encompassing term used in English, the Japanese language employs a variety of words that capture the various aspects of the natural world. The traditional Japanese worldview doesn't have a singular "Nature", instead, it focuses on specific, ever-changing natural phenomena that are intricately woven into the fabric of human experience. This emphasis on interconnectedness is reflected in terms such as *sansui* (mountains and waters), *tenchi* (heaven and earth), and mono (things). These words primarily represent the material aspects of the environment (Brecher, 2000; Marcon, 2019). Further enriching this diversity of meaning, other terms delve deeper. Tennen signifies something inherently given by heaven, highlighting the idea of nature's inherent order. *Shinrabanshō* (vegetation in ten thousand forms) and *banbutsu* (ten thousand things) emphasize the vast variety and interconnectedness of the natural world. *Tenchibanbutsu* (ten thousand things under heaven and earth) reinforces this concept by encompassing everything within the natural realm. Finally, *fūdo* (wind and soil) refers to a region's specific climate, geography, and biological environment. Beyond the material world, the term sei describes the inner essence or quality of things and people. *Zōka* (creating change) embodies the force of creation, a Daoist concept that acknowledges nature's power to generate life (Brecher, 2000; Marcon, 2019). This rich vocabulary reflects a deep appreciation for the complexity and interconnectedness of the natural world in Japanese culture. In Japan, the field of environmental philosophy encompasses a rich diversity of perspectives. Three main trends can be identified: traditional, practical, and Westernized (Roulleau-Berger, 2021). The traditional trend delves into the wellspring of Japanese thought, drawing on philosophies such as Shintoism, Buddhism, Taoism, and Confucianism. For centuries, thinkers have explored the relationship between humanity and the natural world through spiritual and religious practices. A prominent example is the Zen Buddhist monk Dogen

(1200-1253), whose work examined this connection. Following the Meiji Restoration (1868-1912), a new wave of Japanese scholars emerged. Figures such as Tetsuro Watsuji (1889-1960) and Kumagusu Minakata (1867-1941) developed theories that highlighted the intricate links between humans, cultural identity, and the local environment, including the influence of climate. These scholars built upon the foundation of traditional thought while offering fresh perspectives on human-environment interactions. The practical trend in Japanese environmental philosophy is deeply rooted in grassroots activism (Ogawa, 2023; Rots, 2021). This movement can be traced back to the late 19th century with figures such as Shozo Tanaka (1841-1913), who led the fight against pollution from the Ashio Copper Mine. The movement gained wider public support in the 1960s in response to a series of severe industrial pollution incidents, most notably the Minamata mercury poisoning case. Artists and researchers played a crucial role in documenting and amplifying the voices of those impacted. For instance, Kazuko Tsurumi (1918-2006) and Iwao Munakata (1920-2007) conducted interviews with Minamata patients, revealing how many held animistic beliefs reflecting their traditional way of life close to nature. Later, in the 1980s, a new wave of activism emerged. Housewives who directly witnessed the consequences of environmental degradation became leaders in grassroots movements. These groups achieved success in court cases and raised public awareness about critical issues such as cleaning rivers contaminated by synthetic detergents. Furthermore, female writers such as Yayoi Aoki (1927-2009) and Reiko Watanuki (1928-2012) developed an ecofeminist critique within the Japanese context, highlighting the interconnectedness of environmental issues and social justice concerns. The third major trend in Japanese environmental philosophy is the engagement with Western thought (Figueroa, 2022; Hellyer, 2020). This trend involves the importation and discussion of Western environmental philosophies by Japanese scholars. By the 1990s, translations of works by prominent Western environmental thinkers became widely available, sparking discussions within Japanese academia. The work of German philosopher Hans Jonas, for example, proved particularly influential. Today, academic environmental philosophy in Japan continues to engage with Western philosophical traditions and literature. These three trends – traditional, practical, and Westernized – are not mutually exclusive. In fact, they often interact and influence each other. Traditional philosophies can inform the goals of grassroots movements, while academic discussions can provide frameworks for analysing environmental challenges. This rich diversity of perspectives contributes to a nuanced understanding of the relationship

between humanity and the natural world in Japan.

### 1.1 Rationale and Objective

Tsukuba City, Japan, presents a unique case study for understanding the intersection of cultural values and environmental protection strategies. This research project aims to explore how traditional Japanese philosophies and contemporary environmental practices can be integrated to promote a more sustainable future for the city. By examining both cultural beliefs and current policies, we hope to identify opportunities for a holistic approach to environmental protection in Tsukuba City. Our study embarks on a cultural exploration of environmental protection strategies within Tsukuba City. Our research investigates how the city can leverage its cultural heritage, particularly traditional ecological knowledge (TEK), to promote sustainable practices alongside modern environmental solutions.

## 2. METHODS

### 2.1 Study Design

Our research employed a single-case study design, focusing on Tsukuba City, Japan to explore the integration of traditional and modern environmental protection strategies in this unique urban landscape, we conducted a semi-structured interview process and administered surveys. With prior approval from the Institutional Review Board (IRB) and ensuring informed consent from all participants, we recruited a diverse group of 58 individuals from the University of Tsukuba. This sample included participants from various environmental and cultural disciplines, fostering a rich range of perspectives. All interviews were conducted anonymously to encourage open and honest dialogue.

### 2.2 Data Collection

In the first phase of our single-case study conducted at the University of Tsukuba, Japan (October 2023 - February 2024), we administered an online quantitative survey consisting of 18 questions to gather initial data from a broad range of participants. The survey targeted a sample of 58 individuals, ultimately yielding 52 completed responses and designed to be completed in approximately 15-20 minutes and consisted of multiple-choice and Likert scale questions. The questions explored participants' general knowledge of traditional Japanese environmental philosophies, their perception of current environmental practices in Tsukuba City, and their attitudes towards integrating these approaches for a more sustainable future. In the second

phase, following the initial quantitative survey, we conducted in-depth interviews with a selected group of 10 participants from the University of Tsukuba. These interviews, conducted between October 2023 and February 2024, aimed to gain a deeper understanding of individual perspectives on environmental protection strategies in Tsukuba City. Each interview lasted approximately 20-25 minutes and employed a semi-structured format, consisting of open-ended questions designed to explore participants' knowledge of traditional Japanese environmental philosophies, their views on current environmental practices in the city, and their ideas for integrating these approaches for a more sustainable future.

### 2.3 Data Analysis

Quantitative data analysis was conducted in GraphPad Prism Statistical software version 9.5.1 at a statistical significance of 5%. Descriptive statistics involved means, standard deviations, frequencies and percentages. Inferential statistics involved utilising independent samples t-test to examine differences between comparative groups. Thematic analysis was employed to identify recurring themes and patterns within the interview data. This analysis allowed us to understand the participants' views on traditional Japanese philosophies related to nature, current environmental practices in Tsukuba City, and their perspectives on the potential for integrating these approaches for a more sustainable future.

## 3. RESULTS

A total of 52 participants were surveyed, with the majority falling within the 18–24-year-old age range (22, 42.3%). Gender identity was split relatively evenly among male (28, 53.8%), female (22, 42.3%), and non-binary/other (2, 3.8%) participants (see Figure 1).

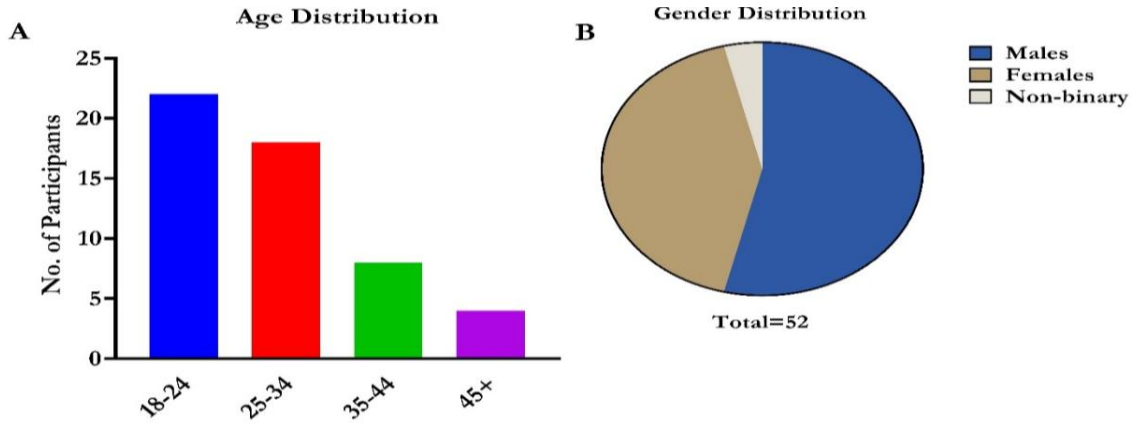


**Figure 1:** Column Charts (A) Showing the Distribution of Participants based on Age Groups and a Pie Chart (B) Showing the Gender-Based Distribution.

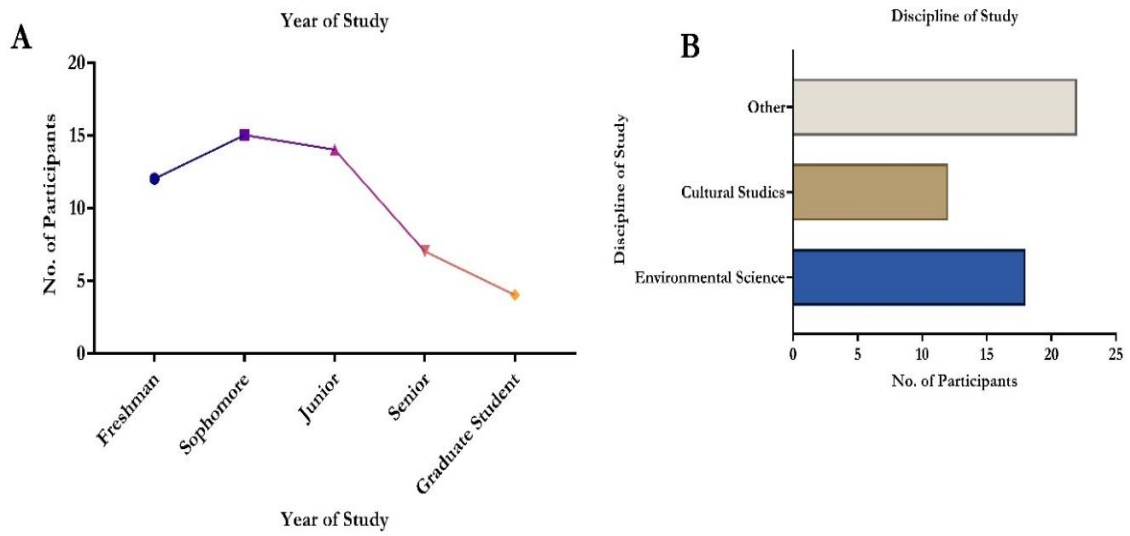


**Figure 2:** A Line Chart Distribution of the Number of Participants based on the Academic Level or Year of Study (A) and a Column Chart Showing the Distribution based on Discipline of Study (B).

In terms of academic background, year of study ranged from freshman (12, 23.1%) to graduate student (4, 7.7%), with the largest group being sophomores (15, 28.8%). Disciplines were spread across Environmental Science (18, 34.6%), Cultural Studies (12, 23.1%), and Other (This category includes disciplines such as Biology, Engineering, Social Sciences, etc.) (22, 42.3%) (see Figure 2).

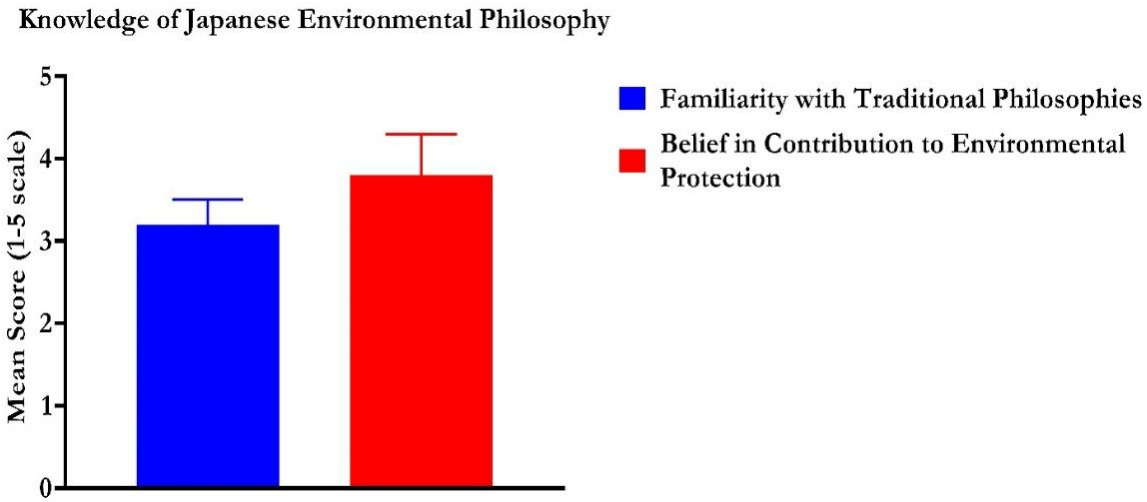


**Figure 3:** A Comparative Bar Chart Showing the Knowledge of Traditional Japanese Environmental Philosophies

In Figure 3, Fifty-two participants responded to survey questions regarding traditional Japanese environmental philosophies. On a scale of 1 to 5, self-reported familiarity with these philosophies yielded a moderate average score of 3.2 (SD = 0.3), while belief in their contribution to environmental protection received a higher average score of 3.8 (SD = 0.5).

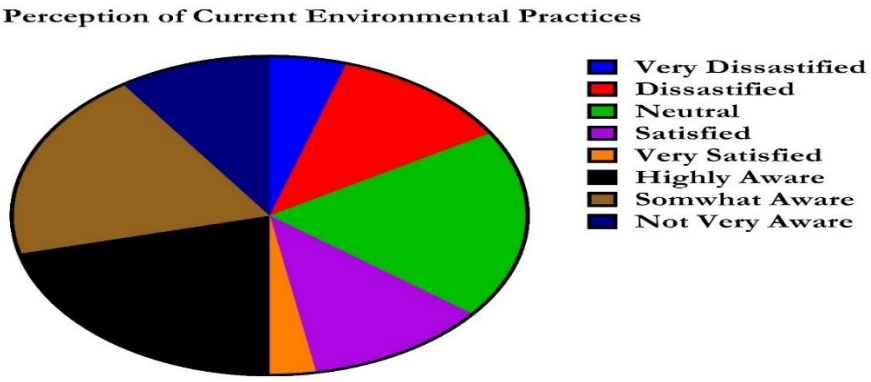


**Figure 4:** A Pie Chart Distribution of the Perception of Current Environmental Practices

In Figure 4, A survey of 52 participants revealed mixed perceptions of current environmental practices in Tsukuba City. Over a quarter (23.1%) expressed dissatisfaction, while a similar proportion (23.1%) were satisfied. The largest group (38.5%) remained neutral. Regarding awareness of specific environmental programs, a significant portion (42.3%) reported being highly aware, with 38.5% somewhat aware and 19.2% not very aware.

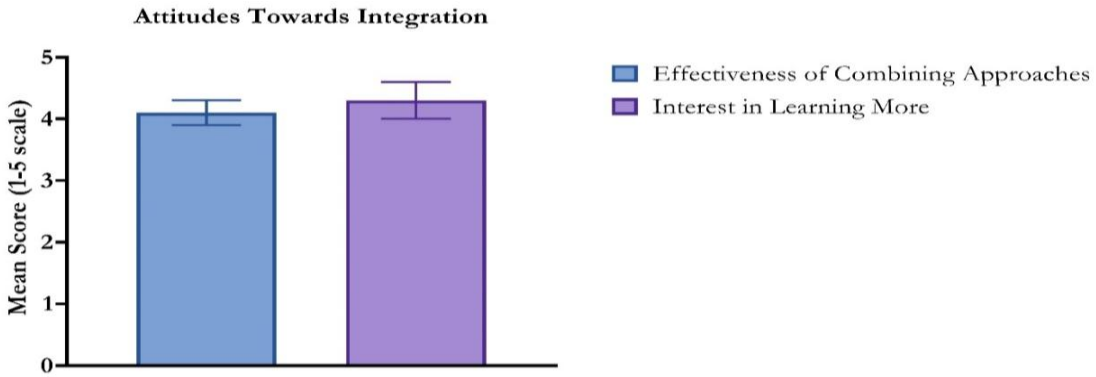


**Figure 5:** Participants Reported Attitudes Towards Integration based on the Effectiveness of Combining Modern and Traditional Approaches to Environmental Protection (A) and the Interest in Learning More (B).

In Figure 5, Fifty-two participants indicated generally positive attitudes towards integrating traditional and modern environmental protection approaches. The average score for perceived effectiveness of combining these approaches was 4.1 (SD = 0.7), and interest in learning more about such integration received an even higher average score of 4.3 (SD = 0.6).

Table 1: Independent Samples T-Test for Attitudes Towards Integration: Comparing the Attitudes of Participants from Environmental Science Vs. Other Disciplines Regarding the Importance of Traditional Philosophies

| Group | Mean Score | Standard Deviation | t-value | p-value |
|---|---|---|---|---|
| Environmental Science | 4.3 | 0.7 | 1.58 | 0.12 (not significant) |
| Other Disciplines | 4 | 0.9 | | |

In Table 1, An independent samples t-test (n=52) revealed no statistically significant difference ($t = 1.58$, $p = 0.12$) in attitudes towards integrating traditional and modern environmental approaches between Environmental Science students ($M = 4.3$, $SD = 0.7$) and students from other disciplines ($M = 4.0$, $SD = 0.9$). Both groups held generally positive views on the importance of combining these approaches.

Table 2: Knowledge of Traditional Japanese Environmental Philosophies

| Theme | Description | Supporting Quote |
|---|---|---|
| Limited Awareness: | Many participants expressed a general lack of in-depth knowledge about specific traditional Japanese environmental philosophies. | "While I've heard terms such as Shintoism and nature connection, I wouldn't say I know much about their environmental aspects." |
| Vague Recognition: | Some participants acknowledged a sense of traditional environmental values existing in Japanese culture, but struggled to articulate specific details. | "There's definitely a respect for nature here, but I can't pinpoint the exact philosophies behind it." |
| Interest in Learning More: | Despite limited knowledge, several participants expressed interest in learning more about how traditional philosophies could connect to environmental protection. | "It would be interesting to see how these old ideas could be relevant to solving today's environmental problems." |

In Table 2, Interviews revealed a range of knowledge regarding traditional Japanese environmental philosophies. Many participants (limited awareness) acknowledged terms such as Shintoism and nature connection, but lacked in-depth knowledge ("I wouldn't say I know much about their environmental aspects"). Others (vague recognition) felt a general respect for nature in Japanese culture, but struggled to pinpoint specific philosophies. Despite these limitations, several participants (interest in learning more) expressed a desire to understand how traditional philosophies could connect with environmental protection efforts. ("It would be interesting to see how these old ideas could be relevant...")

Table 3: (a) Views on Current Environmental Practices in Tsukuba City

| Theme | Description | Supporting Quote |
|---|---|---|
| Mixed Perceptions: | Participants expressed a range of views on the effectiveness of current environmental practices in Tsukuba City. | "There are definitely recycling programs and green spaces, but I'm not sure how much impact they have on the bigger picture." |

Table 3: (b) Views on Current Environmental Practices in Tsukuba City

| Theme | Description | Supporting Quote |
|---|---|---|
| Focus on Technological Solutions: | Some participants perceived a reliance on technological solutions (e.g., waste-to-energy plants) over broader cultural shifts. | "We seem more focused on high-tech solutions than building a culture of environmental responsibility." |
| Need for Community Engagement: | Several participants emphasized the importance of engaging the community more actively in environmental efforts. | "People need to feel connected to the environment, not just follow rules set by authorities." |

In Table 3, Interviews exposed a mix of perspectives on Tsukuba City's environmental practices. Some participants acknowledged existing programs (mixed perceptions) but questioned their overall impact ("*not sure how much impact*"). Others highlighted a focus on technological solutions (e.g., waste-to-energy) over cultural change ("*high-tech solutions*"). A recurring theme (need for community engagement) emphasized the importance of actively involving the community in environmental efforts, fostering a sense of connection and responsibility beyond following regulations.

Table 4: Ideas for Integrating Traditional and Modern Approaches

| Theme | Description | Supporting Quote |
|---|---|---|
| Education and Awareness: | Participants highlighted the need for educational programs that integrate traditional philosophies with modern environmental science. | "Schools could teach about the connection between nature and well-being in Japanese culture, alongside scientific concepts of sustainability." |
| Values-Based Initiatives: | Some participants suggested incorporating traditional values, such as respect for nature, into the design and implementation of environmental practices. | "Maybe environmental campaigns could be framed around the idea of preserving nature for future generations, similar to the concept of filial piety." |
| Community-Driven Projects: | Several participants advocated for community-driven projects that encourage traditional practices with environmental benefits (e.g., community gardens based on permaculture principles). | "Local initiatives that combine traditional knowledge with sustainable practices could foster a sense of ownership and responsibility." |

In Table 4, analysis of interview data revealed valuable insights on

integrating traditional and modern environmental approaches. A key theme (education and awareness) stressed the need for educational programs that bridge the gap between traditional philosophies and modern science. Participants suggested incorporating these philosophies ("Schools could teach..."). Another theme (values-based initiatives) focused on embedding traditional values, such as respect for nature, into environmental practices ("environmental campaigns..."). Finally, the concept of (community-driven projects) emerged, advocating for local initiatives that combine traditional knowledge with sustainable practices ("Local initiatives..."). These findings suggest a strong desire to leverage both traditional wisdom and modern science for a more sustainable future.

## 4. DISCUSSION

Our findings revealed a moderate level of self-reported familiarity with traditional philosophies, along with a belief in their potential contribution to environmental protection. Regarding current practices, participants expressed a mix of positive and negative views, with some questioning the effectiveness of existing programs and advocating for a stronger focus on community engagement. Encouragingly, the survey indicated a generally positive attitude towards integrating traditional and modern approaches. Japan's relationship with nature is complex. Despite the deep reverence for cherry blossoms in Japan, the country has also faced criticism from international media and environmental groups for its role in environmental pollution and destruction (Kirby, 2010; Reader & Kuebbing, 2021). The infamous Minamata mercury poisoning incident of the 1950s serves as a stark reminder of this environmental impact. Even in the 21st century, concerns linger regarding Japan's environmental policies compared to other industrialized nations' efforts to conserve biodiversity, reduce waste, and combat climate change (Sakaguchi et al., 2021). This raises a critical question: how can a culture that celebrates nature so deeply also contribute to its destruction? This question of reconciling cultural reverence for nature with environmental damage has been explored by numerous scholars. Some argue for a historical shift. They posit that traditional, pre-industrial Japan fostered a harmonious relationship with nature. These scholars often implicitly or explicitly blame the introduction of the Western "culture-nature dualism" during the Meiji Restoration (1868-1912) for the onset of environmental destruction in Japan (Kagawa-Fox, 2012, 2017; Suzuki, 2019). However, other scholars disagree. They argue that the pre-modern Japanese view of nature and its exploitation were not inherently

contradictory. They point out that throughout Japanese history, human manipulation of the environment has been prevalent and culturally accepted (De Vos, 2024). This contrasting perspective highlights the complexity of understanding how cultural values and environmental actions intertwine. Similar studies (Holroyd, 2018; Sterner & Robinson, 2018) have alluded that Japan's environmental policy has historically employed a mix of regulatory and market-based instruments. In the 1960s and 1970s, the country faced severe air pollution issues due to rising sulfur oxide (SOx) and nitrogen oxide (NOx) emissions. One response was a sulfur charge, intended to raise funds for programs compensating victims of air pollution, rather than directly incentivize lower emissions. This levy was implemented alongside a voluntary quantity control regulation. Research by Arimura et al. suggests that the quantity control approach proved more effective in reducing overall emissions than the pollution charge, which may not have been set at a high enough level to significantly discourage polluting activities (Arimura et al., 2019). One of our key findings is the need for educational programs that bridge the gap between traditional philosophies and modern science. Incorporating educational initiatives that explore the link between nature and well-being within Japanese culture, alongside scientific concepts such as sustainable resource management and biodiversity conservation. Furthermore, this integration could lead to more effective environmental protection strategies. Moreover, our study suggests incorporating traditional values, such as respect for nature (*Mottainai*), into the design of environmental initiatives. Environmental campaigns could be framed around preserving nature for future generations, resonating with the concept of filial piety to foster a deeper connection and responsibility towards the environment. Similarly, Japan's Voluntary Emissions Trading Scheme (JVETS), while not a mandatory program, represents another attempt to utilize market forces for greenhouse gas reduction. These examples highlight the ongoing discussions within Japan regarding the most effective strategies for environmental protection. Environmental technology plays a critical role in achieving effective and economical pollution control (Mughal et al., 2022; Ren, 2000). However, the effectiveness and economic impact of these technologies can vary greatly. A wide range of environmental technologies exist, addressing everything from waste management and air pollution control to wastewater treatment. Additionally, some technologies focus on resource conservation, promoting renewable energy sources, improving energy efficiency, and developing energy-saving products. Since market demand and costs associated with developing these technologies

can differ significantly, it's crucial to consider the unique characteristics of each type of environmental technology. A clear understanding of these characteristics is essential for designing an "economical and effective environmental technology invention system." By carefully evaluating the strengths and limitations of various technologies, we can prioritize research and development efforts that deliver the greatest environmental benefit. We suggest that the concept of community-driven projects emerged as a powerful strategy. Local initiatives that combine traditional knowledge with sustainable practices could be established. For example, community gardens based on permaculture principles, a design system mimicking natural ecosystems, could be created. These projects could not only promote sustainable food production but also foster a sense of ownership and responsibility for environmental protection among residents. Furthermore, community engagement and other collaborative projects create a platform for knowledge sharing and collective action towards sustainability. Our thematic analysis highlighted a range of knowledge regarding traditional philosophies, with some participants expressing a desire to learn more. Perceptions of current practices were mixed, with concerns raised about the over-reliance on technological solutions. A key theme emerged around the importance of community engagement in environmental efforts. A similar study by Jingu examined the persistence of natural patches within the urban landscape of Tsukuba Science City, Japan (Jingu, 2020). They explored how these green spaces have been managed and how land ownership and use have changed over the past 130 years. Their investigation began by identifying clusters of urban grasslands and forested areas that have existed since the 2010s. They then focused on undeveloped green spaces that have remained since the 1880s, despite the city's rapid urbanization after the 1970s. These remnant patches were often found near rural communities, research institutions, planned development sites, and golf courses. These findings align with our study and underscore the need for diverse conservation strategies to maintain these vital urban green spaces. Further research is necessary to fully understand the ecological benefits provided by these remnant patches. By studying their role in the urban ecosystem, we can inform the development of effective policies for the preservation and management of urban green spaces. In Japan, discussions about the human-nature relationship often portray the Western, Euro-American view as inherently dualistic. This perspective suggests a conceptual chasm separating a superior human realm from an inferior, non-human realm of nature. The roots of this divide and devaluation of nature are frequently traced back to both ancient Greek

philosophy and Judaeo-Christian cosmology. Within this framework, humans are positioned as the crown jewel of creation, with all of non-human nature existing solely as a tool to serve human needs. In discussions about the human-nature relationship, the traditional East Asian view often stands in stark contrast to the Western perspective. While the West is often seen as emphasizing a separation between humans and the natural world, East Asian traditions are frequently described as promoting a more holistic view. In this Eastern framework, humans and the non-human environment are seen as interconnected, existing on an equal footing or even with nature holding a higher spiritual status (Kasulis, 2019; Mayeda, 2020; Wirth, 2022). This emphasis on interconnectedness is heavily influenced by religious philosophies such as Buddhism, Shintoism, Confucianism, and Daoism (Kagawa-Fox, 2017). These belief systems provide a foundation for understanding the relationship between humanity and the natural world in East Asia. We propose that Tsukuba City has a unique opportunity to leverage discussions about the traditional Japanese relationship with nature for environmental protection efforts. Integrating traditional philosophies such as Shintoism's reverence for nature into school curriculums fosters a deeper appreciation for the natural world and a sense of responsibility towards its preservation. Moreover, organising nature walks or workshops led by experts in traditional practices such as *Shinrin-yoku* (forest bathing) can help residents reconnect with nature and understand its importance. Additionally, traditional practices, informed by the human-nature relationship in Japan, can be adapted for modern environmental protection. For example, water management techniques used in rice cultivation or gardening practices focused on minimizing waste could be incorporated into community projects. The traditional East Asian view of nature is often described as holistic and interconnected, stands in contrast to the perceived Western perspective that emphasizes separation. This distinction can lead some to believe that the higher status of nature in East Asia translates to a more harmonious relationship with the environment, while the West's supposed devaluation of nature leads to environmental degradation (Kagawa-Fox, 2012; Marcon, 2019). However, scholars point out the complexities of this simplistic view. Several researchers (Hoeg, 2020; Jones et al., 2022) highlight the gap between theory and practice, demonstrating that even cultures with seemingly nature-centric values can engage in practices harmful to the environment. A deeper exploration is needed to understand the nuances of how cultural values and environmental actions intertwine. We found that the interviews yielded valuable suggestions for integrating traditional and modern approaches,

including educational programs that bridge the gap between philosophies and science, incorporating traditional values into environmental initiatives, and fostering community-driven projects that combine traditional knowledge with sustainable practices. We propose that constantly encouraging community-driven projects that combine traditional knowledge with sustainable practices such as gardens, waste management and water management can be beneficial in environmental protection and healthy ecosystem within the city. For instance, waste management involves a series of actions aimed at reducing, reusing, and recycling waste materials. Strategies such as minimize waste generation at the source. This involves promoting practices like using reusable bags, buying products with minimal packaging, and composting food scraps. A comprehensive waste management strategy for Tsukuba City in can be employed on a multi-pronged approach. It should be focused on source reduction by promoting reusable bags, minimal packaging, and composting, while also encouraging product life extension through repair and durable design. Waste reuse was advocated through donation, refilling containers, and reusable alternatives. Repurposing initiatives involved transforming old clothes into cleaning cloths or using jars for storage. An effective collection system separated waste streams for proper sorting and processing at Material Recovery Facilities (MRFs). Strong recycling markets ensured these materials were turned into new products. Organic waste was diverted from landfills through composting, while incineration in Waste-to-Energy Facilities served as a last resort due to air pollution concerns. Landfills remained for waste that couldn't be recycled or composted, but proper management minimized environmental impacts.

## 5. CONCLUSION

Our study explored the potential for integrating traditional Japanese environmental philosophies with modern environmental practices in Tsukuba City. While the sample size (n=52) limits generalizability, the findings offer valuable insights. Participants expressed a moderate level of knowledge about traditional philosophies and a positive outlook on their contribution to environmental protection. However, mixed perceptions of current practices and a need for increased community engagement were identified. Thematic analysis of interviews highlighted the importance of education, incorporating traditional values, and fostering community-driven projects. Future research could explore specific program designs and community engagement strategies to refine and test the integration of

these approaches in a real-world setting. This combined approach has the potential to create a more holistic and sustainable environmental protection strategy for Tsukuba City.

## 6. FUNDING

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