

JAPAN AND THE ENVIRONMENT: LESSONS FOR THE WORLD

Proceedings of the 32nd Annual Conference of the Japan Studies Association of Canada
October 3 - 6, 2019
Mount Allison University



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Introduction

The 32nd annual conference of the Japan Studies Association of Canada (JSAC) was held at Mount Allison University in Sackville, NB from October 3-6, 2019. The theme of the conference was “Japan and the Environment: Lessons for the World.” With the ominous warnings coming from the IPCC, Northern Canada’s accelerated warming, and ongoing debates over the new carbon tax, an environmental theme for the conference seemed most fitting.

Japan is no stranger to cataclysmic environmental disasters, both natural and human-made. Its experience with the externalities of rapid industrial development at two points in its modern history, for example, offers valuable insights into understanding how we have arrived at this point in world history and may also offer suggestions as to how we can address the challenges that lie before us. Japan also has deep aesthetic and spiritual connections to the natural world that are reflected in its literary, philosophical, and artistic traditions. Japan’s diverse engagements with the natural world may provide thoughtful reminders of our interconnectedness with the environment as we move further into the 21st century.

The issues surrounding global warming and climate change manifest themselves at all levels of the world’s societies, from cultural and social practices to economic activity and government policy. We were fortunate to have a robust and diverse collection of papers addressing many of these issues as they related to Japan and its relationship with other peoples of the world. Topics ranged from tourism and the Olympic Games to contemporary issues in sustainable living, pollution control, and energy conservation. Rounding out the presentations, were papers on contemporary politics, language and popular culture, and philosophical and aesthetic explorations of Japan’s past and present.

Complementing the high quality of presentations was an exceptional slate of keynote speakers. Beginning close to home, the conference opened with an informative discussion of the Gulf of St Lawrence crab fishery and its relationship to Japan by former Fisheries and Oceans scientist Moriyasu Mikio. This was followed by a stimulating presentation on the relationship between the state and nuclear power in Japan by noted historian Jeff Kingston. Conference attendees were also treated to an excellent talk on the Greenhouse Effect by physicist Jean-Francois Bisson, followed by a powerful account detailing new research on the Minamata poisoning case dating back to the 1950s by Ingrid J. Pickering and Graham George. Shifting gears slightly, attention then turned to economist Osawa Machio’s fascinating presentation on the Japanese government’s failures to more fully integrate women’s participation in Japan’s economic recovery plans. Rounding out the keynote presentations was an exceptional discussion on the state of Japan studies by the eminent historian Laura Hein, who is currently General Editor of the new Cambridge History of Japan due to be released in 2023.

These proceedings contain a small sampling of the many fine papers given at the conference. Jay Goulding kicks things off with a lively discussion of Buddhist monk and Sōtō School Founder, Dōgen (1200-1253). Goulding highlights the impact of Daoism on Dōgen’s thinking and also offers some interesting parallels with the much later work of German philosopher Martin Heidegger. Next up, Susan Lee brings us into the contemporary world with a thoughtful assessment of the Japanese government’s *Universal Design 2020 Action Plan* created for the 2020 Olympics. Among other things, Lee addresses the possible consequences of such a plan for Tokyo and Japan more broadly after the Olympics are over. From there, we move to David Edgington’s evaluation of the proposal to merge Osaka City and the Osaka government into a single metropolitan unit. Edgington traces the decade-long evolution of the proposal,

paying particular attention to the interplay of local and national politics. Finally, Tom Waldichuk offers a fascinating examination of the tension between the use of solar panels on unused farmland and the sustainability of farming itself. Waldichuk explores the pros and cons of solar panel use on farmland, their ability to generate significant revenue, and the degree to which the two can coexist.

Aided by exceptional fall weather in southern New Brunswick, the 32nd JSAC Conference was a resounding success with the range of topics and papers complementing the diversity of its members and their various areas of research and teaching. As always, JSAC is profoundly indebted to the ongoing support of the Japan Foundation and its Toronto representative Shimizu Yuko. We also want to acknowledge the Canadian Studies Program and the Departments of History and Geography and Environmental Studies at Mount Allison for their financial contributions. Thanks also to my colleagues Oe Miyako and Tim Reiffenstein, and Brittany Jones, Admin Assistant for History, Canadian Studies, and Women's and Gender Studies. I also want to acknowledge the great work done by our student assistants Ae Minaho, Arima Eri, Hori Suzuka, Katayama Seema, Ohashi Eri, and Gorkem Malkoclu. Last but not least, thank you to all those who travelled long distances to attend this year's conference in the Canadian far east as well as to my JSAC colleagues who helped bring this all together.

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“Dōgen’s *Jinzū* 神通,” Jay Goulding, Dept. of Social Science, York University, Toronto

Abstract: In 1223, Dōgen Zenji (1200–1253) lives for four years in China at several Buddhist monasteries. His return to Japan marks the creation of Sōtō style seated meditation as exemplified in the rarely read *Fukanzazengi*. Dōgen is influenced by Daoist inspired texts such as the Chan monk Yongming Yanshou’s (904-975) *zongjinglu* (*Record of the Source Mirror*), a manual on the supernatural that emphasizes miracles. Remarkably, the phenomenologist Martin Heidegger (1889-1976) creates a parallel world to Dōgen with his idea of *Schritt zurück* (the step back) which shadows the Zen master’s *taiho* (step back). Dōgen calls the supernatural *jinzū* (the passage of the gods) but ironically dismisses its small miracles in favour of the big miracles of everyday life – breathing, sitting and gazing at the moon.

Introduction¹

In 1223, Dōgen Zenji (1200–1253) travels to China on a four-year sojourn to live at various Buddhist monasteries. When he returns to Japan, he revolutionizes Zen with the creation of Sōtō style seated meditation as exemplified in the rarely read *Fukanzazengi* 普勸坐禪儀, *Universally Recommended Instructions for Zazen* of 1233.² He subtly alters the perception of nature and environment coming from Daoism with the hint of esoteric texts such as the Chan monk Yongming Yanshou’s 永明延壽 (904-975) *Zōng jìng lù* 宗鏡錄 (*Record of the Source Mirror*) written in 960, a manual on the supernatural. Yanshou engages five vital forms of supernatural power that Dōgen eventually turns back inside everyday experience on his way to creating a new Zen philosophy.

Although Dōgen does not directly mention this text, he explores a summary of its ramifications in “Miracles,” and also recalls a story regarding Yanshou, both appearing in the *Shobogenzo Zuimonki* (*The Treasury of the True Dharma Eye: Record of Things Heard*) of 1241. Collectively, Dōgen calls the supernatural phenomena *jinzū* 神通 (the passage through or permeation of the gods or *kami*); he then ironically dismisses it in all its forms as “small miracles” in favour of the “big miracles” of everyday life (such as breathing, sitting and looking at the moon). In doing so, he seems to shed some grandiose Indian Buddhist apertures in favour of humble Daoist essences of the everyday. Hence, he dismisses Zen wizardry in favour of a return to a natural environment.

The hermeneutic phenomenologist Martin Heidegger (1889-1976) creates a parallel universe to Dōgen with his idea of *Schritt zurück* (the step back) which shadows the Zen master’s *taiho* 退歩 (the step back). Heidegger too explains the doubling of the extra-ordinary back into the ordinary as the heart of everyday phenomenon – itself a manoeuvre resembling Dōgen’s existentialist twist. The contemporary monk and eminent Kyoto philosopher Tsujimura Kōichi (1922-2010) gives us this tidbit at Heidegger’s birthday party in 1969.³

¹ All translations are mine unless otherwise noted.

² Jay Goulding, “Japan-West Interculture: Time’s Step Back—Dōgen, Watsuji, Kuki and Heidegger,” in *Proceedings of the 31st Japanese Studies Association of Canada Annual Conference, Japan’s World and the World’s Japan: Images, Perceptions and Reactions*, eds. Aya Fujiwara and James White (Edmonton: University of Alberta, 2019), 1-26.

³ Tsujimura Kōichi, “Martin Heidegger’s Thinking and Japanese Philosophy,” *Epoché* 5, no. 2 (Spring 2008): 352.

Comparison versus Mutual Interpenetration of the Uncanny

If we wish to talk about inter-cultural texts, a crucial question arises: how is comparison possible? It would seem that many of the disciplines in professional academics that I have engaged in throughout the last forty years wish to raise to a near apothotic level, the idea of comparison: comparative philosophy, comparative religion, comparative sociology, comparative social science, comparative ideas, comparative cultures, comparative linguistics, comparative governments, comparative political theory and recently global comparative thought – a sub-discipline of social and political thought that I helped create with the renowned political theorist and historian Cary J. Nederman of Texas A and M.⁴ Yet few of these areas have addressed the *idea* of comparison itself. The Latin word verb *comparāre* means “to liken, to compare,” from *com* “with, together” + *par* “equal.” Of course, nothing compares with the Roman Empire – what is above it is *superstitio* as supernatural (standing aloof and thus not relevant), and what is below it is *falsum* (false and fallen); what is true to it is *certum* (certitude) or *veritas* (rectitude) – complete reconfigurations and often misconstructions of early Greek pre-Socratic terms.⁵ As part of the canon in contemporary Japanese philosophy in the last 100 years, Heidegger is one of the few scholars in the Western world to unpack these meanings and attend to their philosophical shifts. In fact, comparison is a relatively recent development. Ironically, the phrase “without compare” (from the 1530s) revised by folk etymology from *compeer* as “competitor” meaning “rival” or “adversary” (*with-ouen compere* from 1400) is more aptly stated as “without rival.” “Without compare” carries the sense of “without rival.” For centuries, it was the default for a person to be “without compare” as that which stands alone and above all others. Only in the contemporary world do we seem to value “compare” in a new sense as the goal of various intellectual fields that might inevitably reduce to the same under the spell of equality. The Chinese expression *duìzhào* 對照 means both *compare/contrast* as a noun (attributing to its ambiguity) and *juxtapose/contradistinguish* as a verb.

Likewise, the Japanese expression *taisho* 対照 as contrast, antithesis and comparison, stands in for the Western binary of “compare and contrast.” The Japanese etymology yields *tai* 対 (“place in opposition and compare”) + *shō* 照 (“check one thing against another”). This being said, there is no direct comparison possible between Dōgen and Western thinkers or probably between yesteryear and today.

In this case, both Dōgen and Heidegger respectively are *incomparable* in their own right. Hence, they can be understood only on their own accounts or in terms of their *own nature* and their *own environments*, such as it is. I understand *such as it is* as the Daoist *zìrán* 自然 or later the Japanese *shizen* 自然 as popularized in Meiji Japan from Daoist roots⁶: “self so; so of its own; so of itself” and “naturally; spontaneously; freely; in the course of events.”

⁴ Jay Goulding, “Barbarism and Civilization,” in *New Dictionary of the History of Ideas*, vol. 1, ed. Maryanne Horowitz (New York: Charles’ Scribner’s Sons, 2005), 195-197; “Globalization: Asia,” *New Dictionary of the History of Ideas*, vol. 3, ed. Maryanne Horowitz (New York: Charles’ Scribner’s Sons, 2005), 941-947; “Religion: East and Southeast Asia,” in *New Dictionary of the History of Ideas*, vol. 5, ed. Maryanne Horowitz (New York: Charles’ Scribner’s Sons, 2005), 2060-2064; “Society,” *New Dictionary of the History of Ideas*, vol. 5, ed. Maryanne Horowitz (New York: Charles’ Scribner’s Sons, 2005), 2238-2241; “Zen,” *New Dictionary of the History of Ideas*, vol. 6, ed. Mary Anne Horowitz (New York: Charles’ Scribner’s Sons, 2005), 2513-2514.

⁵ Martin Heidegger, *Parmenides* (Bloomington: Indiana University Press, 1998), 35-48.

⁶ Aldo Tollini, “Japanese Buddhism and Nature: Man and Natural Phenomena in the Quest for Enlightenment,” in *Rethinking Nature in Contemporary Japan*, eds. Bonaventura Ruperti, Sivlia Vesco and Carolina Negri (Venezia: Edizioni Ca’ Foscari, 2017), 82-83.

In Poem 25 of *Daodejing*, Lǎozǐ utters:

人法地，地法天，天法道，道法自然

Rén fǎ dì, dì fǎ tiān, tiān fǎ dào, dào fǎ zìrán

Humanity's law is the earth, the earth's law is heaven, heaven's law is the Way and the Way's law is such as it is.⁷

On advice from William Richardson (1920-2016), Heidegger's first English-speaking student of prominence in the 1950s, I draw attention to a later version of the famous fourfold—*sky-earth and mortals-gods*. In a 2004 personal conversation with Richardson in Boston, and in his writing, he professes that Heidegger told him that the idea of the fourfold came from Lǎozǐ.⁸ Heidegger's metaphor of the fourfold might owe something to pre-Socratic cosmology or to Aristotle but also to Daoism. Heidegger's 'fourfold oneness' might reflect the 'four greatnesses' (*Sì dà* 四大) also coming from *Daodejing*'s Poem 25: "the Way is great, Heaven is great, Earth is great, the King too is great" (*Dào dà tiān dà dì dà wáng yì dà* 道大天大地大王亦大).⁹ Both Heidegger's fourfold and the four greatnesses encompass a multiplicity of world shapings regarding nature and environment. Appropriately, Heidegger writes in 1927:

No matter how easy it may be to show how ontological problematics differ formally from ontical research there are still difficulties in carrying out an existential analytic, especially in making a start. This task includes a desideratum which philosophy has long found disturbing but has continually refused to achieve: to work out the idea of a 'natural conception of the world.' The rich store of information now available as to the most exotic and manifold cultures and forms of Dasein [ex-istence] seems favourable to our setting about this task in a fruitful way. But this is merely a semblance. At bottom this plethora of information can seduce us into failing to recognize the real problem. We shall not get a genuine knowledge of essences simply by the syncretistic activity of *universal comparison* [my emphasis] and classification. Subjecting the manifold to tabulation does not ensure any actual understanding of what lies there before us as thus set in order. If an ordering principle is genuine, it has its own content as a thing (*Sachgehalt*), which is never to be found by means of such ordering but is already presupposed in it. So, if one is to put various pictures of the world in order, one must have an explicit idea of the world as such. And if the 'world' itself is something constitutive for Dasein, one must have an insight into Dasein's basic structures in order to treat the world-phenomenon conceptually.¹⁰

So how can we proceed? In the last several decades, I have endeavoured to create a field in Chinese philosophy called "Daoist Phenomenology" which is the culmination of my research on classical Daoism melded with close textual readings of Heidegger's seminal interconnection

⁷ See <https://ccontext.org/dao-de-jing>.

⁸ William J. Richardson, *Heidegger: Through Phenomenology to Thought*. 3rd edition. The Hague: Martinus Nijhoff, 1974, 571.

⁹ See <https://ccontext.org/dao-de-jing>.

¹⁰ Martin Heidegger, *Being and Time*, trans. John Macquarrie and Edward Robinson (New York: Harper and Row, 1962), 76-77.

of hermeneutics and existential phenomenology.¹¹ Phenomenology consists of a constellation of co-constitutive, co-resonating and equiprimordial events that generate mutually conditioned linked opposites that are necessary for each other that I dub – *dipolarity* – such as the dynamic of Daoist *yin* and *yang*.¹² Phenomenology is a life-world platform that supports hermeneutics as an interpretive strategy of everyday existence, hence existential. One level is ‘horizontal’ phenomenology, the explication of everyday life in the *lebenswelt*. The world is our horizon of being and time. Heidegger’s emphasis on the idealist Friedrich Schelling’s (1775–1854) “ecstatic time” which stands outside of itself, seeks for a unity of present, past and future time.¹³

What celebrated Heidegger associate Baron Kuki Shūzō (1889-1941) adds is a second level, the notion of a “vertical” phenomenology which is no longer simply an existential reality but a “mystical ecstasis”: “each instant, each present, is an identical moment of different times. Each present has identical moments, in the future as well as in the past [Each is an instant whose thickness is of infinite depth]; time is in this sense reversible.”¹⁴ It flows back upon itself as a retrograde temporality or as a reversibility of time. Word (*kotoba* 言), event (*koto* 事) and meaning (*kokoro* 意) are synchronous; the ancient past folds into the now.¹⁵

And further to this, Heidegger’s early *horizontal phenomenology* of everyday life *lays out and gathers up*, while Kuki Shūzō’s *vertical phenomenology* of mystical ecstasis *emerges from what lays hidden* since each moment is an identical instance of different times – a reversibility. Together, horizontal phenomenology as corporeal and vertical phenomenology as spiritual reveal as they conceal. In 1944, Heidegger anchors both in a common primordial ground as what he calls “horizontal.” He theorizes:

¹¹ Jay Goulding, “‘Visceral Manifestation’ 藏象: Chinese Philosophy and Western Phenomenology 現象,” in *Chinese Philosophy and the Trends of the 21st Century Civilization* vol. 4, ed. Fang Keli (Beijing: Commercial Press Inc., 2003), 360-417; Jay Goulding ed., *China-West Interculture, Toward the Philosophy of World Integration: Essays on Wu Kuang-ming’s Thinking*. The Association of Chinese Philosophers in America (ACPA) *Series on Chinese and Comparative Philosophy* (New York: Global Scholarly Publications, 2008). A festschrift honorary volume celebrating a leading scholar in Chinese Daoist philosophy; Goulding, “Daoist Phenomenology: Heidegger’s Chinese Students,” *Interdisciplinary Social Science Speakers Series: Winter*, Department of Social Science, York University televised by Fairchild TV, Steven So producer, March 2, 2016; Goulding, “Cheng and Gadamer: Daoist Phenomenology,” *Journal of Chinese Philosophy*, eds. Cheng Chung-ying, Linyu Gu, and Andrew Fuyarchuk, Special Issue “Gadamer and Chung-ying Cheng,” forthcoming; Goulding, “Heidegger’s Daoist Phenomenology,” in *Heidegger and Daoism*, ed. David Chai (London: Bloomsbury Academic, forthcoming); Jay Goulding, “Phenomenology: East and West,” in Paul Brienza, Jay Goulding and Livy Visano, *Vico, Daoist Phenomenology and Anarchism* (Toronto: Athenian Policy Forum, forthcoming).

¹² Jay Goulding, “New Ways Toward Sino-Western Philosophical Dialogues,” *Journal of Chinese Philosophy* 34, no. 1 (February 2007): 100.

¹³ Goulding, “Heidegger’s Daoist Phenomenology.”

¹⁴ Kuki Shūzō, “The Notion of Time and Repetition in Oriental Time,” in Stephen Light, *Shuzo Kuki and Jean-Paul Sartre: Influence and Counter-influence in the Early History of Existential Phenomenology* (Carbondale: Southern Illinois University Press, 1987), 45-46.

¹⁵ Jay Goulding, “Kuki Shūzō and Martin Heidegger: Iki いき and Hermeneutic Phenomenology,” in *Why Japan Matters!*, vol. 2, ed. Joseph F. Kess and Helen Lansdowne (Victoria: Centre for Asia-Pacific Initiatives, University of Victoria, 2005), 682.

Ich verstehe »horizontal« nicht im Gegensatz zu »vertikal«, sondern in dem Sinne, daß das Horizontale dasjenige ist, zu dessen Wesen ein offener Gesichtskreis oder eine Gesichtsfucht (*fuga*) gehören, die es nach allen Richtungen umgeben. Nur innerhalb des so verstandenen Horizontalen ist das von Ihnen gemeinte Vertikale möglich.

[I understand “horizontal” not in contrast to “vertical” but rather in the sense of “horizontal,” harkening to this essence of an open circle-of-vision or a fleeing line of sight (*fuga*) that envelops it in all directions. What you mean by the vertical is possible only within the horizontal so understood].¹⁶

Both Dōgen and Heidegger embrace dipolarity in terms of the totality of their respective projects: the visible and the invisible, the present and the absent, the real and the unreal, the speakable and the silent, the material and the spiritual to name a few. Unlike eras long past, the contemporary global world usually privileges one side over the other of these pairings.

It is within this grid of Daoist phenomenology that I understand a rather crucial but neglected element of Dōgen’s Zen – that of *jinzū* – ostensibly called “the supernatural” or the “supernormal” or “miracles” – what I call the “extra-ordinary” – which bears much on the topic of nature and the environment. The Chinese *shén tōng* 神通 literally means what passes through by way of the gods, hence superhuman ability or magical power.

In this paper, I attempt to understand *jinzū* not through *comparison* but through a *mutual interpenetration of the uncanny*. This hermeneutic task is in and of itself *uncanny*. Heidegger explains the task as “translating the untranslatable” by shifting *übersetzen* (translation) into *übersetzen* (transportation); translation is a transportation *within* and *between* languages as is Dōgen’s task *within* Japanese and *between* Chinese and Japanese texts.

Heidegger relates:

This is certainly true for every translation, because every translation must necessarily accomplish the transition from the spirit of one language into that of another. There is no such thing as translation if we mean that a word from one language could, or even should, be made to substitute as the equivalent of a word from another language. This impossibility should not, however, mislead one into devaluing translation as though it were a mere failure. On the contrary: translation can even bring to light connections that indeed lie in the translated language but are not explicitly set forth in it. From this we can recognize that all translating must be an interpreting. Yet at the same time, the reverse is also true: every interpretation, and everything that stands in its service, is a translating. In that case, translating does not only move between two different languages, but there is a translating within one and the same language.¹⁷

¹⁶ Martin Heidegger, *Feldweg-Gespräche (1944-45)*, Gesamtausgabe Band 77, Herausgegeben von Ingrid Schüßler (Frankfurt: Vittorio Klostermann, 1995), 83.

¹⁷ Martin Heidegger, *Hölderlin’s Hymn “The Ister,”* trans. William McNeill and Julia Davis (Bloomington and Indianapolis: Indiana University Press, 1996), 62.

And as Heidegger continues, quoting Sophocles' *Antigone*:

πολλὰ τὰ δεινὰ κούδ' ἐν ἀνθρώπου δεινότερον πέλει.

Vielfältig das Unheimliche, nichts doch
über den Menschen hinaus Unheimlicheres ragend sich regt.

Manifold is the uncanny, yet nothing
more uncanny looms or stirs beyond the human being.¹⁸

Further to the primordial human as uncanny, Heidegger outlines in *Introduction to Metaphysics*:

We are taking the strange, the uncanny (das Unheimliche), as that which casts us out of the 'homely,' i.e., the customary, familiar, secure. The unhomely (Unheimische) prevents us from making ourselves at home and therein it is overpowering. But man is the strangest of all, not only because he passes his life amid the strange understood in this sense, but because he departs from his customary, familiar limits, because he is the violent one, who, tending toward the strange in the sense of the overpowering, surpasses the limit of the familiar (das Heimische).¹⁹

Jinzū

Remarkably, Dōgen's courageous wanderings from Japan to China and his return with sacred texts interpolate and resonate with Heidegger's idea of the uncanny. In 1241, Dōgen retells the story of Chinese Chan monk Yongming Yanshou who influences him one way or the other. Chikaku Zenji, honorific title of Yomyo Enju (Yongming Yanshou) serves as a government officer and becomes a monk at age twenty-eight. He is disciple of Tendai Tokusho (Tiencai Deshao), the second patriarch of the Hogen (*Fayan*) School of Chinese Zen. As a provincial governor, he procures official money unlawfully and distributes it to poor folk. Upon learning of this, the Emperor reluctantly orders him to be executed: "This officer is a man of talent and a wise man. He dared to commit this crime. He might have had some profound motivation. When his head is about to be cut off, if he looks regretful and full of grief, cut it off quickly. If not, undoubtedly he had a deeper motivation so do not kill him."²⁰ But instead, Yongming appears happy and says: "I give this life to all living beings." The Emperor proclaims: "It's exactly as I thought! He must have had some deeper reason." When the Emperor questions Yongming's motivation, he responds: "I wanted to retire from government office, throw my life away by giving it to all living beings to form an association with them, be born into the family of Buddha (become a monk), and practice the Buddha-Way wholeheartedly."²¹ Impressed by his reply, the Emperor gives him the name Enju 延壽 (Yánshòu, "prolonged life") and frees him from a death sentence. Dōgen tells this story to inspire monks to

¹⁸ Martin Heidegger, *Hölderlins Hymne 'Der Ister,' Gesamtausgabe Band 53*, Herausgegeben von Walter Biemel (Frankfurt: Vittorio Klostermann, 1984), 74.

¹⁹ Martin Heidegger, *Introduction to Metaphysics*, trans. Ralph Manheim (New Haven: Yale University Press, 1959), 127.

²⁰ Dōgen, *Shōbōgenzō-zuimonki*, trans. Shohaku Okumura and Tom Wright (Tokyo: Sotoshu Shumuchō, 1988), 43.

²¹ *ibid.*, 43.

think little of their own well-being, hold compassion for all living things, and devote bodily life to Buddha. If you have already aroused such aspiration, protect it.²²

The original texts of Yongming Yanshou *zongjinglu* (*Record of the Source Mirror*) are exceedingly esoteric and not fully translated anywhere in Western languages as far as I know. In itself, the text would be the very definition of the uncanny.

The impossible cypher-level encryption probably motivates even Dōgen himself to embrace an existential reversal of its deep concealment. An encrypted Buddhist and Daoist vocabulary lurks beneath. It reads (my emphasis):

智中有通。

Zhì zhōng yǒu tōng

Wisdom of the middle states of the passages of death.

[中有 or 中陰 as *antarābhava* or intermediate states between death and reincarnation; at the end of forty-nine days, judgment having been made, a person enters upon the next state]²³

通有五種。

Tōng yǒu wǔ zhǒng

This way of death has five forms.

智有三種。

Zhì yǒu sānzhǒng

There are three kinds of wisdom associated with human existence.

[“三種有 Three kinds of existence: (a) 相待有 that of qualities, as of opposites, e.g. length and shortness; (b) 假名有 that of phenomenal things so-called, e.g. a jar, a man; (c) 法有 that of the noumenal, or imaginary, understood as facts and not as illusions, such as a ‘hare’s horns’ or a ‘turtle’s fur’”]²⁴

何為五種通。

Hé wèi wǔ zhǒngtōng

What constitutes the five kinds of passages of death?

一曰道通。

Yī yuē dào tōng

One is called the way passage [bodhisattvas through their insight into truth; “**the way through**”]

二曰神通。

Èr yuē Shéntōng

Two is called gods passage [arhats through mental concentration and mind reading; remarkable ability; “**gods passage**”]

²² *ibid.*, 44.

²³ See William Edward Soothill, and Lewis Hodous, *A Dictionary of Chinese Buddhist Terms with Sanskrit and English Equivalents and a Sanskrit-Pali Index* (London: Kegan, Paul, Trench, Trubner and Co., 1937), 110.

²⁴ *ibid.*, 73.

三曰依通。

Sān yuē yītōng

Three is called obeying passage [“supernatural” or magical powers dependent on spells, drugs, charms, incantations; **“through obeying a wish passage”**]

四曰報通。

Sì yuē bàotōng

Four is called report passage [reward or karma powers of transformation or shapeshifting by possessed demons, spirits, devas, nāgas; **“report passage”**]

五曰妖通。

Wǔ yuē yāotōng

Five is called the monster passage [magical powers of goblins; satrys; demons; evil spirit; bewitching; **“monster passage”**]²⁵

As described above, Yanshou engages five vital forms of miracles or “supernatural powers” that Dōgen eventually turns back inside everyday experience as the step back. William Edward Soothill and Lewis Hodous in *A Dictionary of Chinese Buddhist Terms* deciphers these five forms as follows. Known in classical Chinese as *Wǔ zhǒng tōng* 五種通, the five types of supernatural powers include: “(1) *Dàotōng* 道通 of bodhisattvas through their piercing insight into truth; (2) *Shéntōng* 神通 of arhats through their mental abilities; (3) *Yītōng* 依通 magical powers of drugs, charms, incantations; (4) *Bàotōng* 報通 or *Yètōng* 業通 reward or karma powers of transformation by devas and nāgas; (5) *yāotōng* 妖通 magical power of goblins and satyrs.”²⁶

Carl Bielefeldt further explains that the higher knowledge of *Shéntōng* (Japanese *jinzū* or Sanskrit *abhijna* अभिज्ञ) as culminating in *Dàotōng* is “an enlightened state in which one with ‘no mind’ (*Wúxīn* [無心]) accords with all things, existing without subject (*Wúzhǔ* [無主]) like the moon in the water or flowers in the sky”; It is gathered from “transformations of animals and spirits” (*Yāotōng*), “the preternatural acts of god, demons and dragons” (*Bàotōng*) and “the workings of talismans and magic potions (*Yītōng*).”²⁷

Contemplating Yanshou’s passages, Dōgen (like Heidegger) turns to the everyday. Like the *samurai* culture of his era, Dōgen’s Chinese inspired and revamped Zen pays attention to little things and relies on everyday “miracles” such as bringing a robe, facing a wall, lying down, washing your face, sitting up, making a bowl of tea – all gathered together under the practice of seated meditation. In *Shobogenzo Zuimonki*, Dōgen presents a speech on the sixteenth day, the eleventh month, the second year of the Ninji Era (1241) at Kannondōri Kōshō Hōrinji. This seminal speech is entitled *jinzū* (“miracles”) and most likely transmitted from Yongming Yanshou of a much earlier era as mentioned above. As Dōgen relates in detail: “The miracles [*jinzū*] I am speaking of are the daily activities of buddhas, which they do not neglect to practice. There are six miracles [freedom from the six sense desires], one miracle, going beyond miracles, and unsurpassable miracles. Miracles are practiced three thousand times in the morning and eight hundred times in the evening. Miracles arise simultaneously with buddhas

²⁵ See http://buddhism.lib.ntu.edu.tw/BDLM/sutra/chi_pdf/sutra19/T48n2016.pdf.

²⁶ *ibid.*, 125.

²⁷ Carl Bielefeldt, “Disarming the Superpowers: The *Abhijna* in Eisai and Dōgen,” in *Dōgen: Textual and Historical Studies*, ed. Steven Heine (New York: Oxford, 2012), 196.

but are not known by buddhas..."²⁸ Bringing a robe and a stūpa to Shākyamuni Buddha is a miracle of inconceivable power that can happen to buddhas now and to buddhas in the future. Guishan turns around to face the wall and asks Yangshan to interpret his dream. Yangshan fetches a basin of water and a towel. Guishan washes his face and sits up. These are great miracles of everyday. Dōgen relates:

People of limited views study small miracles and attain limited understanding. They do not experience the great miracles of buddha ancestors...Encompassed by the power of great miracles, lesser miracles occur. Great miracles include lesser miracles but lesser miracles do not know great miracles. Lesser miracles are a tuft of hair breathing in the vast ocean, a mustard seed storing Mt. Sumeru, the top of the head spouting water, or feet spreading fire. Miracles like these are lesser miracles...In the inexhaustible ocean of the phenomenal world the power of great miracles is unchanging. A tuft of hair not only breathes in the great ocean [as in lesser miracles] but it maintains, realizes, breathes out, and utilizes the great ocean. When this activity arises, it encompasses the entire phenomenal world. However, do not assume that other activities do not also encompass the entire phenomenal world. A mustard seed containing Mt. Sumeru is also like this. A mustard seed breathes out Mt. Sumeru and actualizes the inexhaustible phenomenal world...This bringing forth is a great miracle...²⁹

Dōgen continues with a few seminal examples. The four, five, or six great elements, are great miracles that appear and disappear and are spit out and swallowed. The great earth and empty space are miracles that are swallowed and spit out:

The miracles I have described of these devas, sorcerers, fighting spirits, and demons are the result of past actions or present skills. But the six types of miracles of a buddha are different. A buddha enters forms, sounds, smells, tastes, touchables, and objects of mind and is not confused by them. Thus a buddha masters the six sense objects, which are all marked with emptiness. A buddha is free of conditions. Even having a body of five skandhas accompanied by desires, a buddha does not depend on anything. A buddha practices miracles that are grounded on the earth. "Fellows of the way, a true buddha has no form, and the true dharma has no marks. From your mind's illusions, marks and appearances are created. What you get is a wild fox's spirit, which is the view of those outside of the way, and not of a true buddha." Thus, the six types of miracles of the buddhas cannot be reached by those of the Two Lesser Vehicles, or of devas or demons. The six types of miracles of the buddha way cannot be measured. They are only transmitted to disciples of the buddha way, person to person, but not to others. Those who have not inherited such miracles do not know them. Those who have not inherited such miracles are not persons of the buddha way..."The six types of miracles are neither empty nor not empty. A circle of light is neither inside nor outside." "Neither inside nor outside" means leaving no trace. When you practice, study, and realize no-trace, you are not

²⁸ Tanahashi Kazuaki ed., *Enlightenment Unfolds: The Essential Teachings of Zen Master Dōgen* (Boston: Shambhala, 2000), 104.

²⁹ *ibid.*, 106-107.

disturbed by the six sense organs. Those who are disturbed should receive thirty blows. The six types of miracles should be studied like this... Thus, the buddha-dharma is invariably actualized through miracles.³⁰

Do Nothing and All is Done

Dōgen completes his story with a pronouncement: “a drop of water swallows the great ocean, and a speck of dust hurls out a high mountain. Who can doubt that these are miracles?”³¹ When speaking of no-trace, Dōgen might be referring to the Daoist classics which he studies in China. Both Daoist scholars Zhuangzi and Guo Xiang mention the trace (*jī* 跡), an idea that echoes throughout Heidegger’s writings.³² According to Guo, the Daoist sage has “no deliberate mind or purpose of his own.”³³ Instead, he acts spontaneously. People who imitate the actions or words of the sages are on the wrong path. What matters is the whimsical abandonment of the sage or *zìrán* as that which deposits the traces. Traces are places where the sage disappears. For Heidegger, you find your own place to leave the world. Heidegger’s turn back or bend back (*Kehre*) by way of the trace (*Spur*) in wending one’s way uncannily resembles Dōgen’s bending back the light of *taiho*. Both Heidegger and Dōgen step back through parallel universes from our everyday known reality.³⁴ As I previously argue, Dōgen and Heidegger are “walkers of the boundary of the boundless” (*Grenzgänger des Grenzenlosen*) as Zhuangzi explains in Chapter 22: “*bù jì zhī jì jì zhī bù jì zhě yě* 不際之際，際之不際者也 [The Border (Boundary, Limit) of the borderless (Boundless, Limitless) is (*yě* 也) the Borderless (Boundless, Limitless) of the Border (Boundary, Limit)].”³⁵ It is worth stating again that Laozi’s walker of *Daodejing*’s Poem 27 leaves no trace (tracks, wagon tracks, footprints) – *shàn xíng wú zhé jì* 善行無轍跡.³⁶ A trace does not leave itself. The thingness of the thing is not itself a thing. Inspired by Guo Xiang and Dōgen, Heidegger explains: “Das Da. Eine Spur davon in der ἀλήθεια [un-concealment] der φύσις [emergent nature]. Aber längst ausgelöscht ist die Spur – nie einfach wieder zu be-treten, sondern aus eigenem Gang zu finden.’ [The There (Da). A trace of the There in the ἀλήθεια of φύσις. But the trace has long since been extinguished – it can never simply be followed again but must be found from one’s own trail].”³⁷ Heidegger’s poetic pondering reflects Dōgen’s multivalent idea of “ranging” or “flowing” or “passing through in all directions” (*kyōryaku* 經歷) of future to past and past to future by way of the step back.³⁸

The 2009 Japanese film *Zen* directed by Takahashi Banmei starring Nakamura Kantarō II as Dōgen is an excellent illustration of the existential view of miracles as described above.

³⁰ *ibid.*, 111-112.

³¹ *ibid.*, 112-113.

³² Jay Goulding, “Barry Allen’s *Vanishing into Things: Knowledge in Chinese Tradition*,” *Journal of Chinese Philosophy* 44, no. 1-2 (March–June 2017): 113-116.

³³ Brook Ziporyn, *The Penumbra Unbound: The Neo-Taoist Philosophy of Guo Xiang* (New York: SUNY, 2003), 18, 66.

³⁴ Goulding, “Japan-West Interculture,” 23.

³⁵ See <https://ctext.org/zhuangzi>.

³⁶ Goulding, “Japan-West Interculture,” 23.

³⁷ Martin Heidegger, *Die Geschichte des Seyns* (1938-1940), *Gesamtausgabe* Band 69, Herausgegeben von Peter Trawny (Frankfurt: Vittorio Klostermann, 1998), 9; Heidegger, *The History of Being*, trans. William McNeill and Jeffrey Powell (Bloomington: Indiana University Press, 2015), 9. See Goulding, “Japan-West Interculture,” 22-23.

³⁸ *ibid.*, 19-22.

Historically, Hōjō Tokiyori (1227-1263) is the fifth *shikken* (regent) of the Kamakura shogunate (1185-1333) – portrayed as the Shogun himself in the film version – who is perpetually tormented by demons. This episode is quite reminiscent of Minamoto Yorimitsu (948-1021), loyal retainer of the Fujiwara clan, tormented by the legendary *Yōkai* 妖怪 (ghost, strange apparition) named Tsuchigumo 土蜘蛛 (dirt and earth spider). In the film, Tokiyori summons Dōgen to exorcise his relentless demons:

Tokiyori: What do you do in your sect?

Dōgen: Just sitting in meditation. We sit and we sit.

Tokiyori: How can true Buddhism be found, sitting around doing nothing?

Dōgen: Lord Tokiyori, that is akin to being in the ocean and claiming to have no water.

Tokiyori: What!

Dōgen: Flowers in spring cuckoos in summer the moon in autumn and chilly snows in winter.

Tokiyori: Flowers in spring cuckoos in summer Dōgen, these are most obvious.

Dōgen: They are indeed obvious. **Things as they are** [my emphasis]. Seeing things as they truly are. That is enlightenment. Zazen is to see the water in the vast ocean. And yet, until we find the innate Buddha, we cannot understand there is water in the vast ocean...

Tokiyori: There is only one moon in the heavens. I cannot see a moon in my heart. Furthermore that full moon is soon fated to fade and whither.

Dōgen: Lord Tokiyori. Please look...Can you cut down this moon?

Tokiyori: Easily [swinging his sword into the water]. I have cut it down.

Dōgen: Is that so? Have another look. Though clouds should obscure the moon or the moon disappear from the heavens we cannot say there is no moon. The moon cannot be wet and water cannot be torn. The moon is innate Buddha, and water is the self.

Tokiyori: This incomprehensible dialogue does not quell my anguish. Damn you. You're back again [as the moon appears again in reflected water]. Get away! Dōgen, how can I exterminate these vengeful ghosts which taunt me nightly?...³⁹

Dōgen advises Tokiyori that the pain and sorrow of those spirits is his own. Until you abandon your entire self you cannot accept that anguish nor will the anguish fade away. The moment he grasped power in his right hand, his left hand grasped suffering. The very definition of a regent is to hold power in place of a monarch. It is grasping power that has caused anguish. Dōgen admonishes Lord Tokiyori: "now is the time to release your grasp."⁴⁰ The engagement peaks:

Tokiyori: Dōgen! Are you prepared to die!

Dōgen: I always have been. When I came here, I had already abandoned my body and my soul. As you wish. If you do evil you will harvest evil. If you do good you

³⁹ Takahashi Banmei, dir., *Zen* (Tokyo: Kadokawa Pictures, 2009), DVD.

⁴⁰ Cf. Heidegger's "releasement toward things and the openness to the mystery" (*Die Gelassenheit zu den Dingen und die Offenheit für das Geheimnis*). See Martin Heidegger, *Discourse on Thinking*, trans. John M. Anderson and E. Hans Freund (New York: Harper and Row, 1966) 54-55. See Goulding, "Visceral Manifestation," 370-391.

will harvest good. When death approaches neither political power nor those you love nor vast fortunes will be able to save you. To death, you must go alone. All that will accompany you is everything you did in life. That and nothing else.

Tokiyori: [While raising his sword above the kneeling Dōgen, the moon appearing from behind the clouds and shines upon Dōgen's shaven head; Seeing the moon's reflection upon Dōgen's head, Tokiyori drops his sword as he experiences a total awakening]....

Dōgen: Now I must take my leave. "Flowers in spring...cuckoos in summer...the moon in autumn...and chilly snows in winter."⁴¹

With a simple but essential Daoist strategy – *do nothing and all is done* (*Wéi wúwéi* 爲無爲), Dōgen initiates a new no-self for Tokiyori.

With a mere poem, a genre quite popular at the time – 31 syllables in a 5-7-5-7-7 pattern – Dōgen offers Tokiyori a remedy for his conflict. The full splendor the poem displays "Original Face" (*Honrai no menmoku wo yomu* 詠本来面目):

春は花	<i>Haru wa hana</i>	Spring, flowers
夏ほととぎす	<i>natsu hototogisu</i>	summer, cuckoos
秋は月	<i>aki wa tsuki</i>	autumn, the moon
冬雪きえで	<i>fuyu yuki kiede</i>	winter, snow does not melt
すずしかりけり	<i>Suzushi kari keru</i>	All seasons pure and upright. ⁴²

Dōgen's *Taiho* and Heidegger's *Schritt zurück*

In September 1969 at Meßkirch, Tsujimura Koichi (1922-2010), a Zen monk and close Heidegger student gives generations of readers an invaluable hint to the connection between Heidegger and Dōgen in "Martin Heideggers Denken und die Japanische Philosophie" on the occasion of the German philosopher's 80th birthday. Very perceptively, Tsujimura recognizes that: "...[Heidegger's] thinking withdraws itself in its truth as soon as we simply want to represent, grasp, and know it...his thinking remains in principle inimitable...his thinking indicated by the ancient Greek word *Aletheia* (un-concealedness), could be understood in view of Western philosophy, and that means here metaphysics, as a ground that is concealed to metaphysics itself."⁴³ Tsujimura eloquently explains:

Thus, the matter itself would have demanded from the thinker a transformation of thinking – namely, the transformation of philosophical thinking into "another thinking." Only by this other thinking – and that means by "the step back from philosophy" – has what is "proper" to philosophical thinking...been "properly" glimpsed. That is an extraordinary appropriating event [*Ereignis*]...we Japanese see in Heidegger's thinking a glimpsing-of-itself of what is "proper" to Western humanity and its world...we Japanese, too, necessarily had to be thrown back onto the forgotten ground of our own spiritual tradition...Right after my first encounter with *Being and Time* when I was still in secondary school, I sensed that at least for us

⁴¹ Takahashi Banmei, *Zen*.

⁴² See <https://dogeninstitute.wordpress.com/tag/seasons/>.

⁴³ Tsujimura Kōichi, "Martin Heidegger's Thinking and Japanese Philosophy," 351.

Japanese the only possible access to a genuine understanding of this work of thinking is concealed in our tradition of Zen Buddhism...Zen Buddhism is nothing other than a seeing-through (*Durchblicken*) to what we ourselves are. For this seeing through, we first have to let go of all representing, producing, adjusting, altering, acting, making, and willing, in short, all consciousness and its activity, and then, following along such a way, to return to its ground source. As one of the greatest Japanese Zen masters, Dōgen, says as well: “You shall first learn the step back [*taiho*]...(Dōgen, *Fukanzazengi*).”⁴⁴

In the *Fukanzazengi* (*Universal Recommendation for Zazen*), Dōgen writes: “*o mochi-iyo ēko-henshō no taiho* 須迴光返照之退步 (Take the step back of turning light around and illuminate inward).”⁴⁵ I believe this to be *the most lucid expression of all his writings*. Heidegger’s *hermeneutics* lays it out, and his *phenomenology* gathers it up.⁴⁶ As much as Dōgen requires Heidegger, Heidegger requires Dōgen. What is salvaged from medieval Japan is Dōgen’s Chinese image of *huí guāng fǎn zhào* 迴光返照: the medical image of a “terminal lucidity” – seeing the light of truth at the moment of death or “last radiance of the setting sun” or most recently “a death resurrection card” from contemporary role-playing animated games.⁴⁷ As I explain:

Alas, Dōgen intends a much deeper meaning than this – one that is quite apocalyptic and revelatory of his unique version of Zen. The sage fades in the midst of time’s passing as the world vanishing into nothing – certainly reminiscent of *wabi sabi* 侘寂 of samurai culture, both of life’s impermanence and unfilled goals (*sabi* 錆 as rust on a sword). Dōgen’s originary *taiho* 退步 as a “step back” is a dimensional shift – the cultivation of energy gathered within oneself not only at the last breath of one’s own life but perhaps at the last sunset ever of humankind. As a corollary, in respect to his time in China, especially at Shaolin, Dōgen is assuredly influenced by the Daoist imagery of the first sunrise ever such as in the variegated clouds soaking up the emerging fireball at dawn at Huang Shan (Yellow Mountain), captured in the classical Chinese graph *wén* 雯 described in dictionaries as “variegated clouds” of orange and red blending, technically named by the colour “Claudia,” and only seen at 5:30-6:01 in the morning in the mountains of Anhui Province. Dao 道 is the first sunrise coming into being; Dōgen’s Zen is the last sunset receding into nothing. The Chinese Chan monk Jianzhi Sengcan (529-613) is the first to record the imagery of *henshō* 返照 (Chinese *fǎn zhào*) in *Song of the Trusting Mind* (*xinxinming* 信心銘)...⁴⁸

Dōgen’s step back (*taiho*) is a bending back of light of the *extraordinary* into the *ordinary*. Heidegger’s step back (*Schritt zurück*) is a retrograde movement of the *extraordinary* ontological grounds of Being back inside the *ordinary* of the everyday.

Heidegger writes:

Dies besagt: Wir wagen einen Versuch mit dem Schritt zurück. Der Titel »Schritt zurück« legt mehrfache Mißdeutungen nahe. »Schritt zurück« meint nicht einen

⁴⁴ *ibid.*, 352.

⁴⁵ Dōgen, “Fukanzazengi,” <https://terebess.hu/zen/dogen/Fukanzazengi.html#1>.

⁴⁶ For elaboration, see Goulding, “Japan-West Interculture” throughout.

⁴⁷ *ibid.*, 14.

⁴⁸ *ibid.*, 15.

vereinzelt den Denkschritt, sondern die Art der Bewegung des Denkens und einen langen Weg. Insofern der Schritt zurück den Charakter unseres Gesprächs mit der Geschichte des abendländischen Denkens bestimmt, führt er das Denken aus dem in der Philosophie bisher Gedachten in gewisser Weise heraus. Das Denken tritt vor seiner Sache, dem Sein, zurück und bringt so das Gedachte in ein Gegenüber, darin wir das Ganze dieser Geschichte erblicken und zwar hinsichtlich dessen, was die Quelle dieses ganzen Denkens ausmacht, indem sie ihm überhaupt den Bezirk seines Aufenthaltes bereitstellt. Dies ist im Unterschied zu Hegel nicht ein überkommenes, schon gestelltes Problem, sondern das durch diese Geschichte des Denkens hindurch überall Ungefragte. Wir benennen es vorläufig und unvermeidlich in der Sprache der Überlieferung. Wir sprechen von der *Differenz* zwischen dem Sein und dem Seienden. Der Schritt zurück geht vom Ungedachten, von der Differenz als solcher, in das zu-Denkende. Das ist die *Vergessenheit* der Differenz. Die hier zu denkende Vergessenheit ist die von der *Λήθη* (Verbergung) her gedachte Verhüllung der Differenz als solcher, welche Verhüllung ihrerseits sich anfänglich entzogen hat. Die Vergessenheit gehört zur Differenz, weil diese jener zugehört.

This means: we venture an attempt with the step back. The term “step back” suggests various misinterpretations. “Step back” does not mean an isolated step of thought, but rather means the manner in which thinking moves, and a long path. Since the step back determines the character of our conversation with the history of Western thinking, our thinking in a way leads us away from what has been thought so far in philosophy. Thinking recedes before its matter, Being, and thus brings what is thought into a confrontation in which we behold the whole of this history – behold it with respect to what constitutes the source of this entire thinking, because it alone establishes and prepares for this thinking the area of its abode. In contrast to Hegel, this is not a traditional problem, already posed, but what has always remained unasked throughout this history of thinking. We speak of it, tentatively and unavoidably, in the language of tradition. We speak of the *difference* between Being and beings. The step back goes from what is unthought, from the difference as such, into what gives us thought. That is the *oblivion* of the difference. The oblivion here to be thought is the veiling of the difference as such, thought in terms of *Λήθη* (concealment); this veiling has in turn withdrawn itself from the beginning. The oblivion belongs to the difference because the difference belongs to the oblivion.⁴⁹

Dōgen’s step back into the void as the last sunset of humankind is an apocalyptic version of Heidegger’s sinking into the *ever* of the *everyday*. Both Dōgen’s Zen and Heidegger’s hermeneutic phenomenology fall through the rabbit hole.

Dōgen’s understanding of *jinzū* seems to be parallel to Heidegger’s *Unheimliche*. Both are necessary traces of disappearance from one reality into another. Rather than laud the “supernatural” as what goes above life as in Indian philosophies, Dōgen praises its retraction into the everyday as illustrated above in the Yanshou stories. This itself is a Daoist inspired bending back into life that does not yearn for shores beyond the existential world. Rather than

⁴⁹ Martin Heidegger, *Identität und Differenz*, *Gesamtausgabe* Band 11, Herausgegeben von Friedrich-Wilhelm von Herrmann (Frankfurt: Vittorio Klostermann, 2006), 58-60; Martin Heidegger, *Identity and Difference*, trans. Joan Stambaugh (New York: Harper and Row Publishers, 1969), 49-50.

place Being above life as a metaphysical entity, Heidegger too sinks Being down into the midst of the existential everyday (*alltäglichkeit*).⁵⁰ The ancient Greek δεινόν is similar to the English word *awe* as in *awesome* meaning both reverent and fearful as in: terrible, horrible, astounding, marvelous, mighty, powerful, wondrous, strange, able, skillful, clever, shamefully timid, and cowardly. Returning to the first chorus of Sophocles' *Antigone*, Heidegger renders the Greek δεινόν by the German word *das Unheimliche* (the uncanny).⁵¹ With perceptive analysis by philosopher Véronique M. Fóti, Heidegger's commentary displays the following oscillating meanings: Δεινόν as "the fearsome (*das Furchtbare*)" understood as both "the terrifying (*das Fürchterliche*)" and "the venerable (*das Ehrwürdige*)" yielding "the powerful (*das Gewaltige*)" understood as both "the violent (*das Gewalttätige*)" and "the sovereign (*das Überragende*)" yielding "the extraordinary (*das Ungewöhnliche*)" understood as both "monstrous (*das Ungeheure*)" and "the universally skilled (*das in allem Geschickte*)."⁵²

Conclusion

Heidegger revises the poet Friedrich Hölderlin's (1770-43) *Ungeheure* as "monstrous" and "eerie" in favour of *Unheimliche* as "extra-ordinary" or "uncanny"; He doubles it back *within* the everyday in order to hold sway between primordial and existential positions. Dōgen understands *jinzū* as not *beyond* human volition but *turned within* it at the moment of its pure everydayness which is his unique contribution to Zen. The extra-ordinary steps back *within* the ordinary; the uncanny steps back *within* the everyday; *jinzū* steps back *within* the existential. In their unique and respective ways from their unique and respective worlds, Dōgen and Heidegger strip away any metaphysical baggage from the extra-ordinary or uncanny. For both, the purity of the everyday as the thing-in-itself is always already the miracle of the extra-ordinary or uncanny – of Dōgen's *jinzū* and Heidegger's *Unheimliche*. Heidegger writes of the supernatural in his work on Friedrich Nietzsche (1844-1900): "...the cause of nihilism is morality, in the sense of the positing of **supernatural** [*übersinnlich*] ideals of truth, goodness, and beauty that are valid 'in themselves.' The positing of the highest values simultaneously posits the possibility of their devaluation, which already begins when these values show themselves to be unattainable."⁵³

In 1227 at Kyoto, in the *Fukanzazengi*, the clearest manual ever created for Zen practice (and written in classical Chinese), Dōgen speaks of the *jinzū-shusho* 神通修證:

When you arise from sitting, move slowly and quietly, calmly and deliberately. Do not rise suddenly or abruptly. In surveying the past, we find that transcendence of both unenlightenment and enlightenment, and dying while either sitting or standing, have all depended entirely on the strength (of zazen). In addition, the bringing about of enlightenment by the opportunity provided by a finger, a banner, a needle, or a mallet, and the effecting of realization with the aid of a hossu [*hokken* 拂拳; ceremonial fly whisk], a fist, a staff, or a shout, cannot be fully understood by discriminative thinking. Indeed, it cannot be fully known by the practicing or

⁵⁰ Heidegger, *Being and Time*, 69-76.

⁵¹ Martin Heidegger, *Einführung in Die Metaphysik* Band 40. Herausgegeben von Peter Jaegar (Frankfurt: Vittorio Klostermann, 1983), 158; Martin Heidegger, *An Introduction to Metaphysics*, trans. Ralph Manheim (New York: Anchor Books, 1961), 127.

⁵² Véronique M. Fóti, "Heidegger, Hölderlin, and Sophoclean Tragedy," in *Heidegger Toward the Turn*, ed. James Risser (Albany: SUNY, 1999), 172; Heidegger, *Holderlins Hymne 'Der Ister'*, 77.

⁵³ Martin Heidegger, *Nietzsche. Volume III: The Will to Power as Knowledge and as Metaphysics*, ed. David Farrell Krell (New York: Harper and Row, 1987), 206.

realizing of **supernatural** powers [*jinzū-shusho*], either. It must be deportment beyond hearing and seeing – is it not a principle that is prior to knowledge and perceptions. This being the case, intelligence or lack of it does not matter: between the dull and the sharp-witted there is no distinction. If you concentrate your effort single-mindedly, that in itself is negotiating the Way. Practice-realization is naturally undefiled. Going forward (in practice) is a matter of everydayness.⁵⁴

From the quote above, a key line reads⁵⁵:

豈 爲 神通修證 之 所 能 知 也。
qǐ wèi shéntōngxiūzhèng zhī suǒ néng zhī yě

ani to[suru] jinzū-shusho no tokoro yoku shiru to sen ya

How become supernatural practice by object be able know

Reconfigured by Dōgen into more meaningful Japanese word order, the line reads: *ani to[suru] jinzū-shusho no yoku shiru tokoro to sen ya*. Norman Waddell and Masao Abe (another renowned Heidegger student) translate: “Indeed, it cannot be fully known by the practicing or realizing of **supernatural** powers, either.”⁵⁶ Parallel to Heidegger’s everydayness, Waddell and Abe say it best in characterizing and summarizing Dōgen’s *jinzū*:

The supernatural powers (*jinzū* 神通) are possessed by beings of exceptional spiritual attainment, enabling them unrestricted freedom of activity, eyes capable of seeing everywhere, ears of hearing all sounds, and so on. Dōgen says that the means used by a master in bringing students to enlightenment are not only beyond human thought, they are also beyond such super-normal powers. Moreover, there is nothing mysterious or supernatural about it; it is normal, every-day activity.⁵⁷

Bibliography

Bielefeldt, Carl. “Disarming the Superpowers: The *Abhijna* in Eisai and Dōgen.” In *Dōgen: Textual and Historical Studies*, edited by Steven Heine, 193-206. New York: Oxford, 2012.

Dōgen. *Shōbōgenzō-zuimonki*. Translated by Shohaku Okumura and Tom Wright. Tokyo: Sotoshu Shumuchō, 1988.

Dōgen. *The Heart of Dōgen’s Shōbōgenzō*. Translated and annotated by Norman Waddell and Masao Abe. New York: SUNY, 2002.

⁵⁴ Norman Waddell and Masao Abe trans. <https://terebess.hu/zen/dogen/Fukanzazengi.html>.

⁵⁵ Dōgen, “Fukanzazengi,” <https://terebess.hu/zen/dogen/Fukanzazengi.html#1>.

⁵⁶ Dōgen, *The Heart of Dōgen’s Shōbōgenzō*, Trans. and annotated Norman Waddell and Masao Abe (New York: SUNY, 2002), 4.

⁵⁷ *ibid.*, 4.

Fóti, Véronique M. "Heidegger, Hölderlin, and Sophoclean Tragedy" 163-187 in James Risser ed. *Heidegger Toward the Turn*. Albany: SUNY, 1999.

Goulding, Jay. "'Visceral Manifestation' 藏象: Chinese Philosophy and Western Phenomenology 現象學." In *Chinese Philosophy and the Trends of the 21st Century Civilization* vol. 4, edited by Fang Keli, 360-417. Beijing: Commercial Press Inc., 2003.

Goulding, Jay. "Barbarism and Civilization." In *New Dictionary of the History of Ideas* vol. 1 edited by Maryanne Horowitz, 195-197. New York: Charles' Scribner's Sons, 2005.

Goulding, Jay. "Globalization: Asia." In *New Dictionary of the History of Ideas* vol. 3, ed. Maryanne Horowitz, 941-947. New York: Charles' Scribner's Sons, 2005.

Goulding, Jay. "Religion: East and Southeast Asia." In *New Dictionary of the History of Ideas* vol. 5, ed. Maryanne Horowitz, 2060-2064. New York: Charles' Scribner's Sons, 2005.

Goulding, Jay. "Society." In *New Dictionary of the History of Ideas* vol. 5, ed. Maryanne Horowitz, 2238-2241, New York: Charles' Scribner's Sons, 2005.

Goulding, Jay. "Zen." In *New Dictionary of the History of Ideas* vol. 6, ed. Mary Anne Horowitz, 2513-2514. New York: Charles' Scribner's Sons, 2005.

Goulding, Jay. "Kuki Shūzō and Martin Heidegger: Iki いき and Hermeneutic Phenomenology." In *Why Japan Matters!* vol. 2. edited by Joseph F. Kess and Helen Lansdowne, 677-690. Victoria: Centre for Asia-Pacific Initiatives, University of Victoria, 2005.

Goulding, "New Ways Toward Sino-Western Philosophical Dialogues." *Journal of Chinese Philosophy* 34, no. 1 (February 2007): 99-125.

Goulding, Jay ed. *China-West Interculture, Toward the Philosophy of World Integration: Essays on Wu Kuang-ming's Thinking*. The Association of Chinese Philosophers in America (ACPA) Series on Chinese and Comparative Philosophy. New York: Global Scholarly Publications (distributed by University of Hawaii Press), 2008.

Goulding, Jay. "Daoist Phenomenology: Heidegger's Chinese Students." *Interdisciplinary Social Science Speakers Series: Winter*, Department of Social Science, York University televised by Fairchild TV. Steven So producer. March 2, 2016.

http://www.fairchildtv.com/newsarchive_detail.php?n=28&topic=486&episode=1028

http://www.fairchildtv.com/newsarchive_detail.php?n=28&topic=486&episode=1029

Goulding, Jay. "Barry Allen's *Vanishing into Things: Knowledge in Chinese Tradition*." *Journal of Chinese Philosophy* 44, no. 1-2 (March-June 2017): 113-116.

Goulding, Jay. "Japan-West Interculture: Time's Step Back – Dōgen, Watsuji, Kuki and Heidegger." In *Conference Proceedings of the 31st Japanese Studies Association of Canada Annual Conference, Japan's World and the World's Japan: Images, Perceptions and Reactions*, edited by Aya Fujiwara and James White, 1-26. Edmonton: University of Alberta, 2019.

Goulding, Jay. "Cheng and Gadamer: Daoist Phenomenology and Heidegger." *Journal of Chinese Philosophy*, edited by Cheng Chung-ying, Linyu Gu, and Andrew Fuyarchuk, special issue "Gadamer and Chung-ying Cheng," forthcoming.

Goulding, Jay. "Heidegger's Daoist Phenomenology." In *Heidegger and Daoism*. edited by David Chai. London: Bloomsbury Academic, forthcoming.

Goulding, Jay. "Phenomenology: East and West." In Paul Brienza, Jay Goulding and Livy Visano, *Vico, Daoist Phenomenology and Anarchism*. Toronto: Athenian Policy Forum, forthcoming.

Heidegger, Martin. *Introduction to Metaphysics*. Translated by Ralph Manheim. New York: Anchor Books, 1961.

Heidegger, Martin. *Being and Time*. Translated by John Macquarrie and Edward Robinson. Oxford: Blackwell, 1962.

Heidegger, Martin. *Discourse on Thinking*. Translated by John M. Anderson and E. Hans Freund. New York: Harper and Row, 1966.

Heidegger, Martin. *Identity and Difference*. Translated by Joan Stambaugh. New York: Harper and Row Publishers, 1969.

Heidegger, Martin. *Einführung in die Metaphysik, Gesamtausgabe Band 40*. Herausgegeben von Peter Jaegar. Frankfurt: Vittorio Klostermann, 1983.

Heidegger, Martin. Heidegger, *Hölderlins Hymne 'Der Ister.'* *Gesamtausgabe Band 53*. Herausgegeben von Walter Biemel. Frankfurt: Vittorio Klostermann, 1984.

Heidegger, Martin. *Nietzsche. Volume III: The Will to Power as Knowledge and as Metaphysics*. edited by David Farrell Krell. New York: Harper and Row, 1987.

Heidegger, Martin. *Feldweg-Gespräche (1944-45), Gesamtausgabe Band 77*. Herausgegeben von Ingrid Schüßler. Frankfurt: Vittorio Klostermann, 1995.

Heidegger, Martin. *Hölderlin's Hymn "The Ister."* Translated by William McNeill and Julia Davis. Bloomington and Indianapolis: Indiana University Press, 1996.

Heidegger, Martin. *Parmenides*. Bloomington: Indiana University Press, 1998.

Heidegger, Martin. *Die Geschichte des Seyns (1938-1940), Gesamtausgabe Band 69*. Herausgegeben von Peter Trawny. Frankfurt: Vittorio Klostermann, 1998.

Heidegger, Martin. *Identität und Differenz. Gesamtausgabe Band 11*. Herausgegeben von Friedrich-Wilhelm von Herrmann. Frankfurt: Vittorio Klostermann, 2006.

Heidegger, Martin. *The History of Beyng*. Translated by William McNeill and Jeffrey Powell.

Bloomington: Indiana University Press, 2015.

Kuki Shūzō, "The Notion of Time and Repetition in Oriental Time." In *Shuzo Kuki and Jean-Paul Sartre: Influence and Counter-influence in the Early History of Existential Phenomenology*, edited by Steven Light, 43-50. Carbondale: Southern Illinois University Press, 1987.

Richardson, William J. *Heidegger: Through Phenomenology to Thought*. 3rd edition. The Hague: Martinus Nijhoff, 1974.

Soothill, William Edward and Lewis Hodous. *A Dictionary of Chinese Buddhist Terms with Sanskrit and English Equivalent sand a Sanskrit-Pali Index*. London: Kegan, Paul, Trench, Trubner and Co., 1937.

Tanahashi, Kazuaki ed. *Enlightenment Unfolds: The Essential Teachings of Zen Master Dōgen*. Boston: Shambhala, 2000.

Tollini, Aldo. "Japanese Buddhism and Nature: Man and Natural Phenomena in the Quest for Enlightenment." In *Rethinking Nature in Contemporary Japan*, edited by Bonaventura Ruperti, Sivlia Vesco and Carolina Negrin, 81-96. Venezia: Edizioni Ca' Foscari, 2017.

Tsujimura, Kōichi. "Martin Heidegger's Thinking and Japanese Philosophy." *Epoché* 5, no. 2 (Spring 2008): 349-357.

Ziporyn, Brook. *The Penumbra Unbound: The Neo-Taoist Philosophy of Guo Xiang*. New York: SUNY, 2003.

**"I'mPOSSIBLE': Accessibility and Inclusion for the Tokyo 2020 Games," Susan S. Lee,
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Abstract: Japan's *Universal Design 2020 Action Plan*, which was released in 2017 by the Office of the Prime Minister, is a call to action to increase accessibility throughout the country, and acts as a catalyst for change in preparation for the Tokyo 2020 Olympic and Paralympic Games. This action plan, along with the standards and recommendations of the *Tokyo 2020 Accessibility Guidelines*, aims to remove barriers for all. A textual analysis will be applied to these documents to determine how these plans have been created to address the structural, environmental and attitudinal barriers faced by individuals with impairments. With the countdown to the Tokyo 2020 Games underway, how close are the organizers in reaching their accessibility goals? What will the impact be for citizens and visitors during the Tokyo 2020 Games? In looking ahead, beyond the Tokyo 2020 Games, this paper will also identify the planned legacies for accessibility and inclusion for Japan.

Keywords: Tokyo2020 Olympics, Tokyo 2020 Paralympics, disability, accessibility, barrier-free, universal design

Introduction

The bid for the Tokyo 2020 Olympic and Paralympic Games focused on an integrated approach, with sport as the unifying force for change. The vision of the Tokyo 2020 Games is highlighted on their website (Tokyo2020.org) to read, "Sport has the power to change the world and our future."¹ The three key concepts of 1) achieving your personal best, 2) unity in diversity, and 3) connecting to tomorrow arose from plans based on universal design, accessibility and barrier-free, which aim to shift the Japanese culture to a more inclusive one. Japan will be holding the Olympic and Paralympic Games for the second time in 2021, after it was postponed due to the global pandemic. This will be a different set of games compared to the Tokyo 1964 Games.

Building on the technological advances of the Tokyo 1964 Games which prompted the development of transportation systems, including the Shinkansen and local transits, the Tokyo 2020 Games have set new targets for technology and diversity. The diversity lens, which includes an abilities/disabilities perspective, will be a departure from the Tokyo 1964 Games, which often found athletes relegated to hospitals or remained in their homes.² Sport, back then, was utilized for rehabilitation rather than performance. In reflecting on two films about the Tokyo 1964 Games which are translated as "Tokyo Paralympics, Festival of Love and Glory" and "Record of the 1964 Tokyo Paralympic Games," archer Tomohiro Ueyama said "I've noticed the word rehabilitation was mentioned many times, but it's different now, and I am hoping people will enjoy the Paralympic Games as a sports event rather than rehabilitation"³

¹ Tokyo2020. (2016). *Tokyo 2020 Action and Legacy Plan (2016)*,

https://tokyo2020.org/en/games/legacy/items/legacy-summary_EN.pdf.

² Ryusei, T. (2019). Pioneering Japanese Interpreting Team Opened Nation's Eyes to Disabled Athletes at '64 Olympics, *The Japan Times*, August 22, 2019.

³ Tominaga, T. (2019). Forgotten films from '64 shed light on Paralympic evolution in Japan, *Japan Times*, Sept 5th, 2019.



Photo 1. Matt Stutzman

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The plans for the Tokyo 2020 Games are developing for a shift towards a barrier-free Japan for the athletes, spectators, staff, volunteers, and citizens. Japan's *Universal Design 2020 Action Plan*,⁴ which was released in 2017 by the Office of the Prime Minister, is a call to action to increase accessibility throughout the country, and acts as a catalyst for change in preparation for the Tokyo 2020 Olympic and Paralympic Games. This action plan, along with the standards and recommendations of the *Tokyo 2020 Accessibility Guidelines*, aims to remove barriers for all. Another pivotal document includes the *Tokyo 2020 Action and Legacy Plan*.⁵ A textual analysis will be applied to these documents to determine how these plans have been created to address the structural, environmental and attitudinal barriers faced by individuals with impairments. This critical analysis through text "can bring to attention how disability appears, the grounds of that appearance, as well as the various interpretive slants, such as acceptance or critique, of the current appearance of disability in our lives."⁶ With the countdown to the Tokyo 2020 Games underway, how close are the organizers in reaching their accessibility goals? What will the impact be for citizens and visitors during the Tokyo 2020 Games? In looking ahead, beyond the

⁴ Government of Japan. (2017). Japan's Universal Design 2020 Action Plan from the Office of the Prime Minister Abe
https://www.kantei.go.jp/jp/singi/tokyo2020_suishin_honbu/ud2020kkkaigi/pdf/2020_keikaku.pdf, Feb. 2017.

⁵ Tokyo2020. (2016). *Tokyo 2020 Action and Legacy Plan* (2016),
https://tokyo2020.org/en/games/legacy/items/legacy-summary_EN.pdf.

⁶ Titchkosky, T. (2007). *Reading & Writing Disability Differently: The Textured Life of Embodiment*, Toronto: University of Toronto Press, p. 25.

Tokyo 2020 Games, this presentation will also identify the planned legacies for accessibility and inclusion for Japan. To answer these questions, the analyses are organized into sections on promises, possibilities, shortfalls, and legacies.

Promises

The national document on accessibility is a 35-page document from the Office of the Prime Minister entitled *Universal Design 2020 Action Plan*, which was released in 2017.⁷ The document is informed by five considerations. First, the Tokyo 2020 Olympic and Paralympic Games are intended to proceed with an integrated approach for the planning and implementation of the events. Second, the United Nations Convention of the Rights of Persons with Disabilities states that there will not be any discrimination and that all persons should receive fair treatment. Third, the document cites the Social Model of Disability⁸ which identifies that “disability” is an interaction between the impairment of the individual and the social barriers. Fourth, the action plan aims at building awareness and knowledge by everyone. Finally, the document outlines that the goal is to ensure that everyone can move safely and comfortably.

The opening paragraph of the action plan is critical in setting the stage for an integrated and inclusive environment. Specifically, “we are developing the 2020 Paralympic Games in order to realize this symbiotic society.” The paragraph continues “we are all men and women, elderly people and young people, with or without disability. People value and support each other’s human rights and dignity and everyone enjoys a lively life. We aim to realize a symbiotic society that can be received.”⁹ The statement emphasizes the need to take all human beings into consideration and they are to be treated with dignity and respect. To realize a symbiotic society, action needs to be taken to remove all barriers and to ensure that environments are “barrier-free.”

To become barrier-free, there needs to be changes in a number of areas. Changes need to happen at the personal level. Individuals need to learn to communicate with different people, with diverse social identities, including a range of abilities and disabilities. Cultivating abilities to empathize would strengthen the communication skills. Learning that there are different modes of communication can enhance understanding amongst individuals. Changes can happen through education by teaching children about the meaning of “barrier-free.” Curriculum revisions can improve the knowledge of barrier-free, along with adding teacher-training courses. Partnerships with different stakeholders in business, government and tourism

⁷ Government of Japan. (2017). Japan’s Universal Design 2020 Action Plan from the Office of the Prime Minister Abe, https://www.kantei.go.jp/jp/singi/tokyo2020_suishin_honbu/ud2020kkkaigi/pdf/2020_keikaku.pdf, Feb. 2017.

⁸ Oliver, M. (1990). *The Politics of Disablement*, London, England: Macmillan Education Ltd.; UPIAS. (1976). *Fundamental Principles of Disability* (London, Union of Physically Impaired Against Segregation) Available on the Disability Archive: www.leeds.ac.uk/disability-studies/archiveuk/index.

⁹ Government of Japan. (2017). Japan’s Universal Design 2020 Action Plan from the Office of the Prime Minister Abe, https://www.kantei.go.jp/jp/singi/tokyo2020_suishin_honbu/ud2020kkkaigi/pdf/2020_keikaku.pdf, Feb. 2017.

can also contribute to a greater understanding of what a barrier-free environment could be within the different contexts. While the *Universal Design 2020 Action Plan* offers the context and the guiding considerations for accessibility and barrier-free, the *TOKYO 2020 Accessibility Guidelines* provides specific steps on how to achieve these goals.

The *TOKYO 2020 Accessibility Guidelines*¹⁰ is a 153-page document that outlines the fundamentals of equity, dignity and functionality, and focuses on a range of individuals who can benefit from a more accessible environment. The list includes individuals with physical impairments (i.e. mobility, visible, hearing), intellectual challenges, and mental illness. Others who can benefit from changes include people with injuries, older adults and seniors, pregnant women, people with infant children, people who speak languages other than Japanese, and people travelling with a service dog. For individuals who will be connected to games, which include athletes, spectators, volunteers, staff, tourists, and citizens, they will all be able to benefit from the technical requirements specified in the guidelines. Technical specifications are for doorways, ramps, venues, washrooms, hotels, publications, and communications, transportation and training.

The document provides specifics on infrastructure, communications and training. The specifications for infrastructure detail the measurements in numbers, words and diagrams required for barrier-free access, such as ramps leading into venues, doorway widths for motorized wheelchairs, accessible washrooms, and counter heights for reception and information booths. Communications needs to be offered in different formats.

With print material, large font sizes and sans-serif font types would enhance reading. Signage for way finding should be high contrast such as black and white to increase readability. For disability awareness training, there needs to be focus on the individual rather than the impairment. The guidelines provide specific directions to speak directly to the person, and not their personal support worker, to speak clearly in a normal tone and speed, to avoid touching service dogs and mobility aids, and to never touch a person with a disability unless you have received expressed permission.

These guidelines are detailed to ensure that these standards can be implemented for the games, and are to be expected by persons with and without disabilities who are participating in the games, organizing the games, or attending the games as mega-sport fans. The guidelines take a comprehensive approach by addressing social attitudes and the built environment.

Progress

To highlight the progress made, the social model of disability¹¹ offers an approach to organizing the information from a disability lens perspective. A disability lens approach identifies disability or disabilities as barriers in the social environment, not the individual.

¹⁰ Tokyo2020. (2019). *Accessibility Guidelines*, https://tokyo2020.org/en/organising-committee/accessibility/data/accessibility-guidelines_EN.pdf.

¹¹ Oliver, M. (1990). *The Politics of Disablement*, London, England: Macmillan Education Ltd.; UPIAS. (1976). *Fundamental Principles of Disability* (London, Union of Physically Impaired Against Segregation) Available on the Disability Archive: www.leeds.ac.uk/disability-studies/archiveuk/index.

Specifically, one can identify these barriers within structures, environments and attitudes (i.e. who are the targeted audiences, what are the plans, what will the impact be), or the SEAWall.¹² The structural level was depicted by French as the macro-system or the foundational level which included the hierarchical power relations and structures which disempowered disabled persons, the denial of human rights and opportunities such as education and work in relation to disabled persons, and the welfare policies which could have a negative impact on socio-economic class.

In the middle of the SEAWall, there were the environmental factors which included four kinds of barriers: ableist language, institutional policies and regulations, professional practices, and inaccessible physical environments. The top level of the SEAWall depicted attitudes or prejudices that had three components: cognitive, emotional and behavioural. The cognitive component reflects the lack of understanding of disability in general, and the skills and knowledge of disabled persons in particular. The emotional component revealed the feelings of non-disabled persons when they interacted with disabled persons, and feelings ranged from fear to respect in any of these encounters. The behavioural component reflected the actions of non-disabled persons towards disabled persons. This SEAWall of barriers was influenced by or “cemented by ideologies of ‘normality’ and ‘independence’.”¹³ This metaphor and acronym of the SEAWall, while initially addressed possible barriers in the workplace, can be applied to the analysis and shortfalls of the Tokyo 2020 Games.

The *Sustainability Progress Report*¹⁴ focuses on five areas that include: climate change, resource management, natural environment and biodiversity, consideration of human rights and fair business practices, and cooperation and communications. For the purpose of this paper, the results from the latter two areas will highlight how diversity practices are being implemented, and how partnerships are being formed to enhance equity and inclusion.

Structural

The organizing stakeholders include governments, businesses, and sport governing bodies. To ensure that there are different perspectives included in the development of policies and programs which will organize the development of the games, there needs to be a hiring of a diverse group of staff and volunteers. The Tokyo 2020 games recruited many staff through secondments from the Tokyo Metropolitan Government and the government of Japan. Games volunteers have been recruited for the 80,000 positions out of the 200,000 applications. The 80,000 volunteers consist of 36% male, 64% female, 64% Japanese, 36% non-Japanese.¹⁵ The goal for the recruitment of the torch relay volunteers is to also provide a broad representation, including disability, age, gender, and nationality.

¹² French, S. (2001). *Disabled People and Employment A Study of Working Lives of Visually Impaired Physiotherapists*, Aldershot, England: Ashgate Publishing Company.

¹³ Ibid, p.14.

¹⁴ Tokyo2020. (2019). *Overview of the Tokyo 2020 Olympic and Paralympic Games Sustainability Progress Report*, https://tokyo2020.org/en/games/sustainability/report/data/overview-tokyo2020-games-sustainability-report_EN.pdf

¹⁵ Ibid.

Environmental

While there are 25 sports centres which are accessible for persons with disabilities in Japan, guaranteed training times are not available for para-athletes. The sports centres are often used for rehabilitation and recreation purposes. The new Para Arena, located next to the museum of Maritime Science in Tokyo's Shinagawa Ward – a 3,187 square metre facility – is now available as a training space for para-athletes.¹⁶ Built by the Nippon Foundation Paralympic Support, the new Para Arena includes three courts for wheelchair basketball or rugby, eight for boccia, two for sitting volleyball, and one for blind soccer or goal ball. Additionally, there are barrier-free entrances, multiple areas featuring universal design elements such as high contrast wall and floor colours to support individuals with visual impairments. Air conditioning is important since athletes with spinal cord injuries may have difficulty cooling the body, plus a “huge parking space” for accessible parking. Despite the state-of-the-art facilities that are now available for para-athletes through the Para Arena, there is uncertainty as to the existence of the facility after the games

Attitudinal

Attitudinal changes may be the greatest catalyst for a cultural shift towards accessibility. As highlights in the Sustainability Progress Report, training for staff, volunteers and contractors has been provided since 2017. A handbook with basic knowledge of diversity and inclusion was prepared. Educational sessions have been designed to address the reception and support for individuals with visual impairments, hearing impairments and who use wheelchairs. To learn more about diverse communities, a LGBTQ Café and Human Library was also coordinated for staff training. To ensure that human rights procedures are adhered to, a Grievance Mechanism has been installed in place for daily operations, during the games, and throughout the supply chain.

To ensure that more of the general population is aware and engaged, there is a need for education starting with the very young. The International Paralympic Committee (IPC) developed *I'm Possible* in 2017, as their official education program. The IPC partners with national paralympic committees and ministries of education, with Japan being the first country to launch the program. With an initial target of 20,000 teacher toolkits to be distributed, the actual distribution was of 36,000 packs by Feb 2019.¹⁷ The packs were initially launched for 6 – 12 year olds, but with an intention to provide “reverse education” these tool kits set the stage for discussion with family and across generations. Family talks can help promote the Paralympic values of courage, determination, inspiration and quality. The teacher toolkits provided 15 lesson plans, which included learning activities, power points, questions and quizzes for 45-minute sessions. The *I'm Possible* toolkits also offered 6 inspirational films. In addition to the toolkits, schools have hosted Parasport exchange conferences to show case specific disability sports such as boccia and floor volleyball.

¹⁶ Ikezawa, H. (2018). Para Arena a barrier-free home base for athletes, *The Japan Times*, Aug. 24th, 2018.

¹⁷ Tokyo2020. (2019). *Overview of the Tokyo 2020 Olympic and Paralympic Games Sustainability Progress Report*, https://tokyo2020.org/en/games/sustainability/report/data/overview-tokyo2020-games-sus-report_EN.pdf



Picture 2. Mami Tani

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Shortfalls

Structural

Stakeholders are coming together for the games, from the national and local governments, to the disability sport organizations. The Paralympic Support Centre which houses 23 disability sports organizations has an uncertain future. Without funding the centre may be dissolved following the implementation of the Tokyo 2020 Games.¹⁸ With the different organizations involved in the planning of the games, are there sufficient representation from persons with disabilities? Representation of individuals with impairments at the staffing levels can still be improved. Nearly 40% (17 out of 44) of government entities missed the hiring targets for persons with impairments as of June 2019 even though 3,623 were hired since October 2018.¹⁹ The proportion of persons with disabilities across the 44 government entities stood at 2.31%, which is still below the legally required level of 2.5%.²⁰

¹⁸ Ogura, K. (2018). Visions of the legacy of the Tokyo 2020 Paralympic Games, In I. Brittain & A. Beacom (Ed.), *The Palgrave Handbook of Paralympic Studies*, Switzerland: Springer Nature, p. 579-602.

¹⁹ Jiji Press. (2019). Nearly 40% of Japan Government institutions miss hiring targets for people with disabilities, *The Japan Times*, August 29, 2019.

²⁰ Ibid.

Environmental

To ensure there are sufficient accommodations for the tourists for the games, hotels need to provide more accessible rooms per night. Specifically, there is a projected 300 rooms short of the 850 needed; 35% accessible rooms are missing.²¹ However, Bookman²² notes that hotels missed the mark on accessibility. Although 900 out of the 240,000 are listed as barrier-free, certain features such as a raised entryway, a narrow bathroom door, and a long commute render the accommodations inaccessible for individuals with disabilities. Currently, 0.4% of Japan's hotel rooms are accessible.²³

In a recent situation, conflict arose with the British paralympic teams which were initially asked to pay for construction before the games to make the rooms accessible, and then additional costs to return to current state; Yokohama City agreed to pay for the costs, with a fund now available for subsidization (20 million yen fund) for construction of at least 1000 square metres of floor space.²⁴ New standards will be implemented to address the concerns of limited accessible hotel rooms. Under the new standards, hotels with 50 or more rooms will need to design 1% of their hotel rooms to be accessible. For example, 300 room hotels need to build and allocate three rooms as accessible. A barrier-free room must have an entrance wider than 80 centimetres (30 inches), a bathroom with handrails and no steps dividing rooms. Still, even with this new law, this percentage is far below the number of persons with impairments in the general population, which is 15% according to the World Health Organization.²⁵

While accessibility standards are detailed for the training and competition venues, this is not the case for restaurants and tourist sites. Tourists will also be eating out at restaurants and visiting tourist sites. For example, steps at entrances can limit the eating options. In a video interview between BBC disability news correspondent Nikki Fox and Josh Grisdale, founder of Accessible Japan, who both use electric wheelchairs, could not enter a restaurant in Tokyo.²⁶ Their alternative option was to eat in the local food court in the nearest department store that had elevator access.

²¹ Kyodo Press. (2019). Wheelchair-accessible hotel rooms still an issue ahead of the Tokyo 2020 Paralympic and Olympic Games, *The Japan Times*, June 10, 2019.

²² Bookman, M. (2019). An Olympics crowdsourcing project may be the answer to making Japan a more accessible country, *The Japan Times*, May 26, 2019.

²³ Bookman, M. (2019). An Olympics crowdsourcing project may be the answer to making Japan a more accessible country, *The Japan Times*, May 26, 2019.

²⁴ Jiji Press. (2019). Nearly 40% of Japan Government institutions miss hiring targets for people with disabilities, *The Japan Times*, August 29, 2019.

²⁵ World Health Organization. (2011). *World Report on Disability*.
https://www.who.int/disabilities/world_report/2011/report/en/.

²⁶ BBC. (2019). Tokyo Paralympics 2020: Will Tokyo Be Accessible Enough?
<https://www.bbc.com/news/av/world-asia-49434807/tokyo-paralympics-2020-will-tokyo-be-accessible-enough>.

Attitudinal

While employment of persons with impairments is a goal, the actual rates are below the standards within the government institutions. Decreasing the unemployment rates among persons with disabilities can make a difference in meeting their basic needs such as food, shelter and clothing, and enhancing independence. By decreasing underemployment or fully utilizing the skills of the individuals with disabilities will provide for retention and satisfaction in their current jobs. Greater recruitment needs to take place from a larger pool of candidates. Once hired, employers need to have discussions with their new employees on what can be achieved with a professional development plan to ensure that all skills are being optimized.

In preparation for the Tokyo 2020 Games, the staff requires disability awareness training in preparation for their roles and responsibilities. For example, the staff who created the ticketing systems have fallen short of making this process barrier-free. Tickets were not prepared in Braille or on a CD, but only in an audio format and a hotline. The Japan Federation for the Blind has criticized the process, with "It's strange that Tokyo 2020 isn't sharing information according to its own guidelines".²⁷ While there are more accessible taxis being made for the games, the taxi drivers need technical and empathy training. To transition the taxis into barrier-free vehicles, the taxi drivers need to take time to fold the seats, install slope plates and secure the wheelchair, with the process taking upwards to an hour to complete.²⁸ Unfortunately, some taxi drivers have admitted to not stopping for individuals who use wheelchairs, especially if it was a short distance ride. These structural, environmental and attitudinal shortfalls can potentially still be remedied, with the time available, before the start of the games. As with the promises, the long-term impact of the accessible features will form the legacies of the Tokyo 2020 games.

Legacies & Leverages

The Tokyo 2020 Games have prepared and outlined the *Tokyo 2020 Action and Legacy Plan (2016)* with their intentions: "The overriding objective of our Action & Legacy Plan is to engage as many people as possible with the Games (Action), and pass on the positive benefits of hosting the Tokyo 2020 Games to future generations (Legacy)."²⁹ The games are significant with the goals of improved accessibility, improved communications, change in the psycho-social environments and reconstruction following the Great East earthquake of 2011. Ogura's³⁰ analysis of the upcoming games indicate that there will be impact on disability sport, social participation of persons with disabilities, and social participation in general. Impact on disability sport will include the availability, access and quality of training centres. The impact on social participation of persons with disabilities will include in sports, work, and everyday

²⁷ Kyodo Press. (2019). 2020 Games Criticized by Tokyo Association for the blind for lack of ticket info in Braille or on CDs, *The Japan Times*, Sept. 5th, 2019.

²⁸ The Japan Times. (2019). Take 5 from the Japan Times: Accessible taxis – if you can wait an hour. (Oct. 25th, 2019).

²⁹ Tokyo2020. (2016). *Tokyo 2020 Action and Legacy Plan (2016)*, https://tokyo2020.org/en/games/legacy/items/legacy-summary_EN.pdf, p1.

³⁰ Ogura, K. (2018). Visions of the legacy of the Tokyo 2020 Paralympic Games, In I. Brittain & A. Beacom (Ed.), *The Palgrave Handbook of Paralympic Studies*, Switzerland: Springer Nature, p. 579-602.

living. The impact on social participation in general will include attending the games, barrier-free education in the public schools, greater accessibility in the transportation systems, and an increase in the number of disability sport instructors in each of the 59 districts in Tokyo. The social participation goals of the Tokyo 2020 Games include 53+ goal medals, the selling of 2.3 million tickets to fill all venues, and a more inclusive society. A spokesperson for the Tokyo 2020 games said that the Paralympics can help grow “the promotion of universal design in sports facilities and living spaces, and encouraging people’s minds to become barrier-free through Paralympic Education.”³¹

Legacies often focus on the event and are reported after the games, with limited opportunities to engage the local community. In contrast, leveraging emphasizes the strategic goals of the opportunity and the evaluation centres on how effective these activities have been to create the outcomes regardless of the timeframe. To ensure that legacies last and are sustainable, leveraging needs to be planned and cultivated through “social leverage” or “synergistic relationships.”³² In a comparative analysis of the attitudes of individuals towards persons with disabilities in two mega-sports events – the Glasgow 2014 Commonwealth Games and the Toronto 2015 Pan Am and ParaPan Am Games, there was no significant change in attitudes in volunteers (n=1500). With the Toronto 2015 Games, 55% of spectators (n = 1062 total survey) responded that the event changed their attitude towards disability.³³ The lack of change in attitudes amongst volunteers could be based on their demographics. The researchers explained that the volunteers are well-educated, have moderate to high income living, and have a high interest in social values. While there was change in the spectators’ attitudes towards persons with disabilities, the researchers did conclude that, “We suggest that it is problematic to continue to expect the event in and of itself (i.e. merely seeing athletes with impairments) to be the social change desired. There needs to be clear strategies that focus on the targeting of cognitive and behavioural dimensions of change.”³⁴

Within the *Tokyo 2020 Action and Legacy Plan (2016)* some of the key social levers include the Tokyo Metropolitan Government, the Government of Japan, Economic organizations, and the Japan Olympic Committee and Japan Paralympic Committee.

³¹ Bauer, A. (2019). Athletes and organizers hope to use Paralympics as catalyst for future, *The Japan Times*, July 31, 2019.

³² Misener, L., McPherson, G., McGillivray, D. & Legg, D. (2019). *Leveraging Disability Sport Events: Impacts, Promises & Possibilities*, New York: Routledge.

³³ Ibid, p.14.

³⁴ Ibid, p.120.



Photo 3. Shingo Kunieda

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Working together to put plans into actions, Tokyo2020 Nationwide Participation Program was developed and implemented. As of January 2019, the *Sustainability Report* highlighted the numbers for the Nationwide Participation Program: 1,845 parties or organizations registered, 93,000 actions or events occurred and 60 million people participated.³⁵ Based on Japan's population of over 126 million people, nearly half of the population has participated in these nationwide programs, including the Tokyo 2020 Medal Project and the "Yoi Don!" Program. The Tokyo 2020 Medal Project engaged the general Japanese population to collect enough metal for the Olympic and Paralympic medals, while the "Yoi Don!" (Get Set!) Education Program promoted knowledge about the Olympic and Paralympic Games and engaged students in the creation and selection of the Tokyo 2020 Games mascots.

In identifying the impact of disability sport, different sporting events around Japan can also influence the perceptions on accessibility and inclusion. One case study is the OITA International Wheelchair Marathon which has been in place since 1981. The historical context began in 1960, when Dr. Yutaka Nakamura first brought the concept of sports competition after learning from the father of Paralympic Games, Sir Ludwig Guttman. At the time, persons with disabilities were immobilized and provided with bed rest. In 1962 he sent two para-athletes to the international wheelchair athletics called the Stoke Mandeville Games. With the Japanese

³⁵ Tokyo2020. *Overview of the Tokyo 2020 Olympic and Paralympic Games Sustainability Progress Report*, https://tokyo2020.org/en/games/sustainability/report/data/overview-tokyo2020-games-sustainability-report_EN.pdf.

media picking up the news, Dr Nakamura's efforts led to the Paralympic Games being held in Tokyo in 1964. Over 200 athletes from 16 countries compete in men's and women's events in October and has been hosted 38 times.³⁶ Both the full marathon of 42.195 km and half marathon are available. The best time was with Swiss athlete Marcel Hug in the T34/53/54 category in 1:23:59; some go from 30-70 km/hr; runners go 20km/hr.³⁷

Pieter du Preez, South African wheelchair athlete and 4th in the world, wanted to try the onsen and found the area very accessible. Additionally, he adds

I've been to all sorts of countries, but I can say that Oita is the most inclusive space I've ever been to. There are flat spaces everywhere you go to accommodate wheelchairs and considerations for other types of impairments too, like textured paving blocks all around the city for people with visual impairments. As someone who uses a wheelchair, I was quite impressed with this city.³⁸

The Japan National Tourist Association (JNTO) is promoting safe tourism in Oita by showcasing a city which is accessible for people who are older or have impairments. Tatsuo Yamashita, 5th and current director of Japan Sun industries which founded by Yutaka Nakamura hires individuals with impairments. Sun industries highlights that 1100 out of the 1800 employees (61%) have impairments and are employed in the five offices inside and outside Oita Prefecture. Beginning back in the 1960s, Yutaka Nakamura wanted to create a community where people with and without impairments could live and work together in symbiosis. Yutaka Nakamura's son, Dr. Tao Nakamura, reflects on his father's legacy of symbiosis

Oita is associated with tourism and hot springs, but Beppu is promoting itself to the rest of Japan and the world as a place of symbiosis. Beppu has a population of about 120,000, but around 8,800 of its residents have impairments and about 4,300 are from other countries. I doubt there are many places in Japan with so much diversity. I want to spread the word to inspire more places around Japan to become places of symbiosis like Beppu.³⁹

³⁶ Tokyo2020. (2019) Oita International Wheelchair Marathon, an event held in southeastern Japan, attracts top athletes across the world and many local spectators: The Paralympic Games transform the region (Vol.1) 24 April 2019, <https://tokyo2020.org/en/news/notice/20190410-02.html>.

³⁷ Ibid.

³⁸ Tokyo2020. (2019) Oita International Wheelchair Marathon, an event held in southeastern Japan, attracts top athletes across the world and many local spectators: The Paralympic Games transform the region (Vol.1) 24 April 2019, <https://tokyo2020.org/en/news/notice/20190410-02.html>.

³⁹ Tokyo2020. (2019) Oita International Wheelchair Marathon, an event held in southeastern Japan, attracts top athletes across the world and many local spectators: The Paralympic Games transform the region (Vol. 1) 24 April 2019, <https://tokyo2020.org/en/news/notice/20190410-02.html>.

Oita was transformed by sport, through the international wheelchair marathon, and provides a model of how “unity in diversity” and symbiosis can be realized. Symbiosis becomes a reality when these employees with impairments participate in everyday living with their families. “Over the years, with impairments being very common, it becomes natural to have friends with impairments as well” says Tao Nakamura.⁴⁰ Impairment becomes normalized, rather than being the exception. With this majority in the population, there is evidence of a social cultural shift in the attitudes towards persons with disabilities. This is an increasing concern as Japan’s aging population is 65 and older and totals 35.88 million or 28.4% of total population.⁴¹ Oita has been transformed by sport, workplaces and attitudes over the past 50 years, and this could be possible with the Tokyo 2020 Games as a catalyst for change. With the concerted efforts of many stakeholders, this can be possible.



Photo 4. Siamand Rahman

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To better understand the social leveraging and synergistic relationships, Misener et al. offers a social change analysis from a disability studies lens (see Table 1).⁴² From a social change perspective, there are different levels of impact and influence: individual, behavioural and group/organization/society. For the purpose of this paper, key players have

⁴⁰ Ibid.

⁴¹ Nippon.com. (2019). Japan’s Elderly Population Totals Record 35.88 M, Sept 15th, 2019 https://www.nippon.com/en/news/yjj2019091500338/japan's-elderly-population-totals-record-35-88-m.html?cx_recs_click=true

⁴² Misener, L., McPherson, G., McGillivray, D. & Legg, D. (2019). *Leveraging Disability Sport Events: Impacts, Promises & Possibilities*, New York: Routledge.

been identified based on the progress made in advance of the Tokyo 2020 Games. All these stakeholders can play a role in disability sport, the social participation of persons with disabilities, and raising the social consciousness of disability in our everyday lives.

Table 1. Social Change Analysis

	Individual	Behavioural	Group/ Organization/ Society
Sport & Disability Studies	Individual participation & support for disability sports	Audience participation & attitudes towards disability sport post event	Disability sports groups working together
Tokyo 2020 Progress	Athletes Staff Volunteers Torchbearers Citizens Disability Activists Journalists Photographers Bloggers	Media representations Social media Fan engagement Education Professional development Casual dialogue	Disability sports groups Tokyo2020 organizers All governments Employers Multi-level stakeholders

Hopeful Outcomes

Promises for the Tokyo 2020 Games were outlined from the official government of Japan's *Universal Design Action Plan* and carefully planned in the *Tokyo 2020 Accessibility Guidelines*. With stakeholders working from governments and sports organizations, there is much progress made for disability awareness through education and sports participation for all abilities. Legacies and leveraging ensures that the Tokyo 2020 Games will be sustainable for sports athletes and the general population. The changes for accessibility and disability awareness are timely, as the Japan population ages. With the aging of Japan's population, there will be higher incidences of impairments.

At the nexus of disability rights, human rights and sports events, social justice is possible, with a transformational shift that reduces and eliminates structural, environmental and attitudinal barriers. From the vision of the Tokyo2020 Games that "Sport has the power to change the world and our future" to *Japan's Universal Design Action Plan* that states "we are developing the 2020 Paralympic Games in order to realize this symbiotic society," there is much to celebrate on the progress made since Tokyo was awarded the host city for the Tokyo 2020 Olympic and Paralympic games. While there remains criticisms for more changes to be implemented to meet the *Tokyo 2020 Accessibility Guidelines*, Tokyo has offered an all-Japan approach along with accountability commissions to host the Olympic and Paralympic games, and more importantly, to sustain a continuous improvement on accessibility and inclusion beyond 2020.

Bibliography

- Bauer, A. (2019). Athletes and organizers hope to use Paralympics as catalyst for future, *The Japan Times*, July 31, 2019.
- BBC. (2019). Tokyo Paralympics 2020: Will Tokyo Be Accessible Enough? <https://www.bbc.com/news/av/world-asia-49434807/tokyo-paralympics-2020-will-tokyo-be-accessible-enough>.
- Blair, G. (2019). IOC 'very satisfied' with Tokyo 2020 preparations, say organisers, *The Guardian*, <https://www.theguardian.com/sport/2019/jul/24/ioc-tokyo-2020-olympic-games>.
- Bookman, M. (2019). An Olympics crowdsourcing project may be the answer to making Japan a more accessible country, *The Japan Times*, May 26, 2019.
- French, S. (2001). *Disabled People and Employment A Study of Working Lives of Visually Impaired Physiotherapists*, Aldershot, England: Ashgate Publishing Company.
- Government of Japan (2019) Japan's Universal Design 2020 Action Plan from the Office of the Prime Minister Abe https://www.kantei.go.jp/jp/singi/tokyo2020_suishin_honbu/ud2020kkkaigi/pdf/2020_keikaku.pdf, Feb. 2017.
- Ikezawa, H. (2018). Para Arena a barrier-free home base for athletes, *The Japan Times*, Aug. 24th, 2018.
- Jiji Press. (2019). Nearly 40% of Japan Government institutions miss hiring targets for people with disabilities, *The Japan Times*, August 29, 2019.
- Kyodo Press. (2019). Wheelchair-accessible hotel rooms still an issue ahead of the Tokyo 2020 Paralympic and Olympic Games, *The Japan Times*, June 10, 2019.
- Kyodo Press. (2019). 2020 Games Criticized by Tokyo Association for the blind for lack of ticket info in Braille or on CDs, *The Japan Times*, Sept. 5th, 2019.
- Misener, L., McPherson, G., McGillivray, D. & Legg, D. (2019). *Leveraging Disability Sport Events: Impacts, Promises & Possibilities*, New York: Routledge.
- Nippon.com. (2019). Japan's Elderly Population Totals Record 35.88 M, Sept 15th, 2019 https://www.nippon.com/en/news/yj2019091500338/japan's-elderly-population-totals-record-35-88-m.html?cx_recs_click=true
- Ogura, K. (2018). Visions of the legacy of the Tokyo 2020 Paralympic Games, In I. Brittain & A. Beacom (Ed.), *The Palgrave Handbook of Paralympic Studies*, Switzerland: Springer Nature, p. 579-602.

- Oliver, M. (1990). *The Politics of Disablement*, London, England: Macmillan Education Ltd.
- Ryusei, T. (2019). Pioneering Japanese Interpreting Team Opened Nation's Eyes to Disabled Athletes at '64 Olympics, *The Japan Times*, August 22, 2019.
- Takahashi, R. (2019). Pioneering Japanese interpreting team opened nation's eyes to disabled athletes at '64 Paralympics, *The Japan Times*, August 22, 2019.
- The Japan Times. (2019). Take 5 from the Japan Times: Accessible taxis – if you can wait an hour. (Oct. 25th, 2019).
- Titchkosky, T. (2007). *Reading & Writing Disability Differently: The Textured Life of Embodiment*, Toronto: University of Toronto Press.
- Tokyo2020. (2016). *Tokyo 2020 Action and Legacy Plan (2016)*, https://tokyo2020.org/en/games/legacy/items/legacy-summary_EN.pdf
- Tokyo2020. (2019a). *Accessibility Guidelines*, https://tokyo2020.org/en/organising-committee/accessibility/data/accessibility-guidelines_EN.pdf
- Tokyo2020. (2019b). *Overview of the Tokyo 2020 Olympic and Paralympic Games Sustainability Progress Report*, https://tokyo2020.org/en/games/sustainability/report/data/overview-tokyo2020-games-sus-report_EN.pdf
- Tokyo2020. (2019c) Oita International Wheelchair Marathon, an event held in southeastern Japan, attracts top athletes across the world and many local spectators: The Paralympic Games transform the region (Vol. 1)24 April 2019, <https://tokyo2020.org/en/news/notice/20190410-02.html>.
- Tokyo2020. (2019d)The man who dedicated his life to putting Para sports on the map: The Paralympic Games transform the region (Vol. 2) 26 April 2019 <https://tokyo2020.org/en/news/notice/20190411-01.html>.
- Tokyo2020. (2019e) The world takes notice! Oita as the "most inclusive city": The Paralympic Games transform the region (Vol. 3) 8 May 2019 <https://tokyo2020.org/en/news/notice/20190412-01.html>.

“Osaka’s Troubled Metropolitan Plan: A Local Tragedy or Japan’s Triumph?” David W. Edgington, Professor Emeritus, Department of Geography, University of British Columbia (David.Edgington@ubc.ca)

Abstract: In this paper I examine the proposal by Tōru Hashimoto and his ‘One Osaka’ political party followers to merge Osaka City and Osaka Government into a Metropolitan government. Conceptually, this case study is set within a literature that appraises arguments both for and against metropolitan-level governance, and the tensions between Osaka and Tokyo. Empirically, I chronicle the evolution of the Osaka Metropolitan Plan over the 2010 to 2020 period. The analysis draws attention to the challenges of implementing the Plan together with local and national political frictions and coalitions at play.

Key words: urban governance, Osaka Metropolitan Plan; Japan’s regions; One Osaka Party; Tōru Hashimoto.

Introduction

Japan is one of the world’s most heavily urbanized nations, which makes the question of how its cities are governed an important political and policy question. In April 2019 the question of urban governance dominated the last local elections of the Heisei Era (1989-2019). In what was termed a ‘cross-election’, the mayor of Osaka City, Hirofumi Yoshimura, resigned to run for governor of Osaka Prefecture, while the then governor, Ichirō Matsui, stood down to campaign for the city mayor’s office. At stake was an unusual strategy known as the Osaka Metropolitan Plan, the crown jewel in the policy plans of “One Osaka” (also known as the Osaka Restoration Association, *Ōsaka Ishin no Kai*), the political party to which both men belonged to. The Osaka Metropolitan Plan, which aims to unify Osaka Prefecture as a metropolis divided up into special wards similar to the current administration of Tokyo, was proposed originally by One Osaka founder Tōru Hashimoto in 2010 and has been a central and divisive part of the region’s politics ever since.

In the event, both candidates won their respective seats contested in the 2019 election and a second referendum on the Osaka Metropolitan Plan will likely take place in late-2020 (the first was in 2015). This paper reviews the rivalry between Osaka and Tokyo, arguments surrounding the relative merits and debates over a metropolitan government (is it a local tragedy for Osaka if implemented, or does its agenda form part of a larger struggle to revitalize Japan’s regions?), the rise of Hashimoto’s regional populist movement in Japan, shenanigans in both local and national politics, and along the way I discuss Prime Minister Abe’s backing for the World Expo in Osaka and an analysis of the 2015 Osaka City referendum. A key research question is to what degree does the Osaka Metropolitan Plan reflect wider issues surrounding the search for better urban governance. Results indicate that arguments for the plan were couched largely in efficiency terms, while its many opponents raised issues relating to geographical equity and accountability over likely future resources and services provided by the proposed special wards. In addition, there is scant evidence as to whether a merger of Osaka city and the prefecture would assist the local economy, or whether there is support for a similar metropolitan governance in other jurisdictions across Japan.

Some General Principles of Metropolitan Governance

Efficiency, Equity and Accountability Arguments

While the question of how to govern and manage large metropolitan regions is not new, Bourne argues that these debates have taken on renewed vigor and urgency in recent years.¹ Among the triggers include the increasing scale and complexity of metropolitan regions, the rapidity of social and economic change, the perceived threats of increased globalization, severe constraints facing financing of the public sector, and a greater perception of environmental degradation in large cities and their surrounding areas together with a deterioration in the quality of life. Indeed, scholarship that focuses on rethinking governance of the contemporary metropolis has yielded examples of challenges and change from North America, Europe and Asia.² The key questions asked are: what kinds of organizations, institutions, strategies and policy instruments are most appropriate to address these problems; and what geographical delimitation of a metropolitan region is most suitable for management and planning? In this regard, Bourne maintains that there has been little agreement on what the issues really are, either in theory or in practice.³

Historically, a fundamental concern has been the existence of widespread metropolitan fragmentation. It is often claimed that larger metropolitan areas are divided into numerous municipal units (or government service districts) with relatively weak authorities covering the entire region. At the same time, entire metropolitan areas are often undergoing rapid physical expansion together with a decentralization of population and economic activity. A common assumption is that such fragmentation contributes to economic inefficiencies and social polarization and that some form of metropolitan consolidation or regional government is essential. In practice, however, fragmentation persists, often because of the inability or

¹ Bourne, Larry S. *Alternative Models for Managing Metropolitan Regions: The Challenge for North American Cities*. Paper prepared for the International Forum on Metropolization, 22 February, 1999, Santa Cruz, Bolivia. Accessed June 2020.
<http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=128639331A37B34F6370364B5C108D9C?doi=10.1.1.195.8335&rep=rep1&type=pdf>; Bourne, Larry S. "Designing a Metropolitan Region: The Lessons and Lost Opportunities of the Toronto Experience". In *The Challenge of Urban Government: Policies and Practices*, edited by Mila Frier and Richard E. Stren 27-46. Washington D.C. : World Bank Institute, 2001.

² Edgington, David W. Antonio Fernandez and Claudia Hoshino. *New Regional Development Paradigms Volume 2. New Regions – Concepts, Issues and Practices*. Westport, Connecticut: Greenwood Press, 2001; Miller, David. *The Regional Governing Of Metropolitan America*. New York: Routledge, 2002; Asian Development Bank. *Managing Asian Cities: Sustainable and Inclusive Urban Solutions*. Mandaluyong City, Philippines: Asian Development Bank, 2008; Laquian, Aprodicio A. *Beyond Metropolis: The Planning and Governance of Asia's Mega-Urban Regions*. Washington, D.C.: Woodrow Wilson Center Press, 2005; Phares, Donald. *Governing Metropolitan Regions in the 21st Century*. New York: Routledge, 2009; Xu, Jiang and Yeh, Anthony G.O. *Governance and Planning of Mega-City Regions: An International Comparative Perspective*. London, Routledge, 2011; Nelles, Jen. *Comparative Metropolitan Policy: Governing Beyond Local Boundaries in the Imagined Metropolis*, London: Routledge, 2012; Thibert, Joel *Governing Urban Regions Through Collaboration: A View from North America*. London: Routledge, 2015; Chatry, Isabelle and Hulbert, Claudia, eds. *Multi-Level Governance Reforms: Overview of OECD Country Experiences*. Paris: OECD, 2017.

³ Bourne, *Alternative Models for Managing Metropolitan Regions*.

unwillingness of growing suburban municipalities to agree to annexation or amalgamation, or even cooperation, on grounds of local autonomy.⁴

A major theoretical criteria used to design governance structures is the 'subsidiary principle', which underscores that the efficient provision of public services (police, health, education and welfare services, and so on) require decision-making to be carried out by the level of government that is closest to the individual citizens.⁵ Thus, as long as there are local differences in tastes and costs, there are clear efficiency gains from delivering many public services at the local level, together the advantages of greater accountability and responsiveness. Higher ranking government agencies, say at the regional or national level, should only take on public services where there are clear efficiencies or redistributive advantages to be demonstrated (e.g. national defence). By this criterion almost all public services should be provided at the local (or sub-national regional) level with local policy-makers making decisions about what services to provide, how much to provide and who should pay for them. Of course, no scholar defines adequately what is meant by 'local' (or 'regional') in terms of municipal population size; neither is there any consistent evidence that there is a single 'optimal size' for any urban municipality or for any particular service (for instance the provision of water and sewerage, police, health, education or welfare services may each have a different optimal size of government). Still, it is argued that having many truly local municipal governments – rather than a consolidated 'metropolitan' (or Metro-wide) government – is more democratic because such governments are 'closer to the people'. This standpoint is supported by classical economics and the 'public choice' paradigm of Tiebout, in which people can 'vote with their feet' by moving to jurisdictions that offer a basket of public goods and services they prefer, and are willing to pay for.⁶

By contrast, the proponents of consolidation, and of metropolitan governance and uniform service provision, reverse these arguments. They suggest that fragmented government structures in large metropolitan areas lead to inefficiencies if local governments are too small to achieve scale and scope economies in service provision. Moreover, metropolitan governments may be able to bring greater efficiencies through budget and cost improvements. In addition, fragmented government urban settings are likely to head to significant spill-over effects (or negative externalities) resulting from uncoordinated development trends – for instance, in housing, factories, commerce or large infrastructure projects - leading to some form of environmental degradation (e.g. congestion, pollution and other spill-over costs) from one small municipality to another that cannot be effectively compensated for. Conversely, with small-scale local municipalities there are also inefficiencies related to the provision of services by one jurisdiction that are often consumed by citizens in another jurisdiction (e.g. water and

⁴ Slack, Edith, Bourne, Larry S. and Meric Gertler. *Vibrant Cities and City-Regions: Responding to Emerging Challenges, The Panel on the Role of Government*, 2003. Accessed June 2020.

<https://ospace.scholarsportal.info/bitstream/1873/3486/1/244174>. Pdf.

⁵ Spiller, Marcus and Murrian, Rhys. "Subsidiarity and Metropolitan Innovation in the USA." In *Australia's Metropolitan Imperative: An Agenda for Governance Reform* edited by Rhys Tomlinson and Marcus Spiller. 77-92. Melbourne: CSIRO Publishing, 2018.

⁶ Tiebout, Charles M. "A Pure Theory of Local Expenditures". *Journal of Political Economy*, 64 (1956): 416-424.

transportation).⁷ Political fragmentation could also result in different standards of building and land use codes and might allow property development industries or factories to play one municipality off against another. Perhaps more important, it is also argued that a fragmented metropolis would lead to unequal provision of services as wealthy municipalities typically have high levels of services and low taxes, while municipalities with low-income households and few resources often have relatively low levels of services, and that these differences would increase over time. A consolidated or 'Metro' model, would allow – but does not guarantee – the inter-municipal redistribution of resources and revenues, and in theory would be more efficient in ensuring more uniform regulations and standards of services and infrastructure.⁸

In response, advocates of a more fragmented approach regularly argue that metropolitan-wide administrative structures tend to become overly bureaucratic, rigid and inflexible. They are also assumed to be more expensive to operate and allow servicing standards to be set too high. The potential benefits of competition between municipalities are also lost. It is sometimes claimed that the benefits of region-wide coordination could be achieved through voluntary agreements between municipalities or by the use of special purpose service and regional taxing authorities (for instance, by using metropolitan public housing agencies). As stated above, a more decentralized arrangement is reasoned to provide better accessibility to urban services as well as greater accountability by citizens. Slack provides an outline of some of the criteria, which at least in theory, may be used to evaluate alternate designs for the structure of (and functions) performed by different levels of urban government (see Table 1).⁹

Metropolitan Governance Models

Slack et al. noted that a number of governance models have been used by large urban areas and city-regions.¹⁰ Two-tier models consist of an upper-tier governing body (e.g. a metropolitan-wide government that encompasses a large geographic area, together with lower-tier municipalities that could include individual cities, towns and villages. The upper-tier provides region-wide services that are typically characterized by allowing economies of scale (e.g. metropolitan transport and water systems, metropolitan-wide planning and development) and controlling externalities (e.g. regulatory control over large-scale factory and commercial development), whereas the lower tiers are responsible for services of a local nature and take advantage of local accountability (e.g. elementary schools, waste collection, and local parks). Proponents also note that two-tier governance models lend themselves to collection of taxes at the lower-tier municipalities (e.g. property tax) who then contribute to the upper-tier metropolitan level depending upon the size of its tax base. Critics of the two-tier model argue that costs may be higher because of inevitable waste and overlap in the provision of services by the two levels of government, effective metropolitan-wide decision-making is often stalled or

⁷ Slack et al., *Vibrant Cities and City-Regions*.

⁸ Slack et al., *Vibrant Cities*.

⁹ Slack, Edith. "Finance and Governance: The Case of the Greater Toronto Area." In *Urban Governance and Finance: A Question of Who Does What*, edited by Paul A.R. Hobson and France. St.-Hilaire. 81-112. Montreal: Institute for Research on Public Policy.

¹⁰ Slack et al., *Vibrant Cities*.

postponed because of inefficiencies and negotiation costs incurred with the lower-level jurisdictions, and this arrangement may be less transparent and more confusing to taxpayers.

In comparison, under a one-tier model of urban governance, a single local government is responsible for providing the full range of local services and has a geographic boundary that covers the entire urban area or metropolitan region. In theory, the boundaries of a one-tier (or unitary) local government should move outward as the urbanized area expands. The main advantages cited for one-tier governments are better service coordination, clearer accountability, more streamlined decision-making, and greater efficiency. They also have the potential to internalize externalities, for instance through suburban or surrounding rural residents having to pay for the urban services (some of which could be subsidized) that they use. Arguments against one-tier government structures included accountability due to the problems of access and being overly-bureaucratic. In some cases, local satellite offices are distributed across the municipality for people to pay tax bills, apply for building permits and inquire about household services.¹¹

Other models also exist, including informal, voluntary or formally mandated (usually by national or larger regional governments) cooperation among municipal authorities, often leading to special boards of member local governments. This provides an alternative (second-best) way of providing services across a region without resorting to amalgamation.¹²

How the criteria in Table 1 are rank-ordered in the eyes of the public will obviously influence any assessment of the performance of different governance models. Bourne notes that urban governance reorganization, such as city and suburban municipality consolidation – is one of the most radical reforms that local governments can undertake.¹³ This is because it abolishes small jurisdictions and relocates power in more central decision-making units and it is rarely reversed. Bourne (ibid.) also points out that neither specific urban governance arrangements or shifts from one type of mode to another emerge in a vacuum. They are, in large part, place-specific and historically contingent. With this discernment the paper now moves to examine urban governance systems in Japan, especially for Tokyo and Osaka.

Japanese Urban Governance and the Competition Between Osaka and Tokyo

Urban Governance in Japan

The Local Autonomy Act, 1947, stipulates the legal framework of Japan's local governance system. Outside of the capital, Tokyo, local government in Japan is administered at two levels: 46 upper-level of prefecture-wide governments (including Osaka prefecture) - together with one metropolis (the Tokyo Metropolitan Government [TMG]) - and around 1,700 lower-level municipal governments (cities, towns and villages).¹⁴ Prefecture governments support municipal government units within their jurisdictions by providing public services requiring additional resources and which cover a broader scope than just one municipality. For

¹¹ Slack et al., *Vibrant Cities*.

¹² Chatry and Hulbert, eds. *Multi-Level Governance Reforms*.

¹³ Bourne, *Alternative Models for Managing Metropolitan Regions*.

¹⁴ CLAIR. *Local Government in Japan 2016 (2019 Revised Edition)*. Tokyo: Council of Local Authorities for International Relations.

instance, a prefectural government in Japan is responsible for constructing major inter-city roads and operating wide-area sewerage facilities, together with high-school education. Local municipalities operate local services, such as parks and elementary schools, maintain local roads, and are subject to prefectural approval for regulations, such as land use plans. A municipality can be classified into one of three categories (cities, towns and villages) according to its population size. If the population is less than around 8,000 people the prefecture will term the municipality a 'village'. In excess of this figure the municipality qualifies as a 'town'. When it exceeds 50,000 people the municipality is considered a 'city'.¹⁵ In times past, an overwhelming majority of municipalities were villages. For example, when the Local Autonomy Act was first established over 70 years ago more than 80 per cent of Japan's municipalities were villages. However, many villages became towns and cities since then due to population growth and the merging of municipalities leading to a sharp decline in the number of villages.¹⁶

If the population of a city exceeds 500,000, and if the Prime Minister's office recognizes the city office as having a high level of administrative ability, the city qualifies to become an 'ordinance-designated city' (*seirei shi*). This system of ordinance-designated cities commenced in 1956 when five major cities (Yokohama, Nagoya, Kyoto, Osaka, and Kobe) were thus named. Currently, there are 20 cities designated by government ordinance. An ordinance-designated city has far greater autonomy than an ordinary city government and has equivalent powers and responsibilities as a prefecture.¹⁷

In the case of the Tokyo Metropolitan Government (TMG) area (population 13.7 million in 2017) there is also a third level of governance: this comprises the 23 special wards (for instance, Shinjuku ward, Shibuya ward) into which Tokyo was originally divided when it was still categorized as a 'city' before World War II, rather than the official 'metropolis' it became later. Tokyo's special wards are similar to municipalities, but under the Local Autonomy Act they cannot independently operate certain services, such as city sewerage, bus and subway services, crematories, public hospitals or universities.¹⁸ Tokyo's western extension, known as the (somewhat less urban) Tama area, comprises separate 26 cities, 3 towns and one village. This area was governed by a Tokyo prefecture government (as was the more urbanized Tokyo city/special ward areas) up until 1943 when the dual administrative system of *Tokyo-fu* (the prefecture) and *Tokyo-shi* (the city) was abolished for war-time efficiency, and the prefecture and city were merged to form the Metropolis of Tokyo (*Tokyo-to*) in 1943.¹⁹ In essence, the TMG

¹⁵ For further details see CLAIR, *Local Government in Japan*.

¹⁶ For details see Ministry of Internal Affairs and Communications, Japan. *Changes in the Number of Municipalities and Characteristics of the Great Meiji and Showa Mergers* (in Japanese), 2014. Accessed June 2020. <http://www.soumu.go.jp/gapei/gapei2.html>.

¹⁷ Edgington, David. W. "Comprehensive Planning in Japanese Large Cities." *Planning Perspectives*, 34, (2019): 115-132.

¹⁸ Tokyo Metropolitan Government. *The Structure of the Tokyo Metropolitan Government (TMG)*. 2020. Accessed June 2020. <https://www.metro.tokyo.lg.jp/ENGLISH/ABOUT/STRUCTURE/index.htm>.

¹⁹ Seidensticker, Edward G. *Tokyo Rising: The City Since the Great Earthquake*. New York: Alfred A. Knopf, 1990; Cybriwsky, Roman. *Tokyo: The Shogun's City at the Twenty-First Century*. Chichester, John Wiley, 1998.

area today operates as a unique two-tier model of metropolitan governance (unique that is for Japan – at least to date) both with respect to the special wards as well as the more rural Tama municipalities (see Figure 1).

The upper-level Tokyo Metropolitan Government has its own legislative assembly, and its chief executive is denoted by the term ‘governor’. It operates broader planning and administrative activities, while the special wards and municipalities deliver services that closely affect the everyday lives of the local residents. The TMG oversees the provision of firefighting and water supply (except in certain municipalities), collection of metropolitan taxes, urban development and regulation, environmental programs, social welfare and public health, industrial and labor affairs, transportation systems (bus and rail) as well as ports, harbors and sewerage systems. The special wards (and municipalities in the Tama area) have their own democratic elections and are responsible for welfare, education and housing for residents. There is a special Metropolitan-Ward Council, established to coordinate relations between the metropolitan government and the special wards, as well as a financial adjustment system to arrange the allocation of metropolitan tax revenues among the special wards based on their population and fiscal requirements.²⁰ Surrounding the TMG area are the prefectures of Saitama, Chiba and Kanagawa – which also have cities, towns and villages – and together this vast urban commuting area is often referred to as the ‘capital region’, although thus far there are no formal regional government arrangements.²¹

As a whole, the Japanese urban governance system has a number of distinctive features, one of which is the limited fiscal autonomy of its prefectures, cities, towns and villages (apart from prosperous Tokyo) despite being formally known as ‘autonomous bodies’ (*jichitai*). For instance local governments have only limited rights to raise taxes or issue debt and depend heavily on the national government for budgetary support. In lieu of their limited local taxation power Japan has established a money transfer system between the national government and its local governments (both prefectural and municipal governments) based on the Tax Allocation to Local Governments system, often called the Local Government Block Grant.²²

Another characteristic of Japanese local governance concerns the role of city mayors and prefectural governors. Local governments in Japan comprise a legislative assembly led by a president elected from among its members, together with a chief executive system involving the governors of prefectures and mayors of municipalities. Both members of legislative assemblies and the chief executives of local governments are elected separately by the popular vote of residents, and perform their duties while maintaining both an independent yet equal stance,

²⁰ For further detail see Tokyo Metropolitan Government, *The Structure of the Tokyo Metropolitan Government*.

²¹ Tokyo Metropolitan Government. *Tokyo's History, Geography, and Population*. Accessed June 2020. <https://www.metro.tokyo.lg.jp/ENGLISH/ABOUT/HISTORY/index.htm>.

²² Edgington, David W. “Local Government Fiscal Relationships and Regional Equalization.” In *Understanding Japan: Essays Inspired by Frank Langdon*, edited by Larry T. Woods. 59-86.

Vancouver: Centre for International Relations, University of British Columbia, 2004.

acting as checks on each other to achieve democratic local public administration.²³ Thus local assemblies are elected in each municipality to keep the mayor in check, and to pass local ordinances, as well as to provide members that serve on committees in charge of education, policing and elections. However, the powers vested in mayors as political and organizational head of the municipalities affords them considerable control over their local authorities. Under the 1947 Local Autonomy Act eligible voters elect mayors and governors, as well as local assembly members, for four-year terms. Mayors and governors are not allowed to serve concurrently as elected members either on other local governments, or for the national government Diet (parliament). While mayors and governors have the right to enact regulations, draft budgets and to introduce bills to the prefectural legislature, they typically work together in tandem with the elected assembly - the mayors and governors taking the lead in long-term policy making in conjunction with the municipal and prefectural chief bureaucrats, respectively.²⁴

Up until the late 1990s most mayors and governors had local political experience or were former government bureaucrats. However, in 1995 former actor and Upper House (Diet) member Yukio Aoshima was elected governor of Tokyo, without major official political party support but largely on a promise to cancel a costly urban waterfront project that the previous governor had approved.²⁵ In the same year, Osaka prefecture elected popular comedian 'Knock' Yokoyama. In the 1999 Tokyo gubernatorial election former Liberal Democrat Party (LDP) Diet lawmaker and author Shintaro Ishihara, a noted outspoken nationalist, successfully ran as an independent with a populist appeal. As governor he cut municipal projects that he deemed to be a waste of money and imposed new taxes on local hotels and banks.²⁶ Despite these singularly high profile individuals, *City Mayors Research* reports that the current profile of Japan's designated cities and the Tokyo Metropolitan Government include only a handful of mayors that came from careers lying outside of traditional political or bureaucratic backgrounds (for instance, as former business executives or media personalities).²⁷

Tokyo and the Osaka Problem

Economically, Tokyo and Osaka are the two largest cities in Japan, with central government offices, leading research institutes, headquarters of famous companies and major cultural and entertainment facilities clustering predominantly in Tokyo. Still, before the Meiji

²³ CLAIR, *Local Government in Japan*.

²⁴ CLAIR, *Local Government in Japan*.

²⁵ Seguchi Tetsuo and Malone, Patrick. "Tokyo: Waterfront Development and Social Needs." In *City, Capital and Water*, edited by Patrick Malone. 164-194. London: Routledge, 1996.

²⁶ Johnston, Eric. "Japan's Governors Under the Spotlight as Coronavirus Pandemic Rages." *The Japan Times*, 16 April. Accessed June 2020.
<https://www.japantimes.co.jp/news/2020/04/16/reference/japans-governors-coronavirus-pandemic/>.

²⁷ *City Mayors Research*. "Japanese Local Government and Mayors of Largest Cities." July 2020. Accessed July 2020. <http://www.citymayors.com/mayors/japanese-mayors.html>.

Restoration (1868) Osaka was far more developed than Tokyo.²⁸ Indeed, for centuries, Osaka was Japan's dominant commercial centre with its own earthy culture and comedy. As far back as the feudal Edo period (1603-1868) a climate conducive to modern capitalism flourished in Osaka.²⁹ Although Osaka was under the direct control of the *shogun* government in Edo, there was basic freedom of movement for people, goods and money. At that time, Osaka functioned as the gateway to the former capital Kyoto, connected by the Yodo River, one of the largest rivers in Japan. In Osaka, business ranked higher than feudal bureaucracy and the local mercantile culture respected innovation above everything else. For instance, in 1730 the world's first futures market opened at the city's Dōjima Rice Exchange.³⁰ Indeed, people flocked to Osaka with dreams of success. "Here it was possible to start a business from scratch and, with application and talent, make a fortune in a single generation. This was the 'Osaka Dream', familiar to everyone in Japan".³¹ The spirit of the city was characterized by staunch self-reliance, independence and a tendency to defy authority. "Osaka people are impatient and love to disobey rules".³²

Even after the Japanese capital was moved from Kyoto to Tokyo following the Meiji Restoration in 1868, Osaka maintained its position as an economic powerhouse and it was the birthplace of many companies that defined Japan's leap to modernization. When Japan started its heavy industrialization after the First World War, new businesses, such as steel, developed faster in Osaka than in any other region in Japan. In this regard, Osaka had various advantages - for example, factory sites for heavy industries, large-scale water resources and adequate water transportation. Osaka also had easy access to low-wage manual workers because of its long history of fostering communities of migrant workers from less developed rural areas in Japan. In the 20th century Osaka spawned famous manufacturing companies (for example, the Panasonic Corporation, Sharp Corporation, and Sanyo Corporation) together with financial firms (including the Sumitomo Bank, Nomura Securities and Nippon Life Insurance) along with major media companies (such as the Mainichi Shimbun and Asahi Shimbun newspapers).³³

In the 1920s, Osaka surpassed Tokyo in population and flourished as the sixth largest city in the world at a time when Tokyo suffered tremendous damage due to the 1923 Great Kanto Earthquake. In the immediate post-World War II period Osaka's economy grew faster

²⁸ Ruble, Blair A. *Second Metropolis: Pragmatic Pluralism in Gilded Age Chicago, Silver Age Moscow, and Meiji Osaka*. Cambridge: Cambridge University Press, 2001.

²⁹ McClain, James L. and Wakita, Osama (eds.) *Osaka, the Merchant's Capital of Early Modern Japan*, Ithaca, Cornell University Press, 1999.

³⁰ Takatsuki, Yasuo and Kamigahashi, Takashi. *Microstructure of the First Organized Futures Market: The Dōjima Security Exchange from 1730 to 1869*. Volume 3 of *Advances in Japanese Business and Economics*. Singapore: Springer, 2020.

³¹ Mamiya, Jun. "A Metropolitan Government for Osaka?" *nippon.com*, 30 November, 2011. Accessed June 2020. <https://www.nippon.com/en/column/g00006/>.

³² Kerr, Alex. *Lost Japan: Last Glimpse of Beautiful Japan*. London, Penguin, 1993, 190.

³³ Mosk, Cark. *Japanese Industrial History: Technology, Urbanization, and Economic Growth*. New York: M.E. Sharpe, 2000.

than Tokyo's and Osaka's per capita income was highest among all prefectures.³⁴ However, the oil crisis in the 1970s marked a turning point as Japan's leading sector shifted from manufacturing to services, signaling the arrival of a post-industrial stage of development. In recent years Osaka's biggest post-1945 corporations, the likes of Panasonic and other consumer electronics firms, ceased growing locally and moved factory production overseas.³⁵ Osaka also lost its mercantile base, with major lenders, such as the Sumitomo Bank, merged into Tokyo-based institutions during the banking crisis of the 1990s. Historic trading houses, for instance the Sumitomo Corporation, migrated to the capital and the neither the city nor the prefecture produced any significant new entrepreneurs.³⁶ By comparison, Tokyo continued to grow a wide-range of service sector jobs, such as finance, tourism, education and commerce.³⁷

In the 1980s Osaka attempted to revive its local economy with public sector 'technopolis' projects, together with large-scale commercial office and hotel towers, but since then it has endured a painful decline compared to Tokyo.³⁸ The galling defeat of its bid for the 2008 Summer Olympic Games was made worse by Tokyo's successful effort to host the Olympics in 2020. More importantly, Osaka's per capita income fell below the national average in 2002, and among Japan's major cities it saw the highest unemployment rate, together with the highest welfare recipients per capita, crimes per capita, child abuse per capita, homeless people per capita, and the lowest scholastic ability of middle school students. Godo terms these poor performance indicators as the 'Osaka Problem'.³⁹ While tourism, pharmaceuticals and machinery industries have boomed in Osaka there also remain pockets of deep poverty in the city. Nishinari ward in the south of Osaka is the closest district Japan has to a slum.⁴⁰ Even with the national economy doing relatively well in recent years (particularly after the 'Lehman Shock' of 2008-9), Osaka's post-industrial problems of dislocation and homelessness have been difficult to solve, and people who had many years of unemployment are now reaching old age. All told, the Osaka prefecture continues to have a gross domestic product (GDP) that outstrips entire nations, such as Switzerland or Sweden. Still, for some commentators it is tempting to see

³⁴ Godo, Yoshihisa. "Thriving Tokyo and Declining Osaka: The Role of the Local Governance System." In *Metropolitan Circles Development and the Future of Urbanization*, edited by Wei Shan and Lijung Yang. 25-40. Hackensack, N.J.: World Scientific Publishing Co. Pte. Ltd., 2020.

³⁵ Hayter, R. and Edgington, David W. *Panasonic in China: A Search to Overcome the Liability of Foreignness*. Unpublished manuscript.

³⁶ Hill, Richard Child and Fujita, Kuniko. "Osaka's Tokyo Problem." *International Journal of Urban and Regional Research*, 19, (1995): 175-331.

³⁷ Tokyo Metropolitan Government. *Tokyo is the Hub of Japan's Economic Activity*, 2017. Accessed June 2020. <https://www.sangyo-rodou.metro.tokyo.lg.jp/toukei/2-overview-2017en.pdf>.

³⁸ Edgington, David W. "City Profile: Osaka." *Cities*, 17, (2000): 305-318; Anttiroiko, Arvi-Veikko. "Making of an Asia-Pacific High-Technology Hub: Reflections on the Large-Scale Business Site Development Projects of the Osaka City and the Osaka Prefecture." *Regional Studies*, 43, (2000): 759-769.

³⁹ Godo, "Thriving Tokyo and Declining Osaka."

⁴⁰ Yang, Manuel, Haraguchi, Takeshi and Kazuya Sakurada. "The Urban Working-Class Culture of Riot in Osaka and Los Angeles: Towards Comparative History." In *Marxism and Urban Culture*, edited by Benjamin Fraser. 230-231. New York: Lexington Books, 2014.

Osaka's straitened circumstances as a reflection of the loss of drive and vitality of Japan as a whole.⁴¹

Osaka's Urban Governance

When comparing the urban governance systems of the TMG with those of Osaka prefecture and Osaka city, the special metropolitan arrangements of Tokyo are often viewed more favorably. For instance, Godo maintains that Tokyo's increasing prosperity is due in part to its ability to conduct comprehensive planning and development projects across the broad metropolitan area, and so it is more efficient in stimulating economic activities.⁴² Indeed, compared to most other prefectures and cities, which can often only generate around 30 per cent of their required fiscal revenue from local taxes, the figure for the TMG is around 80 per cent. While this may give the impression of Tokyo's advantageous financial independence from the national government compared to other cities, it belies the tensions between the TMG's development plans and the national government's aspirations for Japan's capital to become a 'global city', one able to compete with London and New York as a high-level international financial centre, as well as with other Asia-Pacific commercial hubs such as Shanghai, Seoul and Singapore.⁴³ Tokyo's governance system also has the familiar problems of being too centralized in terms of local democracy. Moreover, the TMG and its 23 special wards often cannot agree on the allocation of budgets, administrative powers and tasks, and special ward governments in Tokyo occasionally advance the idea of their conversion to independent cities.⁴⁴ An additional challenge, as already pointed out, is that the TMG itself is surrounded by urban-based prefectures - Saitama, Chiba and Kanagawa - which in part act as the residential and commercial suburbs of central Tokyo and, together with other prefectures, form a much larger capital region that to-date has no effective regional governance (Tokyo Metropolitan Government, 2020b).

By comparison to the TMG two-tier system, the Osaka urban area operates as a multi-municipal, one-tier system. Specifically, Osaka Prefecture (population 8.8 million and Japan's second most populous urban region) contains 33 cities, 9 towns and one village (see Figure 2). Osaka City (population 2.7 million) and adjoining Sakai City (population 840,000) are both ordinance-designated cities and have 24 wards and seven wards respectively. At present these operate only as administrative wards when compared to Tokyo's special wards, and as such they are merely the contact point for their respective cities' administration; the so-called ward 'mayors' in Osaka and Sakai are not elected officials but rather are public servants appointed by their cities' mayor.

⁴¹ Mamiya, "A Metropolitan Government for Osaka?"

⁴² Godo, "Thriving Tokyo and Declining Osaka."

⁴³ Kantor, Paul, Lefèvre, Christian, Saito, Asato, Savitch, H.V. and Andy Thornley. *Struggling Giants: City-region Governance in London, New York, Paris, and Tokyo*. Minneapolis: University of Minnesota Press, 2012; Clark, G. and Moonen, Tim. *World Cities and Nation States*, Oxford, John Wiley, 2017.

⁴⁴ Godo, "Thriving Tokyo and Declining Osaka."

In the period before World War II, Osaka City constituted around 70 per cent of the Osaka Prefecture population and beyond the City limits the character of the Prefecture was then overwhelming rural. At that time Osaka City was capable of operating various urban functions for the urban area on its own, including a municipal subway and public transport, as well as water and sewage systems. But following Japan's rapid economic growth that began in the 1950s the situation changed dramatically. While Osaka City now represents fully half of the total GDP of Osaka Prefecture, by 2010, the total population of the Osaka Prefecture area rose to 8.8 million, of whom only 2.7 million lived in Osaka City (about 30 per cent). (Sakai City's history as a port and industrial town predates its own recent population growth; today, however, it operates principally as a major suburb adjacent to Osaka City). Although the prefectural government is nominally in charge of wide-scale regional policy, in reality it has been unable to interfere with matters within Osaka City. Geographically, Osaka Prefecture is the narrowest prefecture (after Kagawa on Shikoku island) stretching out in a long thin urban belt from north to south (Figure 2). The designated City of Osaka lies in the centre of this area. Thus, Osaka prefectural government has constructed facilities inside Osaka city, such as public art galleries, while the Osaka City government has also built similar facilities close by. In sum, Osaka Prefecture has been required to operate urban-style public facilities for the extensive area outside Osaka City, both to the north and south, leading the two governments to habitually carry out similar functions resulting in (at least perceived) inefficiency and waste.⁴⁵

Two specific examples of the troublesome and ambiguous role division between the Osaka Prefecture and Osaka City can be given. The first concerns the public transportation system, and illustrates the negative externality impact of urban governance between municipalities as outlined earlier. In this case, the Osaka Municipal Subway (OMS) has been operated by the Osaka City government, and accordingly it only operates within the jurisdiction of Osaka City. Yet around 60 per cent of its passengers live outside, mainly commuters who come in from various towns and cities in the Osaka Prefecture area for jobs, shopping and schools located within Osaka City. As the subway system was subsidized by the City in the past (the OMS was privatized in 2018) this had negative effects on the fiscal condition of Osaka City. Moreover, new subway lines within Osaka City may not have been suitable for neighbouring municipalities whose residents comprised the majority of the subway riders. A second example is that the two governments operate their own water supply services. Godo argues that a lack of coordination between them has led to complicated and inefficient pipeline layouts, and that some areas within Osaka City have been better served by the Osaka Prefecture Water Supply Authority rather than by the Osaka City Water Works Bureau.⁴⁶ Despite these inefficiencies, both the merger of the two water utility services and the privatization of the city subway system have been continuously opposed by the powerful labor union of public servants of the Osaka City government.

Further duplication by the Osaka City and Osaka Prefecture governments may be noted. Each invests in its own libraries, universities, sports facilities and schools without formal coordination mechanisms, and each has overlapping services, such as subsidies and benefits for smaller companies and city residents. Sasaki claims that overall authority over wide-area and long-term development policy has been hampered by conflicting ideas about Osaka's future

⁴⁵ Godo, "Thriving Tokyo and Declining Osaka."

⁴⁶ Godo, "Thriving Tokyo and Declining Osaka."

role by both the Prefecture and City, and harmonization between the two has been plagued by a continuous struggle stemming from the poor `alignment of the City and Prefecture' (*fu-shi awase* in Japanese, which is also a homophone of the word `unhappiness', *fushiawase*).⁴⁷ All told, there appear to be strong *prima face* arguments that a chronic overlapping of functions between the prefecture and its ordinance-designated cities (Osaka and Sakai) has taken place, leading to redundant administration. An allied problem is that while Osaka City has the vast majority of jobs and commerce within Osaka Prefecture, its relative small size of population relative to its suburban municipalities has hindered systematic and effective long-term planning for the entire area and, according to scholars such as Godo, this has been unfavorable for effective overall promotion of economic and public activities, especially when compared to the more comprehensive two-tier urban governance system of the TMG.⁴⁸ With this context, the paper now turns to the rise of Tōru Hashimoto and his vision of merging Osaka City with the Prefecture – often called the Osaka Metropolitan Plan. Table 2 provides a broad scale chronology of the more significant events in this saga over the past 15 years or so.

The Hashimoto Phenomenon and the Osaka Metropolitan Plan

Hashimoto and One Osaka's Rise to Power

Although Shintaro Ishihara, former governor of the TMG (1999-2012), may have been Japan's first post-war `populist' politician, the charismatic leader Tōru Hashimoto became the youngest of Japan's 47 governors when he won the Osaka gubernatorial elections in 2008 at the age of 38, espousing populist rhetoric, market fundamentalism and severe cost cutting programs in order to reduce the Prefecture government's substantial debt burden. Not surprisingly, his liberal economic political stance immediately earned him the enmity of many local government officials alongside widespread support from numerous voters discontented with more conventional politicians who appeared to have few new ideas on how to address Osaka's reduced economic and social circumstances.⁴⁹ Prior to this, Hashimoto had no experience in the political world and a complete lack of any strong political base among any of the established Japanese parties. Yet, at the age of 33 he became a household name in Osaka after appearing regularly on a local TV programme in 2003. By presenting sharp comments about current political events, as well as posing local and national policy reform proposals contrary to status quo thinking, he became a charismatic opinion leader and expectations began to increase about his entrance into politics. Such strong local support motivated Hashimoto to run for the gubernatorial election which he won with a landslide victory. His electoral rivals were candidates who were backed by two Japan's major national parties, the Democratic Party of Japan (DPJ) and the Japan Communist Party (JCP). Hashimoto's campaign was also supported by the local Liberal Democratic Party (LDP) and Komeito party chapters, as well as by major corporate lobbies in the wider Kansai (Kobe-Osaka-Kyoto) region.⁵⁰

⁴⁷ Sasaki, Nobuo. "Osaka Metropolis Plan Dissolved." *Global Chuo*, 1 June, 2015. Accessed June 2020. <http://global.chuo-u.ac.jp/english/features/2015/06/7105/>.

⁴⁸ Godo, "Thriving Tokyo and Declining Osaka."

⁴⁹ Weathers, Charles. "Reformer or Destroyer? Hashimoto Tōru and Populist Neoliberal Politics in Japan." *Social Science Japan Journal*, 17, (2014): 77-96.

⁵⁰ Godo, Yoshihia. "Toru Hashimoto's Unfinished Local Governance Reform: A Micro Case Study of Political Leadership at Local-level Politics in Japan." In *Leadership: Political-economic, Regional Business*

As governor, Hashimoto immediately set out to reconstruct Osaka Prefecture's finances by revising the system of public-sector accounting, cutting wages for public servants such as high-school teachers, reducing the Prefecture's share of public construction projects while urging the national government to increase their share, and letting-go business ventures that were financed jointly by the Prefectural government and the private sector. He also paid attention to various urban development projects aimed at improving Osaka's international competitiveness. These included unifying and privatizing the two international airports in Osaka Prefecture (Osaka International Airport at Itami, and the Kansai International Airport), relocating the Osaka prefectural government building from its current location adjoining Osaka Castle to the World Trade Center building operated by the Prefecture in the Nankō Harbor district (this plan was opposed by the Osaka Prefecture Assembly in 2009 and to date has not been realized), and pursuing a casino for Osaka similar to that in Singapore.⁵¹

His signature policy, however, was the Osaka Metropolitan Plan (*Osaka-to koso*), a proposal to merge Osaka City and Osaka Prefecture (including the designated city of Sakai), believing that it would cut back on overlapping functions and inefficiencies, and raise Osaka's administrative status to the equivalent of Tokyo. Specifically, the plan envisaged reorganizing the administrative wards that currently form part of Osaka and Sakai, together with surrounding municipalities of the prefecture (cities, towns and villages) and making them into special wards, similar to those in the TMG area. Figure 3 illustrates a scheme for reorganizing the central part of Osaka Prefecture (Osaka City and its adjoining nine cities, including Sakai City) into 20 special wards, as proposed by the Osaka Restoration Association in 2010. These proposed special wards would each have a population of around 100,000 or more. The surrounding (smaller) cities, towns and village would be also part of the metropolitan area and treated essentially in the same manner as municipalities in the (more rural) Tama area of Tokyo. In effect, Hashimoto believed that concentrating the decision-making procedures of the entire area in the hands of a wished-for Osaka Metropolitan Government would make forward planning and development more consistent and innovative. He also considered that introducing elections for the heads of the proposed special wards within Osaka and Sakai city would improve the relationship between citizens and local governments in these areas and make them more accountable. As is the case in Tokyo, this governance reform would see the Osaka prefectural government responsible for collecting fixed asset taxes and regional corporate taxes within this area, and it would provide water, fire protection, public transit and other services through a unified administration for all 20 special wards, while resident services and other administrative tasks would be handled by the wards themselves. In addition, an important component of the proposed restructuring involved renegotiating relative functions with the national government to increase the 'Osaka metropolitan government's' power over both tax collection as well as the provision of public services.⁵²

and Socio-community Contexts, edited by [Tai Wei Lim](#) and Carol Hok Ka Ma. 91-110. Singapore, World Scientific Publishing Co. Pte. Ltd., 2020.

⁵¹ Matthews, Joel. "Osaka In and Out of the Nation: Neoliberal Spatial Gestures for the Globally Competitive City-Region." in *City Imaging: Regeneration, Renewal and Decay*, edited by Tara Brabazon. 211-217. Dordrecht: Springer Science, 2014; Weathers, "Reformer or Destroyer?"

⁵² Godo, "Toru Hashimoto's Unfinished Local Governance Reform."

To further all these ends, Hashimoto launched the 'One Osaka' political party (the official name is the Osaka Restoration Association, *Ōsaka Ishin no Kai*), which was triggered by the 2009 defeat in the Osaka Prefecture assembly of his plans to relocate the Prefectural office building to the World Trade Centre. In 2010 he persuaded similarly minded (former LDP) assembly members of the Osaka Prefecture, Osaka City and Sakai City to join with him in this new political bloc. At first a faction of six assembly members, led by Ichirō Matsui, who was supported by Hashimoto, formed the Liberal Democratic Party Restoration Association. By April 2010 this group had broken away from the Liberal Democratic Party and expanded to 22 members, and it was then officially registered as the Osaka Restoration Association with 30 members and Hashimoto as its leader (the name alludes openly to the 19th century Meiji Restoration). Although the new party began as a regional pressure group, over time it put forward radical ideas that had far wider regional and national government implications, such as merging existing prefectures (both in Kansai and throughout Japan) into a series of federated regions, abolishing the national upper house (the House of Councillors), halving the size of the lower house (the House of Representatives), joining the Trans-Pacific free trade bloc, and relaxing requirements for constitutional revision. This broader reform 'manifesto' had the effect of launching both Hashimoto and *Ōsaka Ishin no Kai* into national politics.⁵³

Despite the popularity of Hashimoto as prefectural governor, his plans for an large-scale Osaka Metropolis and the abolition of the existing city were strongly opposed (perhaps not surprisingly) by the incumbent centre-left Mayor of Osaka City, Kunio Hiramatsu (2007-2011), who warned that Hashimoto's market efficiency approach would result in large revenue differentials among the proposed special wards and tend to disadvantage the city's poorer districts without improving overall administrative effectiveness. As a result, Hiramatsu presented his own policy to assist Osaka, the Declaration of Regional Sovereignty, a proposal that advocated the transfer or more power from the national government to designated city governments. The confrontation between Hashimoto and Hiramatsu became more heated with the presentation of these two competing political manifestos, especially so when Hiramatsu decided to run for re-election when his term of office was about to expire (a mayoral election was scheduled for November 2011). This instigated Hashimoto's resignation as the governor of Osaka Prefecture, and his run for the Osaka mayor's position to advance his plans to merge the two entities. Subsequently, Hashimoto supported the gubernatorial candidacy of Ichirō Matsui, who (as intimated earlier) was his friend and fellow One Osaka member, and before then a member of the Osaka Prefectural assembly. In the event, Hashimoto and Matsui won both the mayoral and gubernatorial 'cross-elections', respectively, with their victories signaling strong support for the One Osaka party and the Osaka Metropolitan Plan among voters in both local governments. At the same time, One Osaka ran many candidates in other local elections held in the Osaka region, and gained a majority in the prefectural assembly as well as more than one-third of seats in the Osaka city assembly.⁵⁴

⁵³ Jain, Purnendra. "What the Osaka Elections Mean for National Politics in Japan." *East Asia Forum Economics, Politics and Public Policy in East Asia and the Pacific*, 2 December, 2015. Accessed June 2020.

<https://www.eastasiaforum.org/2015/12/02/what-the-osaka-elections-mean-for-national-politics-in-japan/>; Jou, Willy. "A Regional Party in a Centralized Country: The Case of One Osaka in Japan." *Regional & Federal Studies*, 25, (2015): 145-163.

⁵⁴ Godo, "Toru Hashimoto's Unfinished Local Governance Reform."

After taking office a mayor, Hashimoto soon proclaimed he would launch a 'great reset' (his catchphrase) and 'change Japan, starting from Osaka', hinting at national ambitions.⁵⁵ A Prefecture and City Unification Headquarters was established immediately to oversee joint policymaking, and it began conducting a unified long-term strategy and economic policy.⁵⁶ Nonetheless, a major impediment for Hashimoto to achieve the Osaka Metropolitan Plan was the lack of a legal framework to carry out the proposed changes. In point of fact, various modifications to Japan's urban and regional governance systems had already been widely discussed in political and scholarly circles since around the 1990s. These debates were triggered by a variety of themes including the need to revitalize Japan's economy, society and polity, the overwhelming danger posed to the nation's capital by a catastrophic earthquake, chronic population decline in most rural areas, and an increasing disposition to decentralize certain functions to local governments that were previously conducted or supervised closely by central Ministries based in Tokyo.⁵⁷ By way of illustration, after the new national government headed by the Democratic Party of Japan (DPJ) took control in 2009 the government's Cabinet office issued a strategy for local sovereignty (*chiiki-shuken*), which endorsed the view that national-local government relations should change from a strictly hierarchical relationship (whereby the national government took decisions unilaterally and imposed them on local communities) to that of horizontal partnerships in which local communities would take more initiatives over the ways they were governed and assume more responsibility for local policy choices.⁵⁸ While these aspirations from the DPJ government (2009-2012) were never fully implemented it can be seen that Hashimoto's designs for metropolitan governance were part of an ongoing debate over

⁵⁵ Weathers, "Reformer or Destroyer?"

⁵⁶ Interview with Mr. Hirofumi Ichisaka, Manager, International Relations, General Affairs Division, Economic Strategy Bureau, Osaka City Government, May, 2013.

⁵⁷ see Ozawa, Ichiro. *Blueprint for a New Japan: The Rethinking of a Nation*. Tokyo: Kodansha International, 1994; Barrett, Brendan D.F. "Decentralization in Japan: Negotiating the Transfer of Authority." *Japanese Studies*, 20, (2000): 33-48; Kitazume, Takashi. "Revitalizing Japan through 'Doshu-sei': Ultimate Structural Reform will Cede More Powers to Local Authorities." *The Japan Times*, 3 October, 2007. Accessed June 2020. <https://www.japantimes.co.jp/news/2007/10/03/business/revitalizing-japan-through-doshu-sei/>; Ikawa, Hiroshi. *15 Years of Decentralization Reform in Japan*. Up-to-date Documents on Local Autonomy in Japan No.4. Tokyo: Council of Local Authorities for International Relations (CLAIR), 2008; Ikuta, Masato. "Restructuring in Regional Economies and Introducing a Province System in Japan: With Special Reference to the Kansai Region," in *Spaces of International Economy and Management* edited by Rolf D. Schlunze, Michael Plattner, William W. Baber and Nathaniel O. Agola. 113-133. London: Palgrave Macmillan, 2012; Tsukamoto, Takashi. "Devolution, New Regionalism and Economic Revitalization in Japan: Emerging Urban Political Economy and Politics of Scale in Osaka-Kansai." *Cities*, 28, (2011) 281-289; Maruyama, Sawaki, "Regional Coordination and its Background: Should Kansai Be Heading For Regional Coordination Like Västra Götaland?" *Kobe University Economic Review*, 59, (2013): 37-57; Sasaki, Nobuo. "What Type of Decentralization Best Suits Japan? The Challenges Ahead for Decentralization Reform." *nippon.com*, 22 April 2013. Accessed June 2020. <https://www.nippon.com/en/in-depth/a01801/>; Samuels, Richard J. *3.11: Disaster and Change in Japan*. Ithaca: Cornell University Press, 2013.

⁵⁸ Tsukamoto, Takashi. "Why Is Japan Neoliberalizing? Rescaling of the Japanese Developmental State and Ideology of State-Capital Fixing." *Journal of Urban Affairs*, 34, (2016): 395-418.

local governance in Japan, rather than a completely unexpected initiative without any warning or precedent.

In actual fact, the meteoric political ascension of Hashimoto and the One Osaka party, together with his ambition to enter national politics by fielding a large number of candidates in the forthcoming 2012 general election, led to both the ruling DPJ and opposition parties (the LDP and Komeito) to fear any outright confrontation with these political newcomers. Hashimoto himself demanded that the Diet quickly pass legislation to allow the unification of Osaka. Alarmed at One Osaka's political popularity (and anxious about their ability to dislodge the most vulnerable DPJ, LDP and Komeito legislators in the 2012 election), the established parties prepared new legislation, even as gridlock persisted on (arguably) weightier issues, such as disaster recovery assistance after the March 2011 earthquake, tsunami and nuclear power plant accident in northeast Japan. As a result, in order to address the Osaka mayor's request to amend the Local Autonomy Law no fewer than three bills were submitted to the Japanese Diet in mid-2012. Under the DPJ's proposal any local government of at least 2 million could set up special wards, while this population requirement was lowered to one million under the LDP-Komeito bill, and just 700,000 under bill submitted by the smaller opposition Your Party group. The final legislation passed by the Diet with the cooperation of all parties - the Act Allowing Establishing Special Wards in Areas Outside of Metropolitan Tokyo (hereafter the Special Wards Act) - enabled Osaka and nine other Japanese major cities with populations over 2 million (Sapporo, Saitama, Chiba, Yokohama, Kawasaki, Nagoya, Kyoto, Sakai, and Kobe) to introduce new metropolitan structures based on special wards (similar to the TMG) following approval not only by the local and prefectural assemblies, but also by a city-wide referendum. Specifically, three cities (Yokohama, Nagoya and Osaka) met the two million population requirement on their own, while other major designated cities areas could set up special wards if joined by neighboring municipalities.⁵⁹

Unusual (for Japan) procedures for implementing these urban governance changes were spelled out in the Special Wards Act, reflecting the DPJ's expectation that local governments should take more responsibility for important policy and governance changes. Thus, an initial step was that the city government introducing the special wards, together with the associated prefectural government, should prepare jointly a plan to dissolve the city into special wards. An important second-stage was that the plan outlining the changes would have to be approved by a city-wide referendum. This route was rather exceptional in that while local referenda are certainly allowed under Article 95 of Japan's Constitution, they have rarely been used and previously had no binding legal effect other than in the recall of a local assembly or the head of a local government. Local assemblies are particularly antagonistic toward referendums, and even for a merger of multiple municipalities (as occurred in the 2000s, the so-called *Heisei* mergers) a local public referendum was not a required procedure. In effect, the national Diet opted to address Hashimoto's goal of achieving an Osaka Metropolitan Plan by legislation that left the hard work of changing the status quo to local governments, in particular

⁵⁹ *The Japan Times*. "Editorial: Scrutinize 'Special Ward' Plans." 19 June, 2012, Accessed June 2020. <https://www.japantimes.co.jp/opinion/2012/06/19/editorials/scrutinize-special-ward-plans/#.Xy2DYC0ZNHQ>.

through the mechanism of a local public referendum.⁶⁰ For the Osaka Metropolitan Plan to be realized, Osaka residents would ultimately have to give their consent in a citywide vote. In addition, the Special Wards Act did not allow any prefecture to rename itself as a `metropolis' (or `to' in Japanese), reserving this status just for Tokyo. Still, other than that stipulation, the contents of the new Act largely satisfied Hashimoto's political ambitions, giving him and the One Osaka Party a `green light' to experiment with special ward introduction. As a start he appointed local `mayors' from among his own supporters to preside over the 24 existing administrative wards of Osaka City.⁶¹

Based on his noticeably bold entrance into national politics (by demanding that the Diet pass legislation to allow the unification of Osaka) Hashimoto also formed an official national party, The Japan Restoration Party (*Nippon Ishin no Kai*). This endeavor was launched a few months prior to the national election of December 2012 and it soon merged with the Sunrise Party led by former TMG governor, Shintaro Ishihara, who himself had resigned from local government in order to enter national politics. Following the 2012 election the Japan Restoration Party gained sufficient Diet seats to become the third largest national party and a significant voice of opposition. As suggested earlier, Hashimoto's new national party went far beyond the aims of the One Osaka group, and sought sweeping constitutional and national governance reforms, such as a directly elected prime minister and a radical regional decentralization of power. Negotiations between Hashimoto and Ishihara following Japan's 2011 earthquake and tsunami also saw a joint plan for Osaka to become a `back-up' capital for Japan amid any future emergency.⁶²

The 2015 Osaka Referendum

In the ensuing two years Hashimoto's political fortunes both in Osaka and on the national arena appeared to falter. First, faced with opposition to the Metropolitan Plan by Sakai (expressed in that city's 2013 mayoral election won by Osami Takeyama, a consistent antagonist to the idea of any merger) Hashimoto decided to reduce his metropolitan government aims to a more limited yet concrete plan to abolish Osaka city, at least as a first step. Then, in accordance with the Special Wards Act he set up a formal Council for Converting Osaka City into Special Wards (hereafter the Osaka Council). This Council consisted of the governor of Osaka Prefecture (Matsui), the mayor of Osaka City (Hashimoto), nine members of the assembly of Osaka City (three from the One Osaka Party, and six from other parties), as well as nine members of the Osaka Prefecture assembly (five One Osaka members and four from other parties). However, Hashimoto and the Council could not obtain broad consensus over the number, boundaries and extent of the special wards proposed for Osaka, or the detailed budget allocation between the Osaka Prefectural Government and the proposed special wards. Specifically, he faced strong opposition from the local branches of the Liberal Democratic Party,

⁶⁰ Hitora, Tadashi. "Osaka Metropolis' Plan Faces Many Hurdles." nippon.com, 16 October, 2012. Accessed June 2020. <https://www.nippon.com/en/column/100035/>.

⁶¹ *The Japan Times*. "Editorial: Scrutinize 'Special Ward' Plans." 19 June, 2012. Accessed June 2020. <https://www.japantimes.co.jp/opinion/2012/06/19/editorials/scrutinize-special-ward-plans/#.Xy2DYC0ZNHQ>.

⁶² A. Stevens, Andrew. (2014) "Mayor of the Month: Toru Hashimoto, Mayor of Osaka." *City Mayors*, 7th June, 2014. Accessed June 2020. <http://www.citymayors.com/mayors/osaka-mayor-hashimoto.html>.

the Japan Communist Party, and the Democratic Party of Japan, which - together with New Komeito (which previously had cooperated with *Osaka Ishin* in the city assembly) - all opposed the either the very idea of abolishing Osaka city and introducing special wards, or the detailed implementation plans, together with the perceived hasty introduction of a public referendum to approve it. Consequently, Hashimoto stood down as mayor in early 2014 and called a snap election - winning - but without any official opposition candidates standing against him from the other major parties, and with a very low electoral turn-out that both supporters and critics criticized as a waste of time and taxpayer money.⁶³

Second, Hashimoto and Matsui parted ways with Tokyo's Ishihara over a number of policy issues, (such as national constitutional reform) and the Japan Restoration Party was split with the Hashimoto/Matsui group forming the Japan Innovation Party (*Ishin no Tō*) in 2014, still comprising the second largest opposition party at the national level after the Democratic Party of Japan (DPJ). However, the two Osaka politicians themselves decided not to run for the national Lower House election arranged for the end of 2014, preferring to focus on the local Osaka election and to make a concerted attempt to introduce the merger plan.⁶⁴

The most crippling blow, however, came in the spring 2015. Following his re-election as mayor, Hashimoto and One Osaka members took the assertive action of pushing out non-One Osaka members from the Osaka Council in order to solve any further impasse. Together with the cooperation of the local Komeito party in the Osaka assembly, a referendum finally took place that year to abolish the city of Osaka, return all wide-area functions to the prefecture, and to set up elected mayors and assemblies of special wards for Osaka to support the citizens' daily lives. Figure 4 indicates the final boundaries of the five special wards proposed to replace Osaka City in the referendum, each with enlarged ward boundaries and competencies in the northern, coastal, eastern, southern, and central districts, and each with a population between 340,000 and 700,000. In the event, the number of votes in favor of the 2015 referendum was 694,844 (49.6 per cent of total votes), marginally lower than the number against, 705,585 or 50.4 per cent of the total votes. In effect, the referendum was defeated by less than 11,000 votes out of 1.4 million cast. Although this rejection margin was narrow, the proposal was turned down. Accepting defeat of the plan he had championed for the previous five years or so, Hashimoto decided to retire from the political world. When his term as mayor of Osaka City ended in November 2015 he did not run for re-election, and he resigned his position as President of the One Osaka Party in favor of Ichirō Matsui.⁶⁵

During the weeks before the referendum, One Osaka proponents of the merger argued that over a 10-year period the new arrangements would lead to an extra ¥1.1 trillion of public

⁶³ Johnston, Eric. "Hashimoto Wins Snap Mayoral Election Amid Record Low 23.6% Turnout." *The Japan Times*, 23 March, 2014. Accessed June 2020.
<https://www.japantimes.co.jp/news/2014/03/23/national/politics-diplomacy/hashimoto-wins-snap-mayoral-election-amid-record-low-23-6-turnout/#.Xyx0vi0ZNHQ>.

⁶⁴ Jou, "A Regional Party in a Centralized Country."

⁶⁵ Johnston, Eric. "Hashimoto Announces Exit From Politics After Osaka Rejects Merger Plan in Referendum." *The Japan Times*, 17 May, 2015. Accessed June 2020.
<https://www.japantimes.co.jp/news/2015/05/17/national/politics-diplomacy/osaka-referendum-rejects-merger-plan-possibly-ending-hashimotos-political-career>

expenditure savings that would not have been available otherwise. However, this figure was hotly disputed by opponents, including the local chapters of the Liberal Democratic Party and Komeito. Merger plan opponents in all parties argued that the assumptions on which the ¥1.1 trillion figure was based were far too optimistic and that rather than saving money, a merger could actually end up raising taxes to meet the increased welfare needs of Osaka's aging population and stagnant economy, especially if the plan failed to attract many new residents and businesses.⁶⁶

Figure 5 indicates the results of the referendum (yes/no) broken down by existing city wards. It shows that the strongest support came from citizens in the generally more prosperous northern part of the city, where many major corporations and financial institutions have been based and which also host extensive transport connections to other Kansai regional cities together with the economies of Kyoto and Kobe. As a whole, citizens in this area supported the merger as a way to reduce bureaucratic costs, which they hoped would lead to lower corporate and property taxes. The greatest opposition came from the city's less prosperous southern regions, where there were many older people and small businesses together with less modern transportation links. It was reported that many who relied on the city's social welfare services and other forms of financial assistance feared a merger would lead to a cut in those services because they would find themselves living in a special ward with a smaller tax base as compared with the more prosperous northern special wards.⁶⁷ Moreover, in term of Osaka's demography, a large portion of residents consistently reported in opinion polls that they did not understand why the abolition of Osaka City and why the merger with Osaka Prefecture was necessary. Specifically, young people tended to vote in favor of the change, but the large elderly demographic leaned towards keeping the Osaka they had known all their lives. Others, especially younger and older women, feared a decline in child care, education and social welfare services for the elderly if the merger went through.⁶⁸

The Road to a 2020 Referendum

Initiatives from Osaka (Ōsaka Ishin no Kai)

The failed referendum had a number of consequences beyond the vote itself. For instance, at the national level the result created immediate political discord between the Prime Minister Shinzo Abe, whose government indicated support for the merger, and members of his Liberal Democratic Party (LDP), especially in the Osaka LDP chapter who opposed it. On top of

⁶⁶ *The Japan Times*. "Osaka Referendum: Merger Gets Second Chance, But are Voters on Board?". 17 February, 2020. Accessed June 2020.
<https://www.japantimes.co.jp/news/2020/02/17/reference/osaka-merger-plan-second-chance-qa/#.X0GSHS0ZOGQ>

⁶⁷ Cornell Law School. "The 'Osaka Metropolis Plan' Referendum and the Future of Japan's Democracy: Interview with Hiroyuki Mori." *Meridian 180*, 2015. Accessed June 2020.
<https://web.archive.org/web/20160812124415/http://meridian-180.org/en/osaka-metropolis-plan-referendum-and-future-japans-democracy-interview-hiroyuki-mori-0>.

⁶⁸ Johnston, Eric. "Hashimoto Announces Exit From Politics After Osaka Rejects Merger Plan in Referendum." *The Japan Times*, 17 May, 2015. Accessed June 2020.
[.https://www.japantimes.co.jp/news/2015/05/17/national/politics-diplomacy/osaka-referendum-rejects-merger-plan-possibly-ending-hashimotos-political-career/](https://www.japantimes.co.jp/news/2015/05/17/national/politics-diplomacy/osaka-referendum-rejects-merger-plan-possibly-ending-hashimotos-political-career/).

this, Abe counted on the cooperation of Hashimoto's national Japan Innovation Party (*Ishin no Tō*) to back his proposal for a national referendum to revise Japan's postwar Constitution. Hashimoto and his followers were willing to cooperate in constitutional reform, as among its many radical proposals this measure also advocated consolidating prefectural governments to give them more autonomy from the national government, which boosted One Osaka's aspirations.⁶⁹

At the local level, Hashimoto tried to find common ground with his opposition (especially the local branches of the Liberal Democratic Party and Komeito Party) and agreed to form a new special Council and continue exploring ways to reduce bureaucratic redundancy between Osaka Prefecture and the city of Osaka. There was broad support among the various parties for a future vision of Osaka as Japan's sub-capital and a bustling international city, with central government ministries and agencies redistributed from Tokyo to Osaka. But when Hashimoto said they should officially state that a formal goal was to come up with an alternative to the plan rejected in the May 2015 referendum, he ran into opposition. For instance, the LDP's Osaka chapter proposed to upgrade administrative cooperation between the city's existing wards into 11 administrative areas without actually merging them (or eliminating the mayoral and city assembly positions), and ward heads would obtain more authority from the city assembly. But unlike the *Osaka Ishin* plan, they would not have full budget autonomy.⁷⁰ With no chance to come to a compromise among the various parties, Hashimoto dismissed the special Council prior to his final standing down at the end of the same year, and invited Hirofumi Yoshimura (formerly a One Osaka member of the city assembly and a Osaka-based *Ishin no Tō* [Japan Innovation Party] Diet member) to run for mayor in the November 2015 election as his designated successor. Yoshimura won easily, defeating a candidate backed by the local chapter of the Liberal Democratic Party. Ichiro Matsui also won his re-election as Osaka governor.⁷¹

Matsui (together with Hashimoto up to the end of 2015) then focused his attention on national issues and established yet another national party, Initiatives from Osaka (*Ōsaka Ishin no Kai*), after he and his supporters left the Japan Innovation Party. *Osaka Ishin no Kai* lacked an official English name, but had Osaka written in *hiragana*, and was often called 'Initiatives from Osaka'. This was an attempt to convince voters around Japan that, while the party was centered in Osaka, the idea of "Osaka" symbolized a political philosophy of decentralized, smaller government rather than a physical location. Hashimoto and Matsui also stated the new political group would aim to revitalize Japan's regional economies by promoting decentralization and integrating the nation's 47 prefectures into between seven and 11 states (*shu* or *do* in Japanese).⁷²

⁶⁹ Johnston, Eric. "Election wins energize Osaka Ishin." *The Japan Times*, 23 November, 2015. Accessed June 2020. <https://www.japantimes.co.jp/news/2015/11/23/national/politics-diplomacy/election-wins-energize-osaka-ishin/>.

⁷⁰ Sasaki, Nobuo. "Osaka Metropolis Plan Reemerged." *Global Chuo*, 10 October, 2015. Accessed June 2020. <http://global.chuo-u.ac.jp/english/features/2015/12/7964/>.

⁷¹ Jain, "What the Osaka Elections Mean."

⁷² Johnston, Eric. "Osaka Mayor Toru Hashimoto's New Party Debuts." *The Japan Times*, 31 October, 2015. Accessed June 2020. <https://www.japantimes.co.jp/news/2015/10/31/national/politics-diplomacy/osaka-mayor-toru-hashimotos-new-party-debuts/>.

The first major national election contested by the party (now led solely by Matsui) was the July 2016 House of Councillors election, after which the party became the third-biggest opposition party in the National Diet. However, following the election Matsui indicated that its poor showing in the polls outside of Kansai was unacceptable for a national party, and that the *Osaka Ishin no Kai* would adopt a new name that did not include the word 'Osaka' in an attempt to broaden its nationwide appeal. Accordingly, the party voted to change its name to the Japan Innovation Party (*Nippon Ishin no Kai*). The strong performance of this erstwhile regional group was keenly observed by Prime Minister Abe, who renewed his expectation for Matsui's Party to cooperate in support of amending the national Constitution, especially as any amendment would require a two-thirds majority of members in both chambers of the Diet, seen widely as a nearly impossible realization for the ruling parties by themselves.⁷³

The Bid for the 2025 World Expo

In return for his support, Osaka Governor Matsui sought cooperation from the LDP national government to host the 2025 World Expo, a project that had been considered by Osaka Prefecture for some years, subsequent to Tokyo's winning bid for the 2020 Summer Olympics. However, in contrast to the Olympic Games the national government plays (arguably) a more central role in bidding for the World Expo. Fortunately for Osaka, the proposal was favored by the national LDP on the grounds that it would provide an economic stimulus for the country as a whole by helping to maintain a high number of international tourists visiting Japan following the end of the Tokyo Summer Olympic and Paralympic Games.⁷⁴ Tied to the Osaka Expo bid by the prefecture was Osaka City's submission for a license to operate a casino and resort under the provisions of the 2017 Integrated Resort Act. Both the Expo and casino/resort were slated to be located on a large artificial island in Osaka Bay called Yumeshima.⁷⁵ Under the banner of 'Designing Future Society for Our Lives', Osaka was eventually awarded the right to host World Expo 2025, the results being announced at the end of 2018.⁷⁶

Bolstered by this success, Osaka Governor Matsui and Osaka Mayor Yoshimura announced at the end of 2018 that they would step down to call an early election in an attempt to resurrect the public referendum and break the continuing deadlock with both the city and prefecture assemblies over their plans to introduce special wards (and a perceived betrayal from their political allies in the local branch of the Komeito party who were presumed initially to support a new referendum), and to keep alive the idea of establishing an Osaka Metropolitan

⁷³ *The Mainichi*. "Osaka Ishin No Kai Struggles to Expand Strength, Could Affect Abe's Constitutional Agenda." 30 April 2016. Accessed June 2020. <https://mainichi.jp/english/articles/20160430/p2a/00m/0na/006000c>.

⁷⁴ *The Mainichi*. "Abe Gov't Backing Osaka Expo Plan in Exchange for Constitutional Revision Support." 29 October, 2016. Accessed June 2020. <https://mainichi.jp/english/articles/20161029/p2a/00m/0na/016000c>.

⁷⁵ Johnston, Eric. "Osaka Pushes Yumeshima for Casino and Resort, 2025 World Expo." *The Japan Times*, 8 February. 2017. Accessed June 2020. <https://www.japantimes.co.jp/news/2017/02/08/national/osaka-pushes-yumeshima-casino-resort-2025-world-expo/>.

⁷⁶ *The Mainichi*. "Local, National Officials Rejoice as Osaka Wins World Expo 2025.", 24 November, 2018. Accessed June 2020. <https://mainichi.jp/english/articles/20181124/p2a/00m/0na/007000c>.

Plan. Nonetheless, faced with the practical consideration of fielding their best-known candidates, the One Osaka party decided that resigning mayor Yoshimura should run for governor, while the current governor Matsui should run for the mayor's office. Essentially, such a forceful manoeuvre to gain full four-year terms for both candidates was an provocative repeat of the Hashimoto-Matsui 'cross-election' that occurred in 2011. In the event, this political gamble was surprisingly successful and led to a fortuitous series of events for One Osaka.⁷⁷

The 2019 Cross-election and a New Referendum

First, both Yoshimura and Matsui efficaciously swapped seats in the 2019 local government elections, defeating LDP and Komeito-backed candidates. One Osaka also captured the majority of seats in the prefectural assembly and won more seats in the city assembly, just two short of forming a majority. Second, following these larger than expected setbacks the local chapters of both the LDP and Komeito parties reversed their positions and agreed to a referendum to merge the city's wards, in part due to pressure applied by senior officials in Tokyo who feared further squabbling with One Osaka over this issue would upset relations with The Japan Restoration Party in the Diet and spoil the chance to hold a national referendum on constitutional revision.⁷⁸ Third, the long-standing anti-merger mayor of Sakai city, Osami Takeyama, was forced to resign due to a political funds scandal, and a One Osaka candidate won the June 2019 election for a new Sakai mayor.⁷⁹

Faced with this novel political alignment, Osaka City mayor Matsui announced his intention to hold a new referendum. A new statutory Council (set up in 2017 and which drew together both the new mayor and governor, as well as members from the city and prefectural assemblies) had already resumed talks, but as before subsequently reached a stalemate due to a disagreement between the Komeito party and Matsui. Still, it drew up a revised merger plan, which was finally approved by both municipal and prefectural council members in June 2020. This plan divided Osaka into four special wards – Yodogawa, Kita, Chuo and Tennoji - based on fiscal circumstances and future population estimates for each area (Figure 6). At present, Kita Ward in the northern part of the city contains major train stations linked to other parts of Kansai together with the existing Osaka City Hall. Yodogawa Ward to the north and west is largely an industrial area along the Yodogawa river. However, this proposed special ward is the location of Shin-Osaka Station, where rapid inter-city *Shinkansen* trains stop, and it also includes Yumeshima Island in Osaka Bay, where the 2025 Expo will be held. The other two wards cover the central and southern areas of the city. In the revised special ward draft, the populations of the new Shinyodogawa, Kita, Chuo and Tennoji Wards were set to be 600,000, 750,000, 710,000 and 640,000 people, respectively. At the time of writing (summer 2020) the referendum to approve or reject this new plan is likely to take place in November 2020. Opinion polls suggest the public would vote 60:40 in favor. If successful, it is envisaged that the proposed changes

⁷⁷ Fahey, Rob. "Crossing Over: Osaka's Troubled Metropolitan Plan." *Tokyo Review*, 26 March, 2019. Accessed June 2020. <https://www.tokyoreview.net/2019/03/crossing-over-osaka-metropolitan-plan/>.

⁷⁸ Johnston, Eric. "Liberal Democratic Party and Komeito Flip-flop on Osaka Merger." *The Japan Times*, 18 May 2019. Accessed June 2020. <https://www.japantimes.co.jp/news/2019/05/18/national/ldp-komeitos-face-osaka-merger/>.

⁷⁹ *The Mainichi*. "Pro-metro Osaka Plan Candidate Narrowly Wins Sakai Mayoral Race." 10 June, 2019. Accessed June 2020. <https://mainichi.jp/english/articles/20190610/p2a/00m/0na/006000c>.

would come into effect in 2025. Both Osaka mayor Matsui and Osaka governor Yoshimura have affirmed that this would be One Osaka's final attempt to hold a referendum, merge the city's wards, and carry out its goal of introducing an Osaka Metropolitan Plan⁸⁰

The essay concludes by examining this 15 year chronicle in light of the more conceptual literature and issues surrounding urban governance introduced earlier, as well reflecting on whether or not a metropolitan government would likely succeed either in addressing 'the Osaka problem' or provoke new thinking about broader national issues related to local government reform and decentralization.

Conclusion

The preceding narrative on the introduction of the Osaka Metropolitan Plan - also the debates at the time of the 2015 public referendum - has many links to the theoretical arguments for and against metropolitan reform as well as the key issues summarised in Table 1. For example, Hashimoto raised the spectre of increasing Asian 'inter-city competition' as part of his claims that Osaka city required an enlarged geographic space similar to *Tokyo-to*, and he easily connected the concept of an Osaka Metropolitan Government to his market determinism agenda by emphasizing that the scheme would raise efficiency, save money (notably through the reduction of personnel), and advance customer (taxpayer) satisfaction by improving services. Indeed, One Osaka's mandate emphasized competition and private business practices in its aspirations to overhaul a wide range of municipal services, including delivery of welfare, transportation, and cultural programs. As could be expected, opponents mustered their arguments along contrary lines, specifically that any merger of the prefecture and cities would create additional costs and lower the quality of local services. They also pointed out the likely reduction in accessibility to services and local accountability that would occur through abolishing Osaka City. While the two-tier system inherent in the Special Wards legislation might address these issues, One Osaka's adversities raised concerns over equity issues, especially the distribution of funds and services among the new special wards in Osaka city, and the likelihood that outer suburban municipalities would be neglected by the upper-level Osaka prefectural government. By comparison, environmental issues and spatial externalities that were raised in the theoretical literature did not appear to be among the key concerns in Osaka.

Beyond these standard theoretical arguments, the Osaka case study also underscores Bourne's insight about the importance of local circumstances and path dependency in explaining a rationale for metropolitan governance and changes to the status quo.⁸¹ Distinctive factors working at the local level in Osaka included the emotional symbolism of the region's

⁸⁰ Johnston, Eric. (2020b) "Osaka's Second Merger Push Faces Pitfalls From Pandemic." *The Japan Times*, 20 June. Accessed June 2020. <https://www.japantimes.co.jp/news/2020/06/20/national/politics-diplomacy/osakas-second-merger-push-faces-pitfalls-pandemic-abes-poll-woes/>.

⁸¹ Bourne, *Alternative Models*.

wounded pride together with citizens' frustration over traditional political parties. Osaka's poor economic performance over many decades was a fertile ground for the emergence of reformist politicians, such as Hashimoto and his followers. Also important was the role taken by the national government, especially its willingness allow special wards for Osaka, similar to those in Tokyo (together with the 2025 Expo), in exchange for One Osaka's (in its many national guises) support for constitutional reforms.

Two critical questions can only be answered by further research. One concerns whether the proposed metropolitan government would really address Osaka's problems or whether it would become a 'local tragedy' potentially involving even more costlier administration and widening revenue inequalities among the five special wards. Of course, opinions on this have varied, as noted earlier. For some, the Osaka Metropolitan Plan would provide substantial administrative cost savings that could be invested in productive infrastructure projects. For others, it was merely a good example of a policy presented as a simple solution (administrative restructuring) to the complex problem of Osaka's weak economic growth in an era of globalization and the increasing concentration of Japan's financial and commercial economy in Tokyo.⁸²

A second issue that should be studied is whether One Osaka's reform-minded manifesto might have any impact on political culture and policy making in any of Japan's other large cities also suffering from long-term decline in relation to Tokyo. To date, no other city has attempted to use the Special Ward Act to restructure its administration. Shen noted that Nagoya mayor Takashi Kawamura (2009 to present) was also interested in promoting greater local autonomy and envisioned a Chukyo Metropolitan Plan that would require Nagoya city to be dissolved and reorganized into special wards under the authority of Aichi prefecture.⁸³ While this arrangement received the backing of Aichi governor Hideaki Omura (2011 to present) no concrete steps have been taken due to lack of wide-spread political support for the plan. In sum, although approved in principle by the 2012 Special Ward Act, greater autonomy for major cities in Japan is contingent on the agreement of many layers of urban government, public referendums and the vagaries of domestic politics. The wider application of Osaka's experiment in metropolitan governance is not guaranteed and serious challenges to its realization remain.

Acknowledgements

I would to thank the assistance of Professor Kekichi Nagao in the preparation of this research. The article was prepared with funds from the Social Sciences and Humanities Research Council of Canada (SSHRC; Grant 410-2005-0050).

⁸² *The Japan Times*. "Osaka Referendum."

⁸³ Shen, Simon Xu Hui. "Local Governments in Japan and Roles Played in Sino-Japanese Relations." *East Asia*, 31, (2016): 49-65.

Table 1. Possible Criteria for Evaluating Alternative Forms of Urban Governance and Service Delivery.

Criteria	Description	Objective
1. Economies of scale	Service provision, range and scope, quality levels, better costing and budgets	Macro-efficiency
2. Spatial externalities	Containment of local spill-overs (including spill-overs of public goods)	Spatial efficiency/equity
3. Redistribution	Reallocation of the social benefits and costs of development, revenue-sharing	Equity
4. Accessibility	Level of access to service-providers and decision-makers	Vertical equity
5. Accountability	Degree of political/social accountability	Democratic efficiency

Based on material in Slack, Edith. "Finance and Governance: The Case of the Greater Toronto Area." In *Urban Governance and Finance: A Question of Who Does What*, edited by Paul A.R. Hobson and France. St.-Hilaire. 81-112. Montreal: Institute for Research on Public Policy.

Slack (1997).

Table 2. The Hashimoto Phenomenon and the Osaka Metropolitan Plan: Chronology of Major Events, 2003-2020

Year	Event
2003-2007	-Toru Hashimoto's emergence as a TV celebrity in Osaka
2008	-Hashimoto elected to Osaka Prefectural Governor
2010	-Osaka Metropolitan Plan first announced - 'One Osaka' political party established after LDP assembly members defect to Hashimoto's new group
2011	-The first 'cross-election': Hashimoto elected as Osaka City Mayor and Ichiro Matsui elected as Prefectural Governor
2012	-Special Ward Act passed by Diet -Japan Restoration Party established by Hashimoto and Shintaro Ishihara wins many Diet seats in the 2012 election
2013	-Sakai City mayoral election won by One Osaka opponent Osami Takeyama
2014	-Hashimoto re-elected as City Osaka Mayor -Hashimoto's split with Ishihara and the dissolution of the Japan Restoration Party -Japan Innovation Party established by Hashimoto/Matsui
2015	-Osaka City referendum -Hashimoto stands down as mayor and Hirofumi Yoshimura elected mayor of Osaka City -Matsui re-elected as Osaka Prefecture governor and the Initiatives From Osaka party established as a national party
2016	-Japan Innovation Party picks up seats in the House of Councillors election

2018	-Osaka prefecture awarded the right to host World Expo 2025
2019	<ul style="list-style-type: none"> -The second `cross-election: Matsui elected Osaka city mayor, Yoshimura elected Osaka governor -Sakai city mayor Takeyama loses election to a One Osaka candidate -LDP and Komeito assembly members support a new Osaka Metropolitan Plan referendum to create special wards for Osaka
2020	-new proposal for four special wards in Osaka city and for a second referendum to be held in November

Figure 1. Tokyo-to: Indicating the 23 Special Wards and the Tama Area

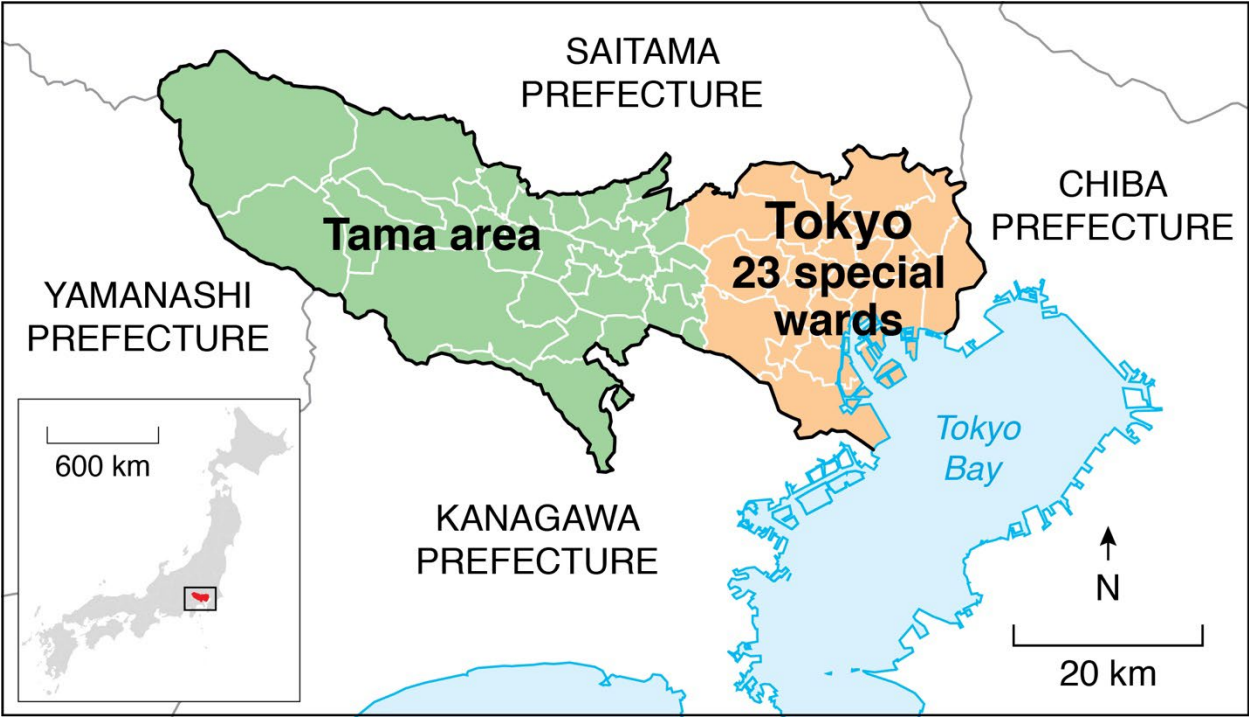


Figure 2. Osaka Prefecture, Osaka City and other Municipalities

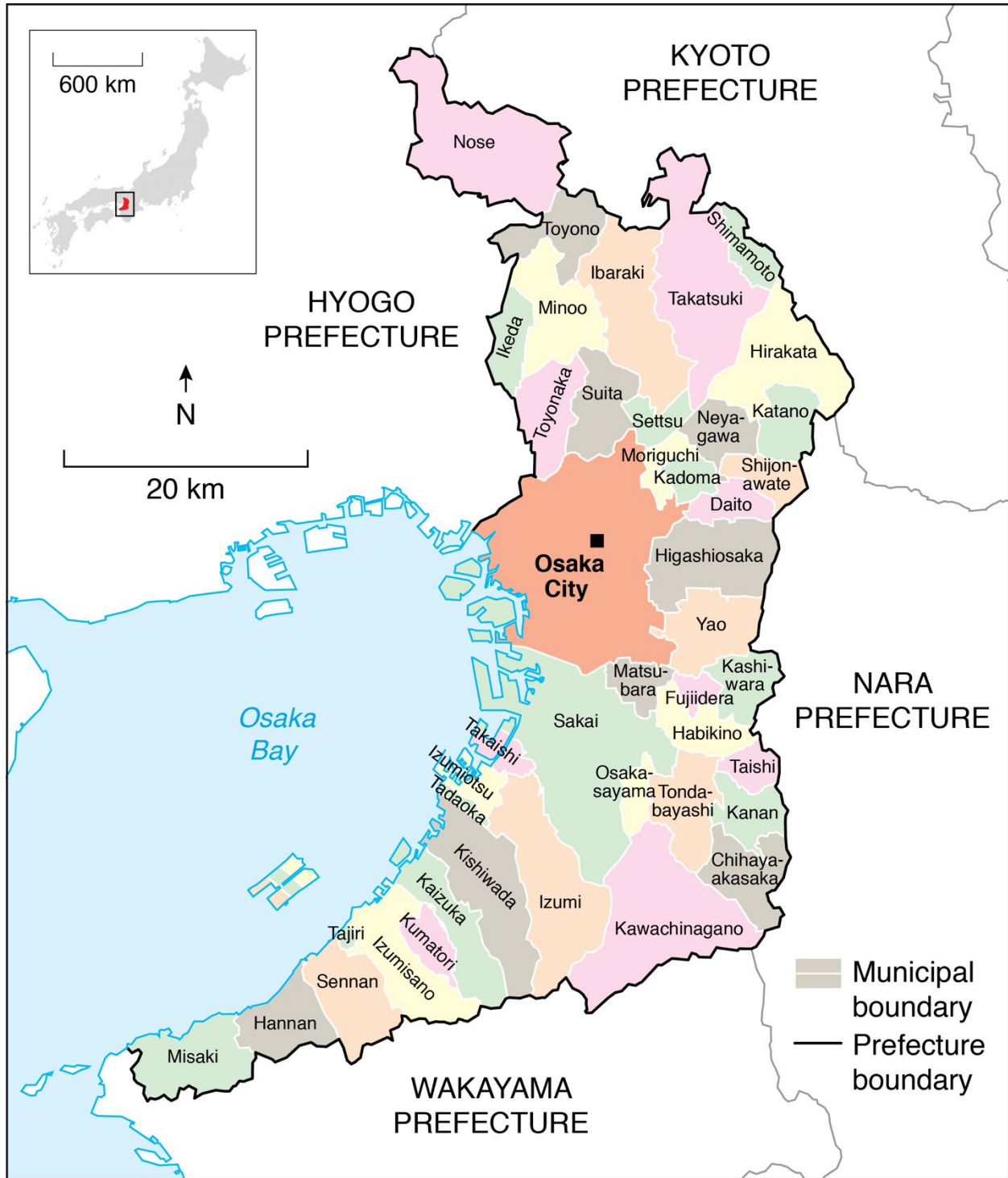


Figure 3: 2010 Osaka Metropolitan Plan Proposal Indicating 20 Special Wards



Note: The proposed Special Wards are shown in color.

This reorganization comprises the existing wards of both Osaka City and Saka City (named in this figure), together with surrounding municipalities.

Based on a map provided by the Osaka Restoration Association.

Figure 4. Proposal for Five Special Wards in the City of Osaka 2015 Referendum Plan



Note: The proposed Special Wards are shown in color. Osaka's existing 24 wards are named in this figure.

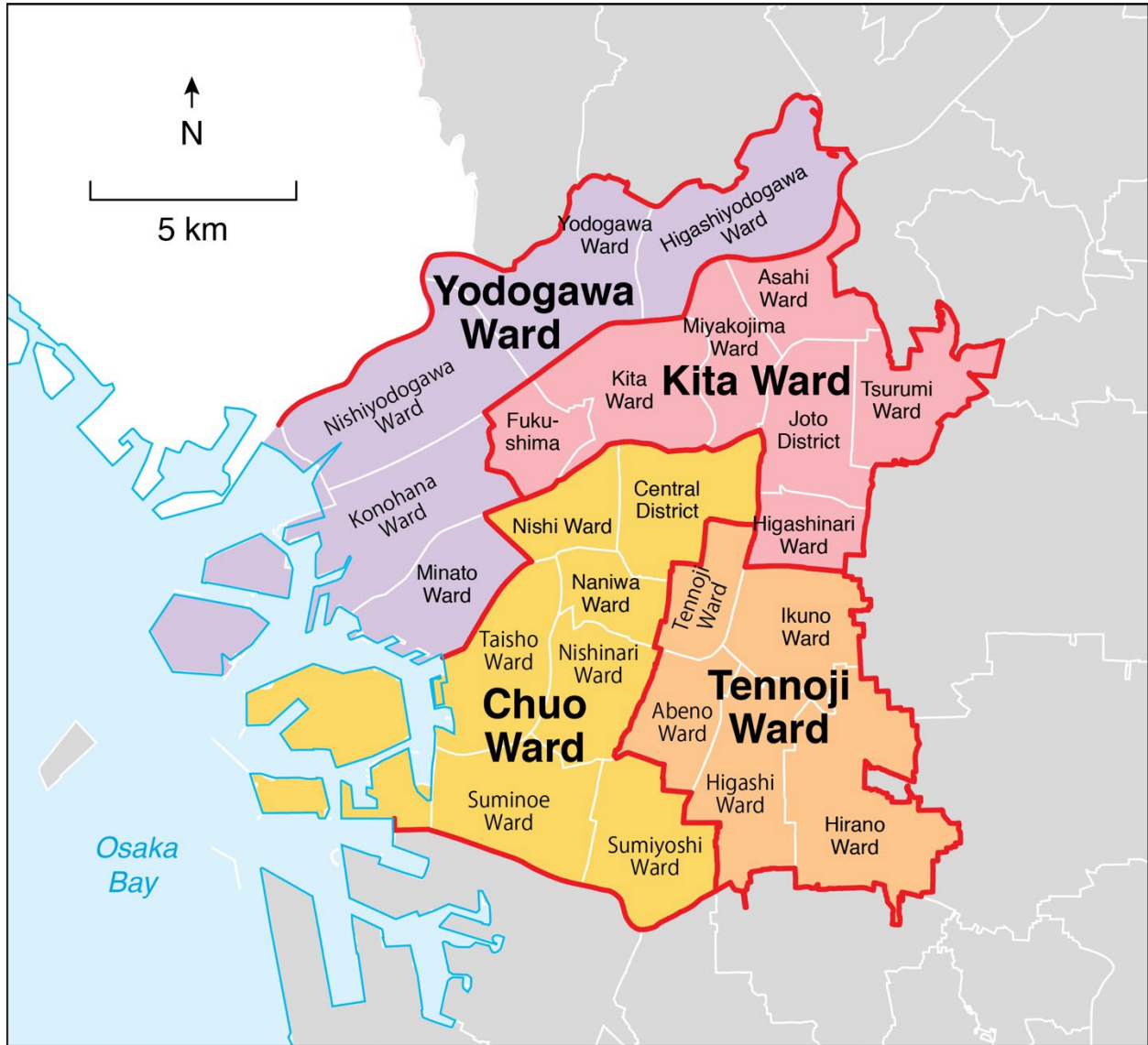
Based on a map provided by the Osaka Restoration Association.

Figure 5. Results of the City of Osaka 2015 Referendum (Yes/No) Broken Down by Existing Wards



Based on a map provided by the Osaka Restoration Association.

Figure 6. Proposal for Four City of Osaka Special Wards, 2020 Referendum



Note: The proposed Special Wards are shown in color. Osaka's existing 24 wards are named in this figure.

Based on a map contained in *The Japan Times*. "Osaka Referendum: Merger Gets Second Chance, But are Voters on Board?". 17 February, 2020. Accessed June 2020.

<https://www.japantimes.co.jp/news/2020/02/17/reference/osaka-merger-plan-second-chance-qa/#.X0GSHS0ZOGQ>

“The Pros and Cons of the Recent Diffusion of Solar Panels on Farmland in Japan,” Tom Waldichuk, Department of Geography & Environmental Studies, Thompson Rivers University, Kamloops, BC, twaldichuk@tru.ca.

Abstract: In recent years, abandoned farmland has increased rapidly in Japan while food self-sufficiency has decreased. Photovoltaic solar panels continue to be assembled on this land, the power generated from which provides a stable source of income for farmland owners. The agriculture ministry argues that this revenue can be reinvested into agriculture. The purpose of this paper is to examine the recent history and pros and cons of solar panel diffusion on farmland in Japan. Do solar panels help to sustain agriculture? The research is based primarily on a literature review and landscape observations. The spread of solar panels has increased since the 2011 Fukushima nuclear disaster when a new feed in tariff program was introduced to increase the monetary rate of return for generating electricity using solar panels, and since 2013 when the Japanese government gave permission to temporarily build solar panels on farmland. The newest type of panels are spaced out to allow farmland under the panels to be cultivated. However, some solar panels on abandoned farmland are not spaced out, which prevents the land from ever being cultivated again. The principal conclusion is that managing solar panels on farmland can be combined with agriculture to provide an extra source of income for farmland owners, who otherwise would not be cultivating that land. However, the reduced productivity of higher quality farmland under the panels can be a threat to farm sustainability.

Introduction

Most people are familiar with roof-top solar heating where water flows through tubes while heating (Figure. 1). These solar devices, known as solar thermal,¹ are used for hot water needs and can commonly be seen on homes in rural areas of Japan. Solar thermal devices became common in the 1980s after the second oil crisis.² This paper concerns photo voltaic (PV) solar systems (Figure 2), which were introduced to Japan in 1958,³ do not involve hot water tubes, and are inexpensive to install⁴ unlike solar thermal.⁵ From 1992 to 2001 PV production

¹ GENI (Global Energy Network Institute). “Solar Energy in Japan – Summary,” Accessed July 6, 2020. <http://www.geni.org/globalenergy/library/energytrends/currentusage/renewable/solar/japan/summary.shtml>

² GENI (Global Energy Network Institute). “Solar Thermal,” Accessed July 27, 2020. <http://www.geni.org/globalenergy/library/energytrends/currentusage/renewable/solar/japan/solarthermal/solar-thermal.shtml>

³ Yuriko Yoneda, “The Spread of Solar Power Generation in Japan,” *Japan For Sustainability Newsletter* No.70 (June 30, 2008). Accessed July 3, 2020. https://www.japanfs.org/en/news/archives/news_id027851.html

According to Yoneda, PV was introduced at a radio relay station in Fukushima Prefecture in the Tohoku region over the years this PV technology was refined, and in 1976 the electronics company Sharp developed a solar calculator. A number of years later, in 1992, Sanyo Electric was installing PV solar panels on houses.

⁴ GENI (Global Energy Network Institute). “Photovoltaics,” June 30, 2016. Accessed July 6, 2020. <http://www.geni.org/globalenergy/library/energytrends/currentusage/renewable/solar/japan/solarenergy/Photovoltaics.shtml>

⁵ GENI, “Solar Thermal.”

increased steadily in the world and Japan.⁶ By 2004, the total amount of PV solar generation in Japan was 1.13 million Kilowatts (KW), which was the largest in the world at that time.⁷ Still, in 2002 the proportion of PV power generation compared to all electricity generated was less than 0.1% in Japan.⁸ Around 2004, PV panels started to appear among farm fields in Japan.



Figure 1. “Taiyounetsu Onsui Ki - Taiyounetsu de Mizu wo Atatamete Kyuutou nado ni Riyou Suru Tame no Souchi (Solar Water Heater -- A Device to use for Hot Water Supply, etc. -- Heating Water Using Solar Heat).” Solar Thermal Heating System. Solar Thermal Heating System. Source: [Toto-tarou](#) - Own work, Wikimedia commons. [CC BY-SA 3.0](#), August 1, 2006. Accessed August 10, 2020.
<https://commons.wikimedia.org/wiki/File:TaiyonetuOnsuiki.jpg#/media/File:TaiyonetuOnsuiki.jpg>

⁶ GENI, “Photovoltaics.”

⁷ Yoneda, “The Spread of Solar.”

⁸ Yoneda, “The Spread of Solar.”



Figure 2. Solar Panels on Abandoned Farmland, Ushiku City, Ibaraki Prefecture (T. Waldichuk photo)

In March 2011 there was a tsunami and subsequent nuclear accident at the Fukushima Dai Ichi nuclear power plant, which resulted in farmland being contaminated by radiation.⁹ Since then it has not been safe to grow crops because of the nuclear radiation in the soil, and consumers have been fearful of purchasing produce grown near the nuclear power plant.¹⁰ Therefore, some of the contaminated farmland has been covered in solar panels¹¹ to provide farmers with some revenue from electrical energy generation to provide some income to offset the losses from the declining sales, and to improve their farmland.¹² An example of this is Iitate village in the northeast part of Fukushima Prefecture, which was evacuated after the nuclear accident.¹³ Two people from the local area started a community-based solar power company in

⁹ Timothy Fraser, "How Governance and Disasters Shape Renewable Energy Transitions: The Case of Japanese Megasolar." *Social Sciences Quarterly* 100, no.3 (2019): 975-990. <https://doi.org/10.1111/ssqu.12603>; Mae-wan Ho, "Japanese Farmers Producing Crops and Solar Energy Simultaneously," *Science in Society Archive*, October 16, 2013. Accessed August 5, 2020. www.i-sis.org.uk/Japanese_Farmers_Producing_Crops_and_Solar_Energy.php

¹⁰ Ho, "Japanese Farmers."

¹¹ Junko Mochizuki and Stephanie E. Chang, "Disasters as Opportunity for Change: Tsunami Recovery and Energy Transition in Japan." *International Journal of Disaster Risk Reduction* 21 (2017): 331-339. <https://doi.org/10.1016/j.ijdrr.2017.01.009>

¹² Ho, "Japanese Farmers."

¹³ Shoto Furuya, "Solar Sharing for the Future Generation – the Story of Iitate Electric Power in Fukushima," *The Beam*, No.5, May 9, 2018).

2014, which involved placing solar panels over top of farm fields – a technique known as solar sharing (Figure 3).



Figure 3. Solar sharing panels facing upwards. Aomori Prefecture (T. Waldichuk photo)

After the 2011 Fukushima accident there were large public demonstrations against nuclear power.¹⁴ But Japan was promoting renewable energy even before the accident,¹⁵ and it has been promoting it ever since.¹⁶ After the nuclear accident, the central government started subsidizing the production of renewable energy.¹⁷ Soon there was an expansion of solar power to generate electricity, and one could see a proliferation of solar panels, including on farmland. For example, solar arrays were installed in a “renewable energy village” in the city of Minamisoma, Fukushima Prefecture, on farmland contaminated by the nuclear accident.¹⁸ The government subsidized the production of electricity from solar panels by raising the yen amount per watt that solar power producers would receive when selling their power to the

<https://medium.com/thebeammagazine/solar-sharing-for-the-future-generation-the-story-of-iitate-electric-power-in-fukushima-c28efd5d7e41>

¹⁴ For example:

Jeff Kingston, "Nuclear Power Politics in Japan, 2011-2013." *Asian Perspective* 37, no. 4 (2013): 501-521. [doi:10.1353/apr.2013.0021](https://doi.org/10.1353/apr.2013.0021); Yvonne Chang, "Nuclear Restart Generates Power, Protest in Japan." *National Geographic*. July 17, 2012. Accessed July 27, 2020.

<https://www.nationalgeographic.com/news/energy/2012/07/120716-japan-nuclear-restart-protests/>

¹⁵ John Duffield, "Japanese Energy Policy After Fukushima Daiichi: Nuclear Ambivalence." *Political Science Quarterly*, 13, no.1(2016): 133-162. <https://onlinelibrary.wiley.com/doi/abs/10.1002/polq.12431>

¹⁶ Aya Takada, and Chisaki Watanabe, "Business: Solar Farmers in Japan to Harvest Electricity with Crops," *Bloomberg News*. May 27, 2014. Accessed June 30, 2020.

<https://www.bloomberg.com/news/articles/2014-05-26/solar-farmers-in-japan-to-harvest-electricity-with-crops>; Mochizuki and Chang, "Disasters as Opportunity."

¹⁷ Kingston, "Nuclear Power," 501-521; Shu Deng Fam, Jieru Xiong, Gordon Xiong, Ding Li Yong, and Daniel Ng, "Post-Fukushima Japan: The Continuing Nuclear Controversy," *Energy Policy*, 68 (2014): 199-205. <https://doi.org/10.1016/j.enpol.2014.01.014>; Chisaki Watanabe, "Japan Spurs Solar, Wind Energy with Subsidies for Renewables," *Bloomberg News*. August 26, 2011. Accessed July 6, 2020. <https://www.bloomberg.com/news/articles/2011-08-26/japan-passes-renewable-energy-bill-one-precondition-of-kan-s-resignation>

¹⁸ Rob Gilhooly, "Japan Could Become Second Biggest Solar Power Nation," *New Scientist*. August 1, 2012. Accessed July 28, 2020. <https://www.newscientist.com/article/mg21528764-800-japan-could-become-second-biggest-solar-power-nation/#:~:text=Some%20estimates%20suggest%20the%20move%20could%20help%20Japan,nuclear%20power%20industry%20will%20continue%20to%20provide%20competition>; Rob Gilhooly, "Renewable Village Offers Lifeline to Fukushima Farmers," *New Scientist*. January 6, 2014. Accessed August 7, 2020. <https://www.newscientist.com/article/dn24816-renewable-village-offers-lifeline-to-fukushima-farmers/#:~:text=Renewable%20village%20offers%20lifeline%20to%20Fukushima%20farmers%20%7C,panels%20on%20land%20contaminated%20by%20fallout%20in%202011>; Jeremy Hsu, "Japan Plants Renewable Energy Village in Fukushima's Contaminated Farmland," *IEEE Spectrum*. January 6, 2014. Accessed August 1, 2020.

<https://spectrum.ieee.org/tech-talk/green-tech/solar/japan-plants-renewable-energy-village-in-fukushimas-contaminated-farmland>;

large electrical utilities.¹⁹ These subsidies started in 2012,²⁰ and the panels could be located on or off farmland. Historically, the Japanese government has also provided subsidies for the installation costs of PV panels.²¹ The agricultural ministry describes farm examples of subsidized solar arrays in a recent renewable energy document.²² But how the facilities are subsidized and to what degree are not given.

Special legislation was responsible for subsidizing and promoting the production of renewable energy, including that produced by the farm community.²³ In August 2011, the “Act on Special Measures Concerning Procurement of Electricity from Renewable Energy Sources by Electricity Utilities,” also known as the “Renewable Energy Special Measures Act” was created.²⁴ This act²⁵ refers to the damage caused by the 2011 Tohoku Earthquake and nuclear power plant accidents. The new renewable energy law also led to the Feed in Tariff Act of 2012,²⁶ which was responsible for subsidizing the production of renewable electricity. Also, a new renewable energy law was passed in November 2013 entitled “Act on Promotion of

¹⁹ Gilhooly, “Japan Could Become Second Biggest Solar Power Nation;” Gilhooly, “Renewable Village;” Kingston, “Nuclear Power,” 501-521; “Solar Sharing Program Through Solar Panels on Farmland Launched,” *Japan for Sustainability*. August 16, 2013. Accessed July 28, 2020. https://www.japanfs.org/en/news/archives/news_id034166.html

²⁰ Gilhooly, “Renewable Village;” Kingston, “Nuclear Power,” 501-521.

²¹ GENI (Global Energy Network Institute), “Solar Energy in Japan – Summary,” Accessed July 6, 2020. <http://www.geni.org/globalenergy/library/energytrends/currentusage/renewable/solar/japan/summary.shtml>

²² For example: MAFF (Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)), “Nourin Gyogyo no Kenzena Hatten to Chouwa no Toreta Saisei Kanou Enerugi- Hatsuden wo Okonau Jirei (Examples of Renewable Energy Power Production in Harmony with the Healthy Development of Agriculture, Forestry, and Fisheries),” Food Industry Affairs Bureau (Shokuryou Sangyou Kyoku), Baiomasu Junkan Shigenka Saisei Kanou Enerugi- Shitsu, (2019), Accessed July 6, 2020. <https://www.maff.go.jp/j/shokusan/renewable/energy/attach/pdf/zirei-195.pdf>

²³ MAFF (Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)), “Nourin Gyogyo ni Okeru Saisei Kanou Enerugi- Hatsuden wo Meguru Josei” (The Situation Regarding Possible Reusable Energy on Agricultural and Fishing Villages),” Shokuryou Sangyou Kyoku (Food Production Division), Saisei Kanou Enerugi-Guru-pu (Renewable Energy Group), June 2016, Accessed June 13, 2020. www.maff.go.jp/j/shokusan/renewable/energy/pdf/meguza.pdf; “New Renewable Energy Law to Allow Conversion of Farmland in Japan to Wind Farms,” *Japan for Sustainability*. April 21, 2014. Accessed July 28, 2020.

https://www.japanfs.org/en/news/archives/news_id034849.html

²⁴ Sayuri Umeda, “Japan: Renewable Energy Special Measures Act Amended,” Library of Congress, Law Library, News and Events, Global Legal Monitor. August 16, 2016. Accessed July 28, 2020. <https://loc.gov/law/foreign-news/article/japan-renewable-energy-special-measures-act-amended/>; Chisaki Watanabe, “Japan Spurs Solar.”

²⁵ Accessed from the Japanese Law Translation Database System of the Ministry of Justice, Japan (2020) (www.japaneselawtranslation.go.jp)

²⁶ Chico Harlan, “After Fukushima, Japan Beginning to see the Light in Solar Energy,” *The Guardian*. June 18, 2013. Accessed June 30, 2020. <https://www.theguardian.com/world/2013/jun/18/japan-solar-energy-fukushima-nuclear-renewable-abe>; “Solar Sharing Program Through Solar Panels.” 2013

Generating Renewable Energy Harmonized with Healthy Development of Agriculture, Forestry and Fishery,”²⁷ which combined with the FIT and other policies led to the spread of solar projects.²⁸ In 2016, the Renewable Energy Special Measures Act was changed to allow the central government to increase the proportion of future renewable energy from 22 to 24 percent of all electrical production.²⁹ What have been the effects of these new renewable energy laws on farmland in terms of solar energy production?

Solar farms, as mentioned above, started to increase in number after the 2011 Fukushima nuclear accident. Some argue that Japan has enough farmland to support enough solar panels to generate enough electricity to support Japan’s needs.³⁰ Japan requires about 1.0 million ha of land to supply Japan’s total electricity with PV,³¹ and as of about 2013 it had about 4.6 million ha of total farmland.

Megasolar plants, or what Gilhooly³² calls large-scale solar parks, have a capacity of at least 1000 KiloWatts (1 MW)³³ and account for about 32% of “installed capacity.”³⁴ Residential solar power consists of less than 10 KiloWatts and account for about 23% of “installed capacity.”³⁵ Non-residential solar facilities that generate between 10 and 1,000 KiloWatts, make

²⁷ “New Renewable Energy Law.” 2014

²⁸ Kei Sakamura, Takatoshi Kaneko, Mamiko Numata, Norohiro Nakai, “Study on the Site Character of the Ground Standing Photovoltaic Power Generating System,” *Journal of the City Planning Institute of Japan*, 49 no.3 (October 2014): 633-634. Accessed August 6, 2020.

https://www.jstage.jst.go.jp/article/journalcpj/49/3/49_633/_pdf/-char/en

See also Hori and Shibata, who mention the new renewable energy law of November 2013:

Ayumi Hori, and Yuki Shibata, “Geographical and Social Characteristics of Landscape Conflicts on PV Projects in Japan – Case Study of 12 Small-Large Scale PV Projects,” IAIA17 Impact Assessment’s Contribution to the Global Efforts in Addressing Climate Change, 2017. Accessed July 30, 2020. 5 pages.

<https://conferences.iaia.org/2017/final-papers/Hori,%20Ayumi%20-%20Landscape%20conflicts%20on%20PV%20projects%20in%20Japan.pdf>

²⁹ Umeda, “Japan: Renewable Energy Special Measures Act Amended.”

³⁰ For example, Junko Movellan, “Japan Next-Generation Farmers Cultivate Crops and Solar Energy,” *Renewable Energy World*. October 10, 2013. Accessed July 25, 2020.

<https://www.renewableenergyworld.com/articles/2013/10/japan-next-generation-farmers-cultivate-agriculture-and-solar-energy.html>

³¹ Movellan, “Japan Next-Generation Farmers.”

³² Gilhooly, “Japan Could Become Second Biggest Solar Power Nation;” Gilhooly, “Renewable Village.”

³³ Edgar Hahn, “Japanese Solar PV Market and Industry -- Business Opportunities for European Companies” -- EU-Japan Centre for industrial Cooperation, November 2014, 1-40. <https://www.eu-japan.eu/sites/default/files/publications/docs/pvinjapan.pdf>

³⁴ Renewable Energy Institute, “Recommendation for Expansion of Sustainable Solar Power,” 1-7. January 7, 2019. Accessed July 28, 2020.

https://www.renewable-ei.org/en/activities/reports/20190130.php/REI_Recommendation_SustainableSolarDevelopment_EN.pdf

³⁵ Renewable Energy Institute, “Recommendations for Expansion,” 1-7.

up the remaining “installed capacity” – less than 50%.³⁶ In about 2013-2014 the focus switched from building large megasolar plants to more mid-size plant due to the lack of large tracts of suitable land close to grid connection points.³⁷ More floating solar farms have been planned.³⁸ One solar farm, formerly the largest in Japan, is built on reclaimed land near Kagoshima in Kyushu.³⁹ There are also plans for solar farms in space, which would likely involve other countries too, because of the cost.⁴⁰ Japan has already developed high tech innovative solar facilities, such as the Solar Ark, which is the size of a broad-based 37m high office building, designed by Sanyo and taken over by Panasonic Corporation.⁴¹ By 2013 Japan was the second fastest growing PV market behind China.⁴² In 2019 the total installed cumulative capacity of PV in Japan was 63 GW⁴³ (up from 7 GW in 2012 for both Japan and China),⁴⁴ whereas it was higher in the US and China, 75.9 GW and 204.7 GW respectively.⁴⁵ PV solar made up about

³⁶ Renewable Energy Institute, “Recommendations for Expansion,” 1-7.

³⁷ Hahn, “The Japanese Solar PV Market and Industry,” 1-40.

³⁸ Jason Deign, “Floating Solar Gets Ready for the High Seas.” August 15, 2019.

<https://www.greentechmedia.com/articles/read/floating-solar-gears-up-for-the-high-seas>

³⁹ Kyocera, “News Release: Kyocera Starts Operation of 70MW Solar Power Plant, the Largest in Japan.” November 5, 2013. Accessed July 11, 2020. https://global.kyocera.com/news-archive/2013/1101_nnms.html

⁴⁰ “Japan Wants to put a Giant Solar Farm in Space,” IFL Science. Accessed July 11, 2020.

<https://www.iflscience.com/technology/japan-wants-put-giant-solar-farm-space/>; Shimizu Corporation, “Shimizu Dream: Luna Ring, Solar Power Generation on the Moon,” (1996-2020). Accessed July 11, 2020. <https://www.shimz.co.jp/en/topics/dream/content02/>

⁴¹ Panasonic Corporation, “Panasonic Newsroom Press Ririsu “So-ra-a-ku” no Burando Hyouki no Henkou ni Tsuite.” June 24, 2011. Accessed July 11, 2020. <https://news.panasonic.com/jp/press/data/jn110624-1/jn110624-1.html>

Sanyo Electric Co. Ltd., “Solar Ark,” 2009. Accessed July 11, 2020.

<https://web.archive.org/web/20100102012206/http://sanyo.com/solarark/en/>

⁴² Hahn, “The Japanese Solar PV Market and Industry,” 1-40.

⁴³ (1 Gigawatt (GW)=1,000 Megawatts (MW))

⁴⁴ IEA PVPS (International Energy Agency Photovoltaic Power Systems Programme), “PVS Report: A Snapshot of Global PV 1992-2012, Preliminary Information From the IEA PVPS Programme,” Report IEA-PVPS T1-22: 2013, Table 1 – Top 10 Countries for Installations and Total Installed Capacity in 2012 – in MW, p.7. Table 2 – Synthesis Table for PV Installations and Installed Capacity in 2012, p.11. Accessed July 12, 2020. https://iea-pvps.org/wp-content/uploads/2020/01/PVPS_report_-_A_Snapshot_of_Global_PV_-_1992-2012_-_FINAL_4.pdf

⁴⁵ IEA PVPS (International Energy Agency Photovoltaic Power Systems Programme), “Task 1 Strategic PV Analysis and Outreach -- Snapshot of Global PV Markets 2020,” Report IEA-PVPS T1-37: 2020. Technology Collaboration Programme by IAE (April 2020), Countries with Highest PV Penetration (2019), p.7. Table 1. Top 10 Countries for Installation and Total Installed Capacity in 2019, p.10. Accessed July 12, 2020. https://iea-pvps.org/wp-content/uploads/2020/04/IEA_PVPS_Snapshot_2020.pdf

0.77% of total electricity used in Japan in 2012⁴⁶ while in 2019, PV's share increased to 7.6%⁴⁷ -- still a small share compared to other energy sources.

The focus of this paper is the recent history of the spread of solar panels on farmland in Japan. What are the pros and cons of allowing this? For example, does it impact farm productivity? Does generating electricity provide enough extra revenue to help keep farm households economically viable? Do farmers re-invest their profits from generating solar power into farming? In other words, does solar power keep agriculture sustainable? I will first talk about the trends in farming, particularly the increase of abandoned farmland. Second, I will describe solar panels on farmland, including the effect of the feed in tariff rate. Third, I will talk about solar sharing and the temporary designation of farmland to allow for it. Fourth, I will discuss the pros and cons of erecting solar panels on farmland in order to generate electricity. I argue that generating solar power on farmland – particularly in the form of solar sharing – will in the short run help to sustain Japanese agriculture by providing an extra source of income for farmers. However, without continuing to subsidize the amount earned from generating solar power, farmers will be less keen to go through the procedure to put a solar sharing array of panels on their fields, thus, minimizing the positive effects on sustaining farming.

The Implications of Increasing Abandoned Farmland for Solar Panels

In general, all over Japan farms have been decreasing in number,⁴⁸ although many of the remaining farms are larger, cultivating more land. The reasons for the decrease in farm numbers is an aging farm population,⁴⁹ and a decline in the number of young people willing to

⁴⁶ IEA PVPS, "Report IEA-PVPS T1-22: 2013," p.11

⁴⁷ IEA PVPS, "Report IEA-PVPS T1-37: 2020," p.7

⁴⁸ The total number of farm households ("farm households" is generally the category used to count the number of farms) with cultivated land under management decreased from 4,953,00 in 1975 to 2,848,000 in 2005. Source: II Overview of the Results for the Census of Agriculture and Forestry 2005, Figure 1. Transition in the Total Number of Farm Households (Nationwide), p.31,

https://www.maff.go.jp/j/tokei/census/afc/2005/pdf/eng_results.pdf

There was a further decrease in farm household numbers from 2,520,027 in 2010 to 2,143, 878 in 2015.

Source: Excel page N198, III Nouka no Bu, 1 Nouka Settai in nado (Tsuzuki), 2. Number of Farm Households with Cultivated Land Under Management, and Area

<https://www.maff.go.jp/e/data/stat/91th/attach/xls/index-30.xls>

⁴⁹ The average age of persons involved in farming (nougyou shuugyou jinkou) increased from 61.1 years in 2000 to 66.4 years in 2015.

Source for 2000 population data:

Hyou (Table) 3-16 Nougyou Shuugyou Jinkou Kikanteki Nougyou Juujishasuu no Idou (Movement in the number of core farmers)

https://www.maff.go.jp/j/wpaper/w_maff/h23_h/trend/part1/chap3/c3_3_02.html

Source for 2015 population data: Excel page N202_203, 202 III Nouka bu, I Farm Households, Household members, etc. (b) Average age of Persons Engaged In Farming, etc. (source: Census of Agriculture & Forestry" by the Statistics Department of MAFF)

take over farm operations.⁵⁰ As well, farming has become less profitable,⁵¹ forcing farmers to take side jobs.⁵² These trends have led to an increase in abandoned farmland.

Abandoned farmland (*kousakuhoukichi*, 耕作放棄地) is defined as land not cultivated for at least a year and not expected to be cultivated again for a number of years.⁵³ As of about 2018 there was approximately 420,000 ha of abandoned farmland, making up about 10% of Japan's farmland area⁵⁴ – this is the approximate size of Saitama Prefecture.⁵⁵ About 180,000 ha, or nearly half of all abandoned farmland, is not thought to be restorable for future cultivation.⁵⁶ Therefore, this land could be used for solar panels.

There are fewer farms now, many of them larger, but as mentioned above, the amount of cultivatable farmland is decreasing.⁵⁷ This had led to a decrease in national food production

<https://www.maff.go.jp/e/data/stat/91th/attach/xls/index-30.xls>

Regarding the aging farm population, see also:

Junichi Ito, Mari Nishikori, Mami Toyoshi, and Hart Nadav Feuer, "The Contribution of Land Exchange Institutions and Markets in Countering Farmland Abandonment in Japan," *Land Use Policy* 57 (2016): 582–593. <https://doi.org/10.1016/j.landusepol.2016.06.020>; Kenji Kaneko, "PV Systems for Abandoned Farm Land Increasing in Japan." *Nikkei Business Publications*, Nikkei BP CleanTech Institute, January 13, 2016, Accessed 2019. https://tech.nikkeibp.co.jp/dm/atclen/news_en/15mk/011300302/?ST=msbe Alana Semuels, "Can Anything Stop Rural Decline?" *The Atlantic*. August 23, 2017, Accessed July 13, 2020. <https://www.theatlantic.com/business/archive/2017/08/japan-rural-decline/537375/>

⁵⁰ Related to the farm succession problem see: Ito et al., "The Contribution of Land Exchange," 582-593; Kaneko, "PV Systems for Abandoned Farm Land;" Movellan, "Japan Next-Generation Farmers;" Semuels, "Can Anything Stop Rural Decline?"

⁵¹ Noriko Irie, Naoko Kawahara, and Ana Maria Esteves, "Sector-Wide Social Impact Scoping of Agrivoltaic Systems: A Case Study in Japan," *Renewable Energy*, 13 (2019): 1463-1476. <https://doi.org/10.1016/j.renene.2019.02.048>; Ito et al., "The Contribution of Land Exchange," 582-593.

Movellan, "Japan Next-Generation Farmers."

⁵² Movellan, "Japan Next-Generation Farmers."

⁵³ See the definition of abandoned farmland on p.19 of : I. Overview of the Census of Agriculture and Forestry 2005. https://www.maff.go.jp/j/tokei/census/afc/2005/pdf/eng_overview.pdf

See also: Renewable Energy Institute, "Recommendations for Expansion," 1-7.

⁵⁴ Renewable Energy Institute, "Recommendations for Expansion," 1-7;" Hanno Jentzsch, "Abandoned Land, Corporate Farming, and Farmland Banks: A Local Perspective on the Process of Deregulating and Redistributing Farmland in Japan," *Contemporary Japan*, 29 no.1 (2017): 31-46. <https://doi.org/10.1080/18692729.2017.1256977>

⁵⁵ Nishi, "Multi-Level Governance."

⁵⁶ Renewable Energy Institute, "Recommendations for Expansion," 1-7.

⁵⁷ For example, the area of abandoned cultivated land in Japan increased from 217,000 ha in 1990 to 386,000 ha in 2005. Source: II Overview of the Results of the Census of Agriculture and Forestry 2005, Figure 12, Transitions in the Area of Abandoned Cultivated Land Area (Nationwide) (1,000 ha), p.43. https://www.maff.go.jp/j/tokei/census/afc/2005/pdf/eng_results.pdf

and a decrease in national food self-sufficiency.⁵⁸ Farmland abandonment has also led to negative effects on food security.⁵⁹ Abandoned farmland may be taxed at a higher rate than cultivated farmland.⁶⁰ Thus, some farmers put their unused farmland in a farmland bank where it can be used by others, so it will not be taxed at a higher rate.⁶¹ Thus, one could argue that using this abandoned land for solar panels is a positive action.

Will solar panels help sustain farming?

The larger question is will putting solar panels on farmland -- including abandoned farmland -- make farming more sustainable? What is the best use of abandoned farmland to make farming more economically and environmentally sustainable? In addition to solar panels, what are the other options? Estoque et al.⁶² state that abandoned farmland may have positive environmental impacts, such as restoring ecosystems. Osawa et al. in 2013⁶³ mention that

The area of abandoned cultivated land also increased from 395,981 ha in 2010 to 423,065 ha in 2015. Data source: Excel page III Farm households N201 I Farm Households, Household members, etc. (5) "No. of Farm Households (Households) with Abandoned Cultivated Land and Area" Added abandoned cultivated land areas for commercial, non-commercial, and non-farm households with agricultural land. (source: Census of Agriculture & Forestry" by the Statistics Department of MAFF)
<https://www.maff.go.jp/e/data/stat/91th/attach/xls/index-30.xls>

Su et al. focus on farmland abandonment in Japan:

Guandong Su, Hidenori Okashi and Lin Chen, "Spatial Pattern of Farmland Abandonment in Japan: Identification and Determinants," *Sustainability*, 10 no.10, (2018): 3676 - (22 pages)
<https://www.mdpi.com/2071-1050/10/10/3676>

⁵⁸ "Japan's Falling Food Self-Sufficiency (editorial)," *Japan Times*. August 20, 2019. Accessed June 19, 2020.
<https://www.japantimes.co.jp/opinion/2019/08/20/editorials/japans-falling-food-self-sufficiency/#.XuKPA0VKg2w>

⁵⁹ Even companies selling solar panels to farmers on their internet homepages talk about decreasing farmland and fewer successors taking over their farms, and the importance of farmland and national food production, e.g., Einougata Taiyoukou Jouhou Teikyou Shisutemu Dotto Komu (営農型太陽光情報提供システムドットコム). No date. Accessed August 9, 2020. <http://www.nouchi-taiyoukou.jp/farmland/difference.html>. Regarding farmland abandonment, see also Su et al., "Spatial Pattern of Farmland Abandonment," 3676 - (22 pages)

⁶⁰ "Japan to Use Tax Carrots, Sticks to Move Idle Farmland," *Nikkei Asian Review*, September 10, 2014, Accessed July 13, 2020. <https://asia.nikkei.com/Economy/Japan-to-use-tax-carrots-sticks-to-move-idle-farmland>; Kaneko, "PV Systems for Abandoned Farm Land."

⁶¹ "Japan to Use Tax Carrots."

A. Otsuka, "Farming Increasingly Dependent on Non-Japanese." *The Asahi Shimbun*. June 26, 2018.
<http://www.asahi.com/ajw/articles/AJ201806260001.html>

⁶² Ronlad Estoque, Kei Gomi, Takuya Togawa, Makoto Ooba, Yasuaki Hijioka, Chiaki Akiyama, Shogo Nakamura, Akira Yoshioka, and Keisuke Kuroda, "Scenario-Based Land Abandonment Projections: Methods, Application, and Implications," *Science of the Total Environment*, 692 (2019): 903-916.
<https://doi.org/10.1016/j.scitotenv.2019.07.204>

⁶³ Takeshi Osawa, Kazunori Kohyama, and Hiromune Mitsuhashi, "Areas of Increasing Agricultural Abandonment Overlap the Distribution of Previously Common, Currently Threatened Plant Species," *PLoS ONE*, 8 no.11, e79978 (2013): 1-9. <https://doi.org/10.1371/journal.pone.0079978>

abandoned farmland can provide habitat for threatened plants (but not always) -- they also state that [farmland abandonment can threaten plant species](#). On the other hand, Osawa et al. in 2016⁶⁴ review some of the negative effects of abandonment on the services that ecosystems provide (*i.e.*, ecosystem services), such as producing food.⁶⁵ They also point to the effects of abandonment on the reduction in biodiversity, which can affect, *e.g.*, pollination, another ecosystem service.⁶⁶

Although one may think that abandoned farmland should be put back into production (to increase food self-sufficiency, etc.), some farmers may not want to buy or rent abandoned farmland⁶⁷ due to the increased costs to farm it. Ito et al.⁶⁸ calls these land transactions “risky”. Jentzsch⁶⁹ also mentions that active farmers are not interested in acquiring poorly located farmland, *e.g.*, in remote hilly areas or among residential developments. So perhaps solar panels are the best land use for much abandoned land.

The Spread of Solar Panels on Abandoned and Other Farmland

As mentioned in the introduction, large-scale solar facilities are commonly called solar farms, solar parks, or megasolar parks. Some of these facilities are on abandoned farmland, but they can be placed on sites of other land use.⁷⁰ These types of megasolar projects have been

⁶⁴ Takeshi Osawa, Kazunori Kohyama, and Hiromune Mitsuhashi, “Multiple Factors Drive Regional Agricultural Abandonment,” *Sci. Total Environ.*, 542 (2016): 478–483.
<https://doi.org/10.1016/j.scitotenv.2015.10.067>

⁶⁵ Carlos Corvalan, Simon Hales, and Anthony J. McMichael. *Ecosystem and Human Well-Being – Health Synthesis: A Report of the Millennium Ecosystem Assessment*. Geneva: World Health Organization, 2005. Accessed August 8, 2020.
https://ohcea.org/OhceaModules/Ecosystem%20Health/Ecosystem%20Health%20Resources/Corvalan_Ecosystem%20Health.pdf

When mentioning biodiversity and ecosystem services, Osawa et al. in 2016 refer to Osawa et al. from 2013; Millennium Ecosystem Assessment, *Ecosystems and Human Well-Being*, Island Press, Washington, D.C. , 2005; and Teja Tschamntke et al. (see below).

⁶⁶ Teja Tschamntke, Alexandra M. Klein, Andreas Kruess, Ingolf Steffan-Dewenter and Carsten Thies, “Landscape Perspectives on Agricultural Intensification and Biodiversity-Ecosystem Service Management,” *Ecological Letters* 8 (2005): 857-874.

<https://doi.org/10.1111/j.1461-0248.2005.00782.x>

⁶⁷ Ito et al., “The Contribution of Land Exchange,” 582-593.

⁶⁸ Ito et al., “The Contribution of Land Exchange,” 582-593.

⁶⁹ Jentzsch, “Abandoned Land, Corporate Farming, and Farmland Banks,” 31-46.

⁷⁰ *e.g.*, see: Andrew Chapman and Timothy Fraser, “Japan’s Megasolar Boom: Quantifying Social Equity Expectations and Realities at the Local Scale,” *Sustainability Science*, 14 (2019): 355-374.
<https://doi.org/10.1007/s11625-018-0613-y>; Timothy Fraser, “How Governance and Disasters Shape Renewable Energy Transitions: The Case of Japanese Megasolar,” *Social Sciences Quarterly* 100 no. 3 (2019): 975-990. <https://doi.org/10.1111/ssqu.12603>; Timothy Fraser and Andrew Chapman, “Social Equity Impacts in Japan’s Mega-Solar Siting Process,” *Energy for Sustainable Development*, 42 (2018): 136-

common in Japan since about 2012 when the new feed in tariff (discussed below) was implemented. Forested areas still have the potential to receive large-scale solar facilities, although a discussion of this is beyond the scope of this paper.

The idea of combining farming and solar panels for electricity production, known as agrivoltaics -- or solar sharing in Japan -- started with the publication of a paper by Adolf Goetzberger and Armin Zastrow in 1982.⁷¹ Agrivoltaics allows crops to be grown under solar panels. The panels are positioned above the crops and are spaced out to allow sunlight to reach plants below.⁷² Only a small percentage of sunlight is needed for plants to grow.⁷³ Weselek et al.⁷⁴ review the recent world development of photovoltaics. Valle et al.⁷⁵ cite Dupraz et al.,⁷⁶ who mention that the initial prototype for agrivoltaics was located in an open field in France in

151. <https://doi.org/10.1016/j.esd.2017.11.002>; Varvara Akimova, and Irina Tikhotskaya, "A way to a Sustainable Future: The Solar Industry in Japan," *Geography, Environment, Sustainability*, 8 no.3 (2015): 92-100. <https://doi.org/10.24057/2071-9388-2015-8-3-92-100>

⁷¹ A. Goetzberger, and A. Zastrow, "On the Co-existence of Solar-Energy Conversion and Plant Cultivation," *International Journal of Solar Energy*, 1 no.1 (1982): 55-69. <https://doi.org/10.1080/01425918208909875>

Ketzer et al., 2020, Valle et al., 2017, and Weselek et al., 2019, refer to or imply Goetzberger and Zastrow, 1982, as the developers of agrivoltaics.

Daniel Ketzer, Peter Schlyter, Nora Weinberger, Christine Rosch. "Driving and Restraining Forces for the Implementation of the Agrophotovoltaics System Technology – A System Dynamics Analysis," *J. of Environmental Management*, 270 (2020): 1-11.

<https://doi.org/10.1016/j.jenvman.2020.110864>

B. Valle, T. Simonneau, F. Sourd, P. Pechier, P. Hamard, T. Frisson, M. Ryckewaert, and A. Christophe, "Increasing the Total Productivity of a Land by Combining Mobile Photovoltaic Panels and Food Crops," *Applied Energy* 206 (November 15, 2017):1495-1507.

<https://doi.org/10.1016/j.apenergy.2017.09.113>

A. Weselek, A. Ehmann, S. Zikeli, I. Lewandowski, S. Schindele, and P. Hogy, "Agrophotovoltaic Systems: Applications, Challenges, and Opportunities. A Review." *Agronomy for Sustainable Development* 39 no.35 (2019), 1-20. <https://doi.org/10.1007/s13593-019-0581-3>

⁷² MAFF (Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)), "Einougata Hatsuden Setsubi no Setchi ni Kakaru Nouchi Ten'you-Nado no Toriatsukai ni Tsuite (Handling Farmland Conversion to Install Farm-Type Power Generating Devices)," May 15, 2018a, Accessed July 14, 2020. http://www.maff.go.jp/j/press/shokusan/r_energy/180515.html

⁷³ Ho, "Japanese Farmers."

⁷⁴ Weselek et al., "Agrophotovoltaic Systems: Applications, Challenges, and Opportunities," 1-20.

⁷⁵ Valle et al., "Increasing the Total Productivity of a Land," 1495-1507.

<https://doi.org/10.1016/j.apenergy.2017.09.113>

⁷⁶ C. Dupraz, H. Marrou, G. Talbot, L. Dufour, A. Nogier, and Y. Ferard, "Combining solar photovoltaic panels and food crops for optimising land use: Towards new agrivoltaic schemes," *Renewable Energy* 36 no.10 (2011): 2725-2732. <https://doi.org/10.1016/j.renene.2011.03.005>

2010. Weselek et al. also cite Movellan⁷⁷ who states that agrivoltaics were started in Japan in 2004⁷⁸ by a man named Akira Nagashima.⁷⁹ Irie et al.,⁸⁰ who focus on the social impacts of solar panels on farmland in Japan, also review the literature on agrivoltaics -- mostly from Europe -- and mentions that the two types of solar sharing panels are those put on single posts above fields and the more common roof-type panels placed over fields (see Figure 3, p.4). Some panels on single posts are part of the *soraku* system, which has a hand winch that allows the operator to move the panels around to account for seasonal changes.⁸¹ This solar sharing has become more common in the US and France too as the cost of PV panels has decreased.⁸²

Feed in Tariff System (FIT), 2012

As mentioned in the introduction, after the 2011 nuclear power plant accident, the central government came up with a new Feed in Tariff law in 2012, which ensured that property owners with solar panels on their land would be paid a fixed amount per kilowatt hour.⁸³ This arrangement applied to all solar panels, not just those on farmland.⁸⁴ The electricity was and is sold to the power authorities, e.g., Tokyo Electric Power Company.⁸⁵ The FIT program has financially assisted farmers whose land was contaminated by nuclear fallout

⁷⁷ Movellan, "Japan Next-Generation Farmers."

⁷⁸ An agriculture ministry document states that Nagashima started his work on solar sharing in 2003. Source:

"We're in Business to Save our Home Planet," Patagonia, December 6, 2019.

https://www.maff.go.jp/e/policies/env/attach/pdf/climate_smart_ws_2019-19.pdf

⁷⁹ Movellan mentions that Nagashima was a retired agricultural machinery engineer with no experience developing solar panels, although he was interested in solar energy generation.

⁸⁰ Irie et al. "Sector-Wide Social Impact Scoping of Agrivoltaic Systems."1463-1476.

⁸¹ "Solar Sharing in Japan: Efforts and Hurdles," *Japan for Sustainability*. August 15, 2014, Accessed July 30, 2020. https://www.japanfs.org/en/news/archives/news_id035010.html

⁸² "Solar Panels on Farmland Have Huge Electricity-Generating Potential," *Yale Environment* 360, August 15, 2019. Accessed August 9, 2020. <https://e360.yale.edu/digest/solar-panels-on-farmland-have-huge-electricity-generating-potential>

⁸³ "Solar Sharing Program Through Solar Panels." 2013

Before the FIT system, there was a program started in 2009 that involved buying surplus electricity with many ten year residential contracts expiring in 2019 (Martin, 2020).

A. Martin, "The Climate Crisis. Balance of Power: Redefining Japan's Energy Needs," *Japan Times* online, Jan. 19, 2020. <https://features.japantimes.co.jp/climate-crisis-renewables/>

There was also an older FIT known as Solar Fit from 2009 to 2011 (Hahn, 2014, "The Japanese Solar PV Market and Industry,"1-40).

⁸⁴ Hori and Shibata, "Geographical and Social Characteristics of Landscape Conflicts."

⁸⁵ "Solar Sharing in Japan." 2014

and now have solar panels on their land.⁸⁶ Also, the income from the power generation is a stable source of income for aging farmers.⁸⁷ In fact, some vegetable farmers earn more money from solar panels than from growing vegetables.⁸⁸ The FIT has led to the massive spread of solar power across Japan,⁸⁹ including megasolar arrangements.⁹⁰

Permission to Temporarily put Solar Panels on Farmland, 2013 regulation change

The FIT was established in 2012, and in April 2013, the Ministry of Agriculture, Forestry, and Fisheries (MAFF) allowed the temporary use of farmland for the use of solar panels as long as crops could still be grown.⁹¹ As of 2013, using solar sharing, about 2.8 million ha, or over half of Japan's 4.6 million ha of farmland, were needed to meet Japan's electrical needs.⁹² The May 2014 "Act on Promoting the Generation of Electricity from Renewable Energy Sources Harmonized with Sound Development of Agriculture, Forestry and Fisheries"⁹³ made it possible in some cases to erect solar panels on class 1 farmland.⁹⁴ As long as 80% of crops can be grown beneath the panels, permission is granted.⁹⁵ If less than 80 percent of their farmland is cultivated, farmers have to dismantle their solar systems.⁹⁶ Shade tolerant crops are best grown under the panels, e.g., mushrooms. Permission was initially granted for three years, before one could apply for a renewal; however, this permission has been extended to 10 years,⁹⁷ as long as agricultural production continues beneath the panels.

⁸⁶ "Solar Sharing Program Through Solar Panels." 2013

⁸⁷ Irie et al. "Sector-Wide Social Impact Scoping of Agrivoltaic Systems,"1463-1476.

⁸⁸ Takada and Watanabe, "Business: Solar Farmers in Japan to Harvest Electricity With Crops."

⁸⁹ "Solar Sharing in Japan." 2014; Renewable Energy Institute, "Recommendations for Expansion,"1-7.

⁹⁰ Fraser, "How Governance and Disasters Shape Renewable Energy Transitions;" Chapman, and . Fraser. "Japan's Megasolar Boom,"355-374.

⁹¹ "Solar Sharing Program Through Solar Panels." 2013

⁹² Movellan, "Japan Next-Generation Farmers."

⁹³ Also known as: "Act on Promotion of Generating Renewable Energy Harmonized with Healthy Development of Agriculture, Forestry and Fishery" (see "New Renewable Energy Law..." 2014)

⁹⁴ Renewable Energy Institute, "Recommendations for Expansion,"1-7.

⁹⁵ "Solar Sharing in Japan." 2014

⁹⁶ Movellan, "Japan Next-Generation Farmers."

⁹⁷ MAFF, "Einougata Hatsuden Setsubi no Setchi." 2018a

Examples of Solar Sharing

The first solar sharing project to be subsidized by FIT was a project in Chiba Prefecture -- the 34.4 KW Kazusaturumai Solar Sharing Project.⁹⁸ Initially, the farmer earned 16 million yen per year from his solar sharing panel. His father grew vegetables and peanuts under the panels, which were sold at a local market. Another example project is in Minami-Soma, Fukushima Prefecture, where 500 panels were installed on individual poles, awaiting the return of residents, who were evacuated due to the nuclear accident.⁹⁹ In Aichi Prefecture a 50 kw system was built over about 3.1 ha of citrus trees using 5.5 m high steel pipes.¹⁰⁰

With a FIT rate that allows owners and managers of solar projects to receive relatively high income from solar power generation, several companies have become involved in managing solar projects. For example, Mitsubishi Electric sells small panels.¹⁰¹ In Tsukuba City near Tokyo there is a large scale 54 ha solar farm called the SJ Solar Tsukuba Power Plant, run by Shanghai Electric Power Co., which is the largest solar sharing project in Japan.¹⁰² Korean ginseng, the herb *ashitaba*, and coriander are grown under the panels. The power company rents its land from the local area farm corporation called "Mimori no Sato." A partnership developed among Hitachi Capital, house manufacturer Daiwa House, and a Tokyo-based company Sustainenergy to create a new solar sharing business model.¹⁰³ At least two of these projects are in Miyagi Prefecture in Tohoku,¹⁰⁴ and the electricity is sold to Tohoku Electric Power.¹⁰⁵

⁹⁸ Movellan, "Japan Next-Generation Farmers."

⁹⁹ "Solar sharing' Spreading Among Fukushima Farmers," *Power Inside Publishing*. June 28, 2013. Accessed July 25, 2020.

<https://www.pimagazine-asia.com/solar-sharing-spreading-among-fukushima-farmers/#:~:text=Farmers%20in%20Fukushima%20Prefecture%20are%20turning%20to%20%E2%80%9C solar,Power%20Co.%E2%80%99s%20Fukushima%20No.%201%20nuclear%20power%20plant.>

¹⁰⁰ Movellan, "Japan Next-Generation Farmers."

¹⁰¹ "Can Mushrooms and Solar Power fill Japan's Vacant Farmland?" *Nikkei Asian Review*. September 5, 2017. Accessed June 15, 2020.

<https://asia.nikkei.com/Business/Companies/Can-mushrooms-and-solar-power-fill-Japan-s-vacant-farmland>

¹⁰² Kenji Kaneko, "Chinese Power Company Runs Solar Plant in Harmony With Local Community" - "Japan's Largest Solar Sharing Operation in Tsukuba City." *Nikkei Business Publication*. March 6, 2018. https://tech.nikkeibp.co.jp/dm/atclen/news_en/15mk/030601952/?ST=msbe?ST=msbe&P=4

¹⁰³ "Japan Combines Agriculture With Solar Power Generation to Revive Unexploited Farmland," *Climate Action*. September 7, 2017. Accessed June 15, 2020, <http://www.climateaction.org/news/japan-combines-agriculture-with-solar-power-generation-to-revive-unexploite>; "Can Mushrooms and Solar Power," 2017

¹⁰⁴ "Japan Combines Agriculture With Solar Power," 2017

¹⁰⁵ "Can Mushrooms and Solar Power," 2017

The Process of Setting Up Solar Sharing Solar Panels on Farmland

Businesses help farmers set up their solar sharing systems. One company -- *Einougata Taiyoukou Joho Teikyo Shisutemu*, for example -- advertises with a website, and explains the solar sharing and non-solar sharing solar systems and the regulations involved. It has a free dial number that customers can call for more general information and for free quotes on a solar panel system.¹⁰⁶ Another company -- Liberal Solution¹⁰⁷ of Tokyo was selling panels for abandoned farmland since about 2014, with good sales in the Sendai area of Tohoku.¹⁰⁸ More recently, in 2015 the company offered weeding and cleaning services for solar power facilities, focusing on elderly farmers.

A small megasolar solar system that produces about 35 KW of electricity annually costs (in 2013) about 12.6 million yen (~\$168,000 Canadian).¹⁰⁹ However, instead of buying the solar panels, many farmers contract solar panel companies to set up solar panels on their farmland.¹¹⁰ Still, some farmers do sell their farmland to solar energy companies, as has been the case in Ushiku City, Ibaraki Prefecture.¹¹¹

Rules Regarding the Placement of Panels on Farmland

One cannot normally place solar panels for solar sharing on the best (classes A or 1) farmland. The Agricultural Law (*Nouchihou*) prohibits the use of farmland for anything other than agriculture.¹¹² It is also difficult to erect solar panels on land designated under the Agricultural Promotion Act.¹¹³ In some cases, one needs to convert the land-use category of the farmland to allow for solar panels to be erected.¹¹⁴ According to Movellan,¹¹⁵ the following conditions are necessary for installing panels. The actual solar panels on the farmland must be easily dismantled and have enough space underneath them to allow for machinery to move around: MAFF does not want the pillars holding up the solar panels to be cemented into the ground. The panels must be spaced out, so enough sunlight reaches the plants below. The solar panels need to be light weight as they are installed high above the ground, and they

¹⁰⁶ Einougata Taiyoukou Jouhou Teikyou Shisutemu Dotto Komu.

¹⁰⁷ Liberal Solution Co. Ltd. website: <https://www.liberal-solution.co.jp/>

¹⁰⁸ Kaneko, "PV Systems for Abandoned Farm Land."

¹⁰⁹ Movellan, "Japan Next-Generation Farmers."

¹¹⁰ MAFF (Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)), "Nougyousha no Tame no Einougata Taiyoko Hatsuden Donyuu Chekkurisuto" (Checklist for Farmers for Introducing Farm-Type Solar Power). 2018b, Accessed July 2, 2020.

http://www.maff.go.jp/j/press/shokusan/r_energy/attach/pdf/180515-3.pdf

¹¹¹ Agricultural Section, Ushiku City Hall, personal communication, May 18, 2018

¹¹² "Solar Sharing Program Through Solar Panels." 2013

¹¹³ Renewable Energy Institute, "Recommendations for Expansion," 1-7.

¹¹⁴ Kaneko, "PV Systems for Abandoned Farm Land."

¹¹⁵ Movellan, "Japan Next-Generation Farmers."

should not block wind flow.¹¹⁶ Movellan¹¹⁷ states that these requirements (above) are in place to prevent farmers from abandoning farming and converting all their land to solar panels. One must also make sure that when one erects solar panels, that there is no possibility of affecting agricultural conditions or facilities in the surrounding area.¹¹⁸ Once panels are erected on farmland for solar sharing, the farmland's productivity must not drop below 80 percent of normal (without solar panels)¹¹⁹ – and farmland yields must be reported annually. If at least 80 percent of the land is not being farmed, the farmer may be asked to remove the panels and restore the land to its previous farmland conditions.

The Role of Local Agricultural Committees in Permitting Solar Panels to be Erected on Farmland

Local agricultural committees decide whether solar panels can be erected on farmland.¹²⁰ These committees are responsible to authorize the change of farmland to other uses.¹²¹ One must fill out an application form when wanting to put solar panels on one's farmland.¹²² In Ushiku City, Ibaraki Prefecture, for example, one must fill out an application and supporting documents when applying to use part of one's farmland for solar panels.¹²³ When Ushiku city hall examines the application for non-solar sharing type panels, someone will actually visit the farmland to see which part of it will be used for solar panels. But some past committees have not been familiar with the process of converting farmland for solar panels when the law changed.¹²⁴

¹¹⁶ "Solar Sharing in Japan." 2014

¹¹⁷ Movellan, "Japan Next-Generation Farmers."

¹¹⁸ MAFF, "Nougyousha no Tame no Einogata Taiyoko." 2018b

¹¹⁹ Movellan, "Japan Next-Generation Farmers."

¹²⁰ "Solar Sharing in Japan." 2014

¹²¹ Jentsch, "Abandoned Land, Corporate Farming, and Farmland Banks," 31-46.

¹²² Einougata Taiyoukou Jouhou Teikyou Shisutemu Dotto Komu.

¹²³ The Ushiku City application to change part of one's farmland, so that non-solar sharing solar panels can be erected includes attaching information according to the following document:
http://www.city.ushiku.lg.jp/data/doc/1493347100_doc_80_4.pdf

The Ushiku City application for placing solar sharing type solar panels on one's farmland includes attaching information according to the following document:
http://www.city.ushiku.lg.jp/data/doc/1494206161_doc_80_0.pdf

¹²⁴ "Solar Sharing in Japan." 2014

Discussion: Pros & Cons of Solar Panels on Farmland

Pros:

The pros of locating solar panels on farmland are as follows. First, they provide an extra source of income for farmers,¹²⁵ especially aging farmers, and in particular, farmers in Fukushima whose land was contaminated by nuclear fallout in 2011; these Fukushima farmers will likely be unable to cultivate their land for years to come. Second, the revenue from solar power provides money for farmers to maintain farmland or farm infrastructure.¹²⁶ Third, according to the Renewable Energy Institute,¹²⁷ the spread of solar power has also led to more employment and has revitalized regional economies. The agriculture ministry also supports renewable energy, which improves rural areas.¹²⁸ Fourth, Adeh et al.¹²⁹ argue that solar power has its greatest potential to generate electricity over farmland, and its presence does not mean that crop productivity is sacrificed. Based on an experiment on farm plots in Oregon, they state that solar sharing type panels can improve moisture conditions – where moisture is a problem – and can help to improve crop productivity. Weselek et al.¹³⁰ also mention that solar sharing can aid agriculture in arid environments, thus reducing the negative effects of climate change. Fifth, in terms of land-use problems, only 4% of problem cases of solar panels were on farmland, and only 3% were on uncultivated fields (most were in forested areas).¹³¹ Sixth, once installed, solar panels do not make noise. Seventh, the panels can be installed and managed by a contractor, so the farmer does not have to be directly involved other than leasing the land to the contractor. Eighth, solar panels, if built on abandoned farmland, help to offset the higher taxes that may be charged on abandoned farmland.¹³² Ninth, and finally, solar sharing allows farmers to continue cultivating their land.

Cons:

The cons of setting up solar panels on farmland are as follows. First, some solar sharing operations may not be agriculturally productive. One solar sharing array that I observed had nothing cultivated under the panels, even though it was late spring when crops should be planted. Second, the FIT amount will decrease in 2020,¹³³ so farmers will earn less from

¹²⁵ Irie et al. mention that solar sharing is one way to sustain farmers' incomes.

¹²⁶ Irie et al. "Sector-Wide Social Impact Scoping of Agrivoltaic Systems,"1463-1476; MAFF, "Nousangyouson ni Okeru Saisei Kanou Enerugi," 2016.

¹²⁷ Renewable Energy Institute, "Recommendations for Expansion,"1-7.

¹²⁸ Irie et al. "Sector-Wide Social Impact Scoping of Agrivoltaic Systems,"1463-1476.

¹²⁹ Elnaz Adeh, Stephen Good, M. Calaf, and Chad Higgins. "Solar PV Power Potential is Greatest over Cropland," *Scientific Reports, Nature Research*, (2019): 1-6. Accessed August 9, 2020. <https://www.nature.com/articles/s41598-019-47803-3.pdf>

¹³⁰ Weselek et al., "Agrophotovoltaic Systems: Applications, Challenges, and Opportunities,"1-20.

¹³¹ Ministry of Environment study, cited in Renewable Energy Institute, 2019, 1-7.

¹³² "Japan to Use Tax Carrots;" Kaneko, "PV Systems for Abandoned Farm Land."

¹³³ Jiji Press. "Japan to Partially end Feed-in Tariff System for Electricity from Renewable Sources," *Japan Times*. June 13, 2019. Accessed October 28, 2019.

generating solar power.¹³⁴ Third, some abandoned farmland can be used more effectively or productively. Jentzsch¹³⁵ calls the placement of solar panels on abandoned farmland “abuse”, *i.e.*, when outside corporations are involved in the setup or management of solar panels. He mentions that in Gumma Prefecture a solar sharing project was approved by the local agricultural committee because beets could be grown beneath the solar panels, implying that the farmland could have been used more productively.¹³⁶ Fourth, related to this, there are those critics who point out Japan’s low food self-sufficiency and food security.¹³⁷ A decline in farm production cannot help either one. Fifth, solar panels can negatively impact adjoining farmland.¹³⁸ According to MAFF,¹³⁹ the panels can alter how water hits the ground below the panels, affecting drainage, which could have an impact on adjacent farmland drainage too. Irie et al.¹⁴⁰ list similar possible negative effects on the environment, neighbourhoods, and agriculture. There is a risk of landslides by putting solar farms on steep slopes.¹⁴¹ Sixth, solar farms negatively impact landscape aesthetics.¹⁴² This has been a concern in Otama town, Fukushima Prefecture, where the town is a member of “The Most Beautiful Villages of Japan,” an organization created in 2005, in which member villages and towns have to be vetted for membership. Seventh, the location of solar projects does not always fit with regional planning policy, which can lead to opposition and conflict.¹⁴³ Eighth and finally, the process of setting up solar panels on one’s farmland involves an understanding of farmland regulation, solar panel technology, contracts with solar power companies, business plans, the costs of panels (if one chooses to purchase them), and municipal approval processes.

<https://www.japantimes.co.jp/news/2019/06/13/business/japan-partially-end-feed-tariff-system-electricity-renewable-sources/#.XROfQqIs-fA>

¹³⁴ So there is less financial burden on the average household and companies (Jiji Press, 2019), which indirectly pay for the subsidy through high electricity rates – the FIT amount will decrease. The rate will decrease to European levels (Jiji Press, 2018).

Jiji Press. “Japan to More than Halve its Solar Power Feed-in Tariffs,” *Japan Times*. September 15, 2018. Accessed August 2, 2020. <https://www.japantimes.co.jp/news/2018/09/15/business/japan-halve-solar-power-feedtariffs/#.XROalKIs-fA>

¹³⁵ Jentzsch, “Abandoned Land, Corporate Farming, and Farmland Banks,” 31-46.

¹³⁶ One’s personal attitudes and values toward farmland can likely make the issue of placing solar panels on farmland controversial.

¹³⁷ For example, Irie et al. “Sector-Wide Social Impact Scoping of Agrivoltaic Systems,” 1463-1476.

¹³⁸ Hori and Shibata, “Geographical and Social Characteristics of Landscape Conflicts;” MAFF, “Nougyousha no Tame no Einogata Taiyoko,” 2018b

¹³⁹ MAFF, “Nougyousha no Tame no Einogata Taiyoko,” 2018b

¹⁴⁰ Irie et al. “Sector-Wide Social Impact Scoping of Agrivoltaic Systems,” 1463-1476.

¹⁴¹ Martin, “The Climate Crisis. Balance of Power.”

¹⁴² Martin, “The Climate Crisis. Balance of Power.”

¹⁴³ Hori and Shibata, “Geographical and Social Characteristics of Landscape Conflicts.”

DOES SOLAR SHARING MAKE AGRICULTURE MORE ENVIRONMENTALLY AND ECONOMICALLY SUSTAINABLE?

Do non-solar-sharing type panels on farmland, e.g., megasolar parks, prevent abandoned farmland from being used for other purposes, e.g., wildlife habitat, water storage, carbon sinks, or pasture? Abandoned farmland can provide such ecosystem services, but not when it is covered up by panels. On the other hand, there can be negative impacts on farm sustainability by letting abandoned land revert back to nature through successional processes. For example, it could lead to an increase in more unwanted wildlife, e.g., wild boars,¹⁴⁴ which have trampled good farmland. But if solar panels are put on this abandoned farmland, they can also affect how precipitation hits the ground and runs off, which can lead to soil erosion.¹⁴⁵ As well, would an increase in the area of solar panels on farmland near cities and towns contribute to an urban heat island effect due to the cumulative built-up urban land? Moreover, what about the disposal cost of panels that no longer work? What is the environmental damage from their improper disposal?

The agriculture ministry promotes the use of non-solar sharing-type solar panels if the remaining farmland is being used effectively for agriculture.¹⁴⁶ The ministry also promotes using the revenue from solar energy produced on abandoned land or land not used for farming to improve the productivity of this remaining farmland.¹⁴⁷ The agriculture ministry gives several examples of these types of farm operations – with panels usually on forest land or other non-farm land – used to support agricultural production.¹⁴⁸ The agriculture ministry provides farmers with much information about solar panels and solar sharing, e.g., a checklist for farmers.¹⁴⁹ However, based on personally assessing some of these documents I would argue that setting up a solar system involves a steep learning curve for the farmer because it is not directly related to farming, and there is financial risk because of the changing FIT rate and having to negotiate a contract with contractors who usually manage the panels. The process to set up panels on one’s farmland can be arduous. As mentioned above, in some cases, farmers have to change the designated class of their farmland to allow for panels to be erected. Commercial information on the internet, and even government literature seems to focus on changing the class of one’s farmland, so panels can be erected for solar sharing. However, perhaps this is not necessary because in Ushiku City, for example, solar sharing can take place on even the best quality farmland (based on reading the application form). Also, one needs to

¹⁴⁴ A. Taylor, “The wild boars of Fukushima,” *The Atlantic*. March 9, 2017. Accessed July 14, 2020.

[https://www.theatlantic.com/photo/2017/03/the-wild-boars-of-fukushima/519066/;](https://www.theatlantic.com/photo/2017/03/the-wild-boars-of-fukushima/519066/)
“Kousaku Houkichi wo Kariharatte Nouchi kara Inoshishi wo Oiharaou!” (Clear Abandoned Farmland and Get Rid of Boars!). MAFF (Nourinsuisansho). no date. Accessed August 5, 2020.
https://www.maff.go.jp/j/seisan/tyozyu/higai/hyousyou_zirei/youryou_jirei/47kamisibai/attach/pdf/47zirei-39.pdf

¹⁴⁵ MAFF, “Nougyousha no Tame no Einogata Taiyoko,” 2018b

¹⁴⁶ For example, MAFF, “Nougyousha no Tame no Einogata Taiyoko,” 2018b

¹⁴⁷ MAFF, “Nougyousha no Tame no Einogata Taiyoko,” 2018b

¹⁴⁸ MAFF, “Nougyousha no Tame no Einogata Taiyoko,” 2018b

¹⁴⁹ MAFF, “Nougyousha no Tame no Einogata Taiyoko,” 2018b

receive local agricultural committee approval for placing panels on one's farmland. Thus, the process of receiving approval to set up panels is complicated, and permission is only granted temporarily, although, as mentioned, it has recently been extended from 3 to 10 years.

DOES THE PROLIFERATION OF SOLAR PANELS ON FARMLAND MAKE FARMING MORE OR LESS SUSTAINABLE?

Weselek et al. would answer "more sustainable."¹⁵⁰ Solar panels do provide an additional source of income for farmers, so they can continue farming their remaining farmland for a longer period of time.¹⁵¹ However, it is difficult to know how much of this extra revenue is being invested in farming as highlighted in the farm examples provided by the agriculture ministry in their publications – I suspect if the farmers are nearing retirement age, very little. Meanwhile, the number of people involved in agriculture continues to decline. Moreover, farmland that is in a solar-sharing arrangement is probably less productive than if it were farmed without solar panels above it, except perhaps in arid environments,¹⁵² which do not exist in Japan. This difference in productivity needs further research. What are the effects of potentially lower food production on national food self-sufficiency and food security? Irie et al.¹⁵³ ponder this question. Moreover, some abandoned farmland that is used temporarily for solar panels may be able to be used again for farming. There is also a cost to monitoring how farmland in solar sharing situations is being used. Perhaps this is one reason why the farmers are now allowed to temporarily put panels on their land for ten years rather than three. Or is the Japanese government less interested in national food self-sufficiency and food security? Irie et al.¹⁵⁴ mention the continued weakening of the agricultural economy in Japan.

What is the future of solar panels, regardless of whether they are on farmland or not? According to the Renewable Energy Institute,¹⁵⁵ in the future solar panel diffusion will happen most easily on roof tops and unused land. Perhaps one can also place megasolar and smaller arrays on brownfield sites and low value urban land as it becomes available. The Renewable Energy Institute¹⁵⁶ continues that it is likely that there will be more solar panels in forested areas as that land is less regulated than farmland; however, this may lead to more environmental impacts, especially due to solar panels being located on steep forested slopes. Still, there are advocates of solar sharing who argue that Japan's electrical needs can be met by solar sharing

¹⁵⁰ Weselek et al., "Agrophotovoltaic Systems: Applications, Challenges, and Opportunities,"1-20.

¹⁵¹ Irie et al. "Sector-Wide Social Impact Scoping of Agrivoltaic Systems,"p.1466.

¹⁵² Weselek et al., "Agrophotovoltaic Systems: Applications, Challenges, and Opportunities,"1-20.

¹⁵³ Irie et al. "Sector-Wide Social Impact Scoping of Agrivoltaic Systems,"1463-1476.

¹⁵⁴ Irie et al. "Sector-Wide Social Impact Scoping of Agrivoltaic Systems,"1463-1476.

¹⁵⁵ Renewable Energy Institute, "Recommendations for Expansion,"1-7.

¹⁵⁶ Renewable Energy Institute, "Recommendations for Expansion,"1-7.

on existing farmland. Some believe that solar sharing maximizes the use of farmland from the point of view of both energy and agricultural production.¹⁵⁷

Summary, Future Prospects, & Conclusion

Solar power is a clean energy source, and generating it provides an extra source of income for farm owners, which can encourage farmers to continue farming and invest more in their agricultural operations. As mentioned above, approximately, 180,000 ha of abandoned farmland in Japan is no longer thought to be restorable in the future.¹⁵⁸ Therefore, it is possible to create large-scale solar power facilities without making new impacts on the natural environment,¹⁵⁹ or on good farmland. In addition, solar sharing can provide clean renewable electricity while allowing agriculture to sustain itself,¹⁶⁰ and solar sharing provides farmers and farmland owners with an extra source of income.¹⁶¹ But one can still argue that even building solar sharing arrays does decrease crop productivity on normally productive land, as crops cannot be grown as intensively. As well, some abandoned farmland may be better used for other uses, such as bird habitat or as a carbon sink, rather than a site for solar panels. Finally, not maintaining the FIT to supplement payments for solar energy generation could persuade farmers to not put solar panels on their farmland, which would limit the further diffusion of solar sharing and its positive effects on farm sustainability by increasing farm income.

Bibliography

Adeh, Elnaz, Stephan Good, M. Calaf and Chad Higgins. "Solar PV Power Potential is Greatest Over Cropland." *Scientific Reports, Nature Research* (2019): 1- 6, Accessed August 9, 2020. <https://www.nature.com/articles/s41598-019-47803-3.pdf>

Akimova, Varvara and Irina Tikhotskaya. "A way to a Sustainable Future: The Solar Industry in Japan." *Geography, Environment, Sustainability*, 8, no.3 (2015): 92-100. <https://doi.org/10.24057/2071-9388-2015-8-3-92-100>

"Can Mushrooms and Solar Power fill Japan's Vacant Farmland?" *Nikkei Asian Review*, September 5, 2017. Accessed June 15, 2020.

¹⁵⁷ For example, Weselek et al., "Agrophotovoltaic Systems: Applications, Challenges, and Opportunities," 1-20. p.35.

¹⁵⁸ Renewable Energy Institute, "Recommendations for Expansion,"1-7.

¹⁵⁹ Renewable Energy Institute, "Recommendations for Expansion,"1-7.

¹⁶⁰ Irie et al. "Sector-Wide Social Impact Scoping of Agrivoltaic Systems,"1463-1476.

Weselek et al., "Agrophotovoltaic Systems: Applications, Challenges, and Opportunities,"1-20.

¹⁶¹ In other countries such as the US, there is a potential for solar sharing in the future ("Solar Panels on Farmland Have Huge...", 2019)

<https://asia.nikkei.com/Business/Companies/Can-mushrooms-and-solar-power-fill-Japan-s-vacant-farmland>

Chapman, Andrew and Timothy Fraser. "Japan's Megasolar Boom: Quantifying Social Equity Expectations and Realities at the Local Scale." *Sustainability Science*, 14 (2019): 355-374.

<https://doi.org/10.1007/s11625-018-0613-y>

Chang, Yvonne. "Nuclear Restart Generates Power, Protest in Japan." *National Geographic* (July 17, 2012), Accessed July 27, 2020.

<https://www.nationalgeographic.com/news/energy/2012/07/120716-japan-nuclear-restart-protests/>

Carlos Corvalan, Simon Hales, and Anthony J. McMichael. *Ecosystem and Human Well-Being – Health Synthesis: A Report of the Millennium Ecosystem Assessment*. Geneva: World Health Organization, 2005. Accessed August 8, 2020.

https://ohcea.org/OhceaModules/Ecosystem%20Health/Ecosystem%20Health%20Resources/Corvalan_Ecosystem%20Health.pdf

Deign, Jason. "Floating Solar Gets Ready for the High Seas." August 15, 2019. Accessed August 10, 2020. <https://www.greentechmedia.com/articles/read/floating-solar-gears-up-for-the-high-seas>

Duffield, John. "Japanese Energy Policy After Fukushima Daiichi: Nuclear Ambivalence." *Political Science Quarterly* 13, no.1(2016): 133-162.

<https://onlinelibrary.wiley.com/doi/abs/10.1002/polq.12431>

Dupraz, C., Marrou, H., Talbot, G., Dufour, L., Nogier, A. and Ferard, Y. "Combining Solar Photovoltaic Panels and Food Crops for Optimising Land Use: Towards New Agrivoltaic Schemes." *Renewable Energy* 36 no.10 (2011): 2725-2732.

<https://doi.org/10.1016/j.renene.2011.03.005>

Einougata Taiyoukou Jouhou Teikyou Shisutemu Dotto Komu (Farming Style Solar Provision System. Com)(営農型太陽光情報提供システムドットコム). No date. Accessed August 9, 2020. <http://www.nouchi-taiyoukou.jp/>

Estoque, Ronald, Kei Gomi, Takuya Togawa, Makoto Ooba, & Yasuaki Hijioka, Chiaki Akiyama, Shogo Nakamura, Akira Yoshioka, & Keisuke Kuroda, "Scenario-Based Land Abandonment Projections: Methods, Application, and Implications." *Science of the Total Environment* 692 (2019): 903-916. <https://doi.org/10.1016/j.scitotenv.2019.07.204>

Fam, Shu Deng, Jieru Xiong, Gordon Xiong, Ding Li Yong & Daniel Ng, "Post-Fukushima Japan: The Continuing Nuclear Controversy." *Energy Policy* 68 (2014): 199-205.

<https://doi.org/10.1016/j.enpol.2014.01.014>

- Fraser, Timothy. "How Governance and Disasters Shape Renewable Energy Transitions: The Case of Japanese Megasolar." *Social Sciences Quarterly* 100 no.3 (2019): 975-990.
<https://doi.org/10.1111/ssqu.12603>
- Fraser, Timothy, and Andrew Chapman, "Social Equity Impacts in Japan's Mega-Solar Siting Process." *Energy for Sustainable Development* 42 (2018): 136-151.
<https://doi.org/10.1016/j.esd.2017.11.002>
- Furuya, Shoto. "Solar Sharing for the Future Generation – the Story of Iitate Electric Power in Fukushima." *The Beam*, No.5, (May 9, 2018).
<https://medium.com/thebeammagazine/solar-sharing-for-the-future-generation-the-story-of-iitate-electric-power-in-fukushima-c28efd5d7e41>
- Gilhooly, Rob. "Renewable Village Offers Lifeline to Fukushima Farmers." *New Scientist* January 6, 2014. Accessed August 7, 2020.
<https://www.newscientist.com/article/dn24816-renewable-village-offers-lifeline-to-fukushima-farmers/#:~:text=Renewable%20village%20offers%20lifeline%20to%20Fukushima%20farmers%20%7C,panels%20on%20land%20contaminated%20by%20fallout%20in%202011>
- Gilhooly, Rob. "Japan Could Become Second Biggest Solar Power Nation." *New Scientist* August 1, 2012. Accessed July 28, 2020.
<https://www.newscientist.com/article/mg21528764-800-japan-could-become-second-biggest-solar-power-nation/#:~:text=Some%20estimates%20suggest%20the%20move%20could%20help%20Japan,nuclear%20power%20industry%20will%20continue%20to%20provide%20competition>
- GENI (Global Energy Network Institute). "Photovoltaics." June 30, 2016. Accessed July 6, 2020.
<http://www.geni.org/globalenergy/library/energytrends/currentusage/renewable/solar/japan/solarenergy/Photovoltaics.shtml>
- GENI (Global Energy Network Institute), "Solar Energy in Japan – Summary." Accessed July 6, 2020.
<http://www.geni.org/globalenergy/library/energytrends/currentusage/renewable/solar/japan/summary.shtml>
- GENI (Global Energy Network Institute). "Solar Thermal." Accessed July 27, 2020.
<http://www.geni.org/globalenergy/library/energytrends/currentusage/renewable/solar/japan/solarthermal/solar-thermal.shtml>
- Goetzberger, A. & A. Zastrow, "On the Co-existence of Solar-Energy Conversion and Plant Cultivation." *International Journal of Solar Energy* 1 no.1 (1982): 55-69.
<https://doi.org/10.1080/01425918208909875>

Harlan, Chico. "After Fukushima, Japan Beginning to see the Light in Solar Energy." *The Guardian* June 18, 2013. Accessed June 30, 2020.

<https://www.theguardian.com/world/2013/jun/18/japan-solar-energy-fukushima-nuclear-renewable-abe>

Hahn, Edgar. "Japanese Solar PV Market and Industry -- Business Opportunities for European Companies." EU-Japan Centre for industrial Cooperation, November 2014, 1-40.

<https://www.eu-japan.eu/sites/default/files/publications/docs/pvinjapan.pdf>

Ho, Mae-wan. "Japanese Farmers Producing Crops and Solar Energy Simultaneously." *Science in Society Archive* October 16, 2013. Accessed August 10, 2020. www.iss.org.uk/Japanese_Farmers_Producing_Crops_and_Solar_Energy.php

www.iss.org.uk/Japanese_Farmers_Producing_Crops_and_Solar_Energy.php

Hori, Ayumi, and Yuki Shibata. "Geographical and Social Characteristics of Landscape Conflicts on PV Projects in Japan – Case Study of 12 Small-Large Scale PV Projects." IAIA17 Impact Assessment's Contribution to the Global Efforts in Addressing Climate Change, 2017. Accessed July 30, 2020. 5 pages. <https://conferences.iaia.org/2017/final-papers/Hori,%20Ayumi%20-%20Landscape%20conflicts%20on%20PV%20projects%20in%20Japan.pdf>

<https://conferences.iaia.org/2017/final-papers/Hori,%20Ayumi%20-%20Landscape%20conflicts%20on%20PV%20projects%20in%20Japan.pdf>

Hsu, Jeremy. "Japan Plants Renewable Energy Village in Fukushima's Contaminated Farmland," *IEEE Spectrum*. January 6, 2014. Accessed August 1, 2020.

<https://spectrum.ieee.org/tech-talk/green-tech/solar/japan-plants-renewable-energy-village-in-fukushimas-contaminated-farmland>

IEA PVPS (International Energy Agency Photovoltaic Power Systems Programme). "PVS Report: A Snapshot of Global PV 1992-2012, Preliminary Information From the IEA PVPS Programme." Report IEA-PVPS T1-22: 2013. Table 1 – Top 10 Countries for Installations and Total Installed Capacity in 2012 – in MW. p.7. Table 2 – Synthesis Table for PV Installations and Installed Capacity in 2012. p.11, Accessed July 12, 2020.

https://iea-pvps.org/wp-content/uploads/2020/01/PVPS_report_-_A_Snapshot_of_Global_PV_-_1992-2012_-_FINAL_4.pdf

IEA PVPS (International Energy Agency Photovoltaic Power Systems Programme). "Task 1 Strategic PV Analysis and Outreach -- Snapshot of Global PV Markets 2020." Report IEA-PVPS T1-37: 2020. Technology Collaboration Programme by IAE, April 2020, Countries with Highest PV Penetration (2019). p.7. Table 1. Top 10 Countries for Installation and Total Installed Capacity in 2019. p.10. Accessed July 12, 2020.

https://iea-pvps.org/wp-content/uploads/2020/04/IEA_PVPS_Snapshot_2020.pdf

"Japan Wants to Put a Giant Solar Farm in Space." *IFLScience*. Accessed August 2, 2020.

<https://www.iflscience.com/technology/japan-wants-put-giant-solar-farm-space/>

- Irie, Noriko, Naoko Kawahara, and Ana Maria Esteves. "Sector-Wide Social Impact Scoping of Agrivoltaic Systems: A Case Study in Japan." *Renewable Energy* 139 (2019): 1463-1476. <https://doi.org/10.1016/j.renene.2019.02.048>
- Ito, Junichi, Mari Nishikori, Mami Toyoshi, and Hart Nadav Feuer. "The Contribution of Land Exchange Institutions and Markets in Countering Farmland Abandonment in Japan." *Land Use Policy* 57 (2016): 582-593. <https://doi.org/10.1016/j.landusepol.2016.06.020>
- "Japan Combines Agriculture With Solar Power Generation to Revive Unexploited Farmland." *Climate Action*. September 7, 2017. Accessed June 15, 2020. <http://www.climateaction.org/news/japan-combines-agriculture-with-solar-power-generation-to-revive-unexploite>
- "Japan to Use Tax Carrots, Sticks to Move Idle Farmland." *Nikkei Asian Review*. September 10, 2014. Accessed July 13, 2020. <https://asia.nikkei.com/Economy/Japan-to-use-tax-carrots-sticks-to-move-idle-farmland>
- "Japan's Falling Food Self-Sufficiency (editorial)." *Japan Times*. August 20, 2019. Accessed June 19, 2020. <https://www.japantimes.co.jp/opinion/2019/08/20/editorials/japans-falling-food-self-sufficiency/#.XuKPA0VKg2w>
- Jentzsch, Hanno. "Abandoned Land, Corporate Farming, and Farmland Banks: A Local Perspective on the Process of Deregulating and Redistributing Farmland in Japan." *Contemporary Japan* 29 no.1 (2017): 31-46, <https://doi.org/10.1080/18692729.2017.1256977>
- Jiji Press. "Japan to Partially end Feed-in Tariff System for Electricity from Renewable Sources." *Japan Times*. June 13, 2019. Accessed October 28, 2019. <https://www.japantimes.co.jp/news/2019/06/13/business/japan-partially-end-feed-tariff-system-electricity-renewable-sources/#.XROfQqIs-fA>
- Jiji Press. "Japan to More than Halve its Solar Power Feed-in Tariffs." *Japan Times*. September 15, 2018. Accessed August 2, 2020. <https://www.japantimes.co.jp/news/2018/09/15/business/japan-halve-solar-power-feedtariffs/#.XROalKIs-fA>
- Kaneko, Kenji. "Chinese Power Company Runs Solar Plant in Harmony With Local Community" - "Japan's Largest Solar Sharing Operation in Tsukuba City." *Nikkei Business Publication*. March 6, 2018. https://tech.nikkeibp.co.jp/dm/atclen/news_en/15mk/030601952/?ST=msbe?ST=msbe&P=4
- Kaneko, Kenji. "PV Systems for Abandoned Farm Land Increasing in Japan." *Nikkei Business Publications*. Nikkei BP CleanTech Institute. January 13, 2016. Accessed 2019. https://tech.nikkeibp.co.jp/dm/atclen/news_en/15mk/011300302/?ST=msbe

- Ketzer, Daniel, Peter Schlyter, Nora Weinberger, Christine Rosch. "Driving and Restraining Forces for the Implementation of the Agrophotovoltaics System Technology – A System Dynamics Analysis." *J. of Environmental Management* 270 (2020): 1-11.
<https://doi.org/10.1016/j.jenvman.2020.110864>
- Kingston, Jeff. "Nuclear Power Politics in Japan, 2011-2013." *Asian Perspective* 37 no. 4 (2013): 501-521. doi:10.1353/apr.2013.0021.
- Kyocera. "News Release: Kyocera Starts Operation of 70MW Solar Power Plant, the Largest in Japan." November 5, 2013, Accessed July 11, 2020. https://global.kyocera.com/news-archive/2013/1101_nnms.html
- MAFF(Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)). Year 2000 population data: Hyou (Table) 3-16 Nougyou Shuugyou Jinkou Kikanteki Nougyou Juujishasuu no Idou (Movement in the number of core farmers).
https://www.maff.go.jp/j/wpaper/w_maff/h23_h/trend/part1/chap3/c3_3_02.html
- MAFF(Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)). II Overview of the Results for the Census of Agriculture and Forestry 2005. Figure 1. Transition in the Total Number of Farm Households (Nationwide), p.31.
https://www.maff.go.jp/j/tokei/census/afc/2005/pdf/eng_results.pdf
- MAFF(Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)). II Overview of the Results of the Census of Agriculture and Forestry 2005. Figure 12, Transitions in the Area of Abandoned Cultivated Land Area (Nationwide) (1,000 ha), p.43.
https://www.maff.go.jp/j/tokei/census/afc/2005/pdf/eng_results.pdf
- MAFF(Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)). Year 2015 population data: Excel page N198, III Nouka no Bu, 1 Nouka Settai in Nado (Tsuzuki), 2. Number of Farm Households with Cultivated Land Under Management, and Area.
<https://www.maff.go.jp/e/data/stat/91th/attach/xls/index-30.xls>
- MAFF(Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)). Year 2015 population data: Excel page N202_203, 202 III Nouka bu, I Farm Households, Household members, etc. (b) Average age of Persons Engaged In Farming, etc. (source: Census of Agriculture & Forestry" by the Statistics Department of MAFF).
<https://www.maff.go.jp/e/data/stat/91th/attach/xls/index-30.xls>
- MAFF(Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)). Year 2015 population data: Excel page III Farm households N201 I Farm Households, Household members, etc. (5) "No. of Farm Households (Households) with Abandoned Cultivated Land and Area." Added abandoned cultivated land areas for commercial, non-commercial, and non-farm households with agricultural land. (Data source: Census of

- Agriculture & Forestry” by the Statistics Department of MAFF).
<https://www.maff.go.jp/e/data/stat/91th/attach/xls/index-30.xls>
- MAFF (Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)). “Nousangyouson ni Okeru Saisei Kanou Enerugi- Hatsuden wo Meguru Josei (The Situation Regarding Possible Reusable Energy on Agricultural and Fishing Villages).” June 2016. Shokuryou Sangyou Kyoku (Food Production Division), Saiseikanou Enerugi-Guru-pu (Renewable energy group). Accessed June 13, 2020.
www.maff.go.jp/j/shokusan/renewable/energy/pdf/meguza.pdf
- MAFF (Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)). “Einougata Hatsuden Setsubi no Setchi ni Kakaru Nouchi Ten'you-Nado no Toriatsukai ni Tsuite (Handling Farmland Conversion to Install Farm-Type Power Generating Devices).” May 15, 2018a. Accessed July 14, 2020.
http://www.maff.go.jp/j/press/shokusan/r_energy/180515.html
- MAFF (Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)). “Nougyousha no Tame no Einougata Taiyoko Hatsuden Donyuu Chekkurisuto (Checklist for Farmers for Introducing Farm-Type Solar Power).” 2018b. Accessed July 2, 2020.
http://www.maff.go.jp/j/press/shokusan/r_energy/attach/pdf/180515-3.pdf
- MAFF (Ministry of Agriculture, Forestry, and Fisheries (Nourinsuisansho)). “Nourin Gyogyo no Kenzena Hatten to Chouwa no Toreta Saisei Kanou Enerugi- Hatsuden wo Okonau Jirei (Examples of Renewable Energy Power Production in Harmony with the Healthy Development of Agriculture, Forestry, and Fisheries).” Food Industry Affairs Bureau (Shokuryou Sangyou Kyoku), Baiomasu Junkan Shigenka Saisei Kanou Enerugi- Shitsu, 2019. Accessed July 6, 2020.
<https://www.maff.go.jp/j/shokusan/renewable/energy/attach/pdf/zirei-195.pdf>
- Martin, Alex. “The Climate Crisis. Balance of Power: Redefining Japan’s Energy Needs.” *Japan Times* online. Jan. 19, 2020. Accessed August 10, 2020.
<https://features.japantimes.co.jp/climate-crisis-renewables/>
- Mochizuki, Junko and Stephanie E. Chang. "Disasters as Opportunity for Change: Tsunami Recovery and Energy Transition in Japan." *International Journal of Disaster Risk Reduction* 21 (2017): 331-339. <https://doi.org/10.1016/j.ijdrr.2017.01.009>
- Movellan, Junko. “Japan Next-Generation Farmers Cultivate Crops and Solar Energy.” *Renewable Energy World*, October 10, 2013. Accessed July 25, 2020.
<https://www.renewableenergyworld.com/articles/2013/10/japan-next-generation-farmers-cultivate-agriculture-and-solar-energy.html>
- “New Renewable Energy Law to Allow Conversion of Farmland in Japan to Wind Farms.” *Japan for Sustainability* April 21, 2014. Accessed July 28, 2020.
https://www.japanfs.org/en/news/archives/news_id034849.html

- Nishi, Maiko. *Multi-Level Governance of Agricultural Land in Japan: Farmers' Perspectives and Responses to Farmland Banking*. 2019. Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy under the Executive Committee of the graduate school of Arts and Sciences, Columbia U.
<https://academiccommons.columbia.edu/doi/10.7916/d8-htaa-vv53>
- Osawa, Takeshi, Kazunori Kohyama, and Hiromune Mitsuhashi. "Multiple Factors Drive Regional Agricultural Abandonment." *Sci. Total Environ.* 542 (2016): 478–483.
<https://doi.org/10.1016/j.scitotenv.2015.10.067>
- Osawa, Takeshi, Kazunori Kohyama, and Hiromune Mitsuhashi. "Areas of Increasing Agricultural Abandonment Overlap the Distribution of Previously Common, Currently Threatened Plant Species." *PLoS ONE*, 8 no.11 (2013): e79978, 1-9.
<https://doi.org/10.1371/journal.pone.0079978>
- Otsuka, A. "Farming Increasingly Dependent on Non-Japanese." *The Asahi Shimbun*. June 26, 2018. <http://www.asahi.com/ajw/articles/AJ201806260001.html>
- Panasonic Corporation. "Panasonic Newsroom Press Ririsu "So-ra-a-ku" no Burando Hyouki no Henkou ni Tsuite (Press Release Regarding the Change of Brand Notation of the "Solar Ark")." June 24, 2011, Accessed July 11, 2020.
<https://news.panasonic.com/jp/press/data/jn110624-1/jn110624-1.html>
- Renewable Energy Institute. "Recommendation for Expansion of Sustainable Solar Power." January 7, 2019. Accessed July 28, 2020,
<https://www.renewable-ei.org/en/activities/reports/20190130.php>
[/REI_Recommendation_SustainableSolarDevelopment_EN.pdf](https://www.renewable-ei.org/en/activities/reports/20190130.php)
- Sakamura, Kei, Takatoshi Kaneko, Mamiko Numata, Norohiro Nakai. "Study on the Site Character of the Ground Standing Photovoltaic Power Generating System." *Journal of the City Planning Institute of Japan* 49 no.3 (October 2014): 633-638. Accessed August 6, 2020.
https://www.jstage.jst.go.jp/article/journalcpj/49/3/49_633/_pdf/-char/en
- Sanyo Electric Co. Ltd., "Solar Ark," (2009), Accessed July 11, 2020.
<https://web.archive.org/web/20100102012206/http://sanyo.com/solarark/en/>
- Samuels, Alana. "Can Anything Stop Rural Decline?" *The Atlantic* August 23, 2017. Accessed July 13, 2020. <https://www.theatlantic.com/business/archive/2017/08/japan-rural-decline/537375/>
- Shimizu Corporation. "Shimizu Dream: Luna Ring, Solar Power Generation on the Moon." 1996-2020. Accessed July 11, 2020. <https://www.shimz.co.jp/en/topics/dream/content02/>

“Solar Panels on Farmland Have Huge Electricity-Generating Potential.” *Yale Environment* 360. August 15, 2019. Accessed August 9, 2020. <https://e360.yale.edu/digest/solar-panels-on-farmland-have-huge-electricity-generating-potential>

“Solar Sharing Program Through Solar Panels on Farmland Launched.” *Japan for Sustainability* August 16, 2013. Accessed July 28, 2020. https://www.japanfs.org/en/news/archives/news_id034166.html

“Solar Sharing in Japan: Efforts and Hurdles.” *Japan for Sustainability*. August 15, 2014. Accessed July 30, 2020. https://www.japanfs.org/en/news/archives/news_id035010.html

“‘Solar sharing’ Spreading Among Fukushima Farmers.” *Power Inside Publishing*. June 28, 2013. Accessed July 25, 2020.

<https://www.pimagazine-asia.com/solar-sharing-spreading-among-fukushima-farmers/#:~:text=Farmers%20in%20Fukushima%20Prefecture%20are%20turning%20to%20%E2%80%9C solar,Power%20Co.%E2%80%99s%20Fukushima%20No.%201%20nuclear%20power%20plant>

“Taiyounetsu Onsuiki - Taiyounetsu de Mizu wo Atamete Kyuutou nado ni Riyou Suru Tame no Souchi (Solar Water Heater -- A Device to use for Hot Water Supply, etc. -- Heating Water Using Solar Heat).” Solar Thermal Heating System. [Toto-tarou](https://commons.wikimedia.org/wiki/File:TaiyonetuOnsuiki.jpg#/media/File:TaiyonetuOnsuiki.jpg) - Own work, Wikimedia commons. [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/), August 1, 2006. Accessed August 10, 2020. <https://commons.wikimedia.org/wiki/File:TaiyonetuOnsuiki.jpg#/media/File:TaiyonetuOnsuiki.jpg>

Su, Guandong, Hidenori Okashi and Lin Chen. “Spatial Pattern of Farmland Abandonment in Japan: Identification and Determinants.” *Sustainability*. 10 no.10 (2018): 3676- (22 pages) <https://www.mdpi.com/2071-1050/10/10/3676>

Takada, Aya and Chisaki Watanabe. “Business: Solar Farmers in Japan to Harvest Electricity With Crops.” *Bloomberg News*. May 27, 2014. Accessed June 30, 2020. <https://www.bloomberg.com/news/articles/2014-05-26/solar-farmers-in-japan-to-harvest-electricity-with-crops>

Taylor, Alan. “The wild boars of Fukushima.” *The Atlantic*. March 9, 2017. Accessed July 14, 2020. <https://www.theatlantic.com/photo/2017/03/the-wild-boars-of-fukushima/519066/>

Tscharntke, Teja, Alexandra M. Klein, Andreas Kruess, Ingolf Steffan-Dewenter and Carsten Thies. “Landscape Perspectives on Agricultural Intensification and Biodiversity-Ecosystem Service Management.” *Ecological Letters* 8 (2005): 857-874.

<https://doi.org/10.1111/j.1461-0248.2005.00782.x>

- Umeda, Sayuri. "Japan: Renewable Energy Special Measures Act Amended." Library of Congress, Law Library, News and Events, Global Legal Monitor. August 16, 2016. Accessed July 28, 2020. <https://loc.gov/law/foreign-news/article/japan-renewable-energy-special-measures-act-amended/>
- Ushiku City. Taiyoukou Hatsuden Setsubi ni Kakaru Nouchi Tenyou Kyoka Shinsei no Tenpu Shorui (Attached documents for the application for permission to change farmland for a solar power device). No date. Accessed July 13, 2020. http://www.city.ushiku.lg.jp/data/doc/1493347100_doc_80_4.pdf
- Valle, B., T. Simonneau, F. Sourd, P. Pechier, P. Hamard, T. Frisson, M. Ryckewaert, and A. Christophe. "Increasing the Total Productivity of a Land by Combining Mobile Photovoltaic Panels and Food Crops." *Applied Energy* 206 (November 15, 2017):1495-1507. <https://doi.org/10.1016/j.apenergy.2017.09.113>
- Watanabe, Chisaki. "Japan Spurs Solar, Wind Energy with Subsidies for Renewables." *Bloomberg News*. August 26, 2011, Accessed July 6, 2020. <https://www.bloomberg.com/news/articles/2011-08-26/japan-passes-renewable-energy-bill-one-precondition-of-kan-s-resignation>
- "We're in Business to Save our Home Planet." Patagonia, December 6, 2019. Accessed August 10, 2020. https://www.maff.go.jp/e/policies/env/attach/pdf/climate_smart_ws_2019-19.pdf
- Weselek, Axel, Andrea Ehmann, Sabine Zikeli, Iris Lewandowski, Stephan Schindele, and Petra Hogy. "Agrophotovoltaic Systems: Applications, Challenges, and Opportunities. A Review." *Agronomy for Sustainable Development* 39 no.35 (2019): 1-20. <https://doi.org/10.1007/s13593-019-0581-3>
- Yoneda, Yuriko. "The Spread of Solar Power Generation in Japan." *Japan For Sustainability Newsletter* No.70 (June 30, 2008), Accessed July 3, 2020, https://www.japanfs.org/en/news/archives/news_id027851.html