TWO NARRATIVES OF MORAL SUASION AND THE CASE OF JAPAN[1]

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ABSTRACT

Significant global warming is now unavoidable, but hope persists that the temperature increase can be limited to an extent that allows ecosystems and humankind to adapt. Hence, a reasonable combination of climate mitigation and climate adaptation has become paramount. Some researchers and practitioners consider moral suasion a relevant tool in both realms, while others argue that necessary transformations can only be achieved by comprehensive carbon pricing or regulations. Against this background, we examine moral suasion and morality-based behaviour in climate mitigation and adaptation in a quasi-dialogue between a humanities and a social sciences discipline in a unique interdisciplinary collaboration. Based on an iconological art history approach we show the importance of moral-based behaviour. From an ecological economics perspective we discuss the relation between intrinsic, morality-based motivation and extrinsic, monetary incentive-based motivation for environmental protection. As Japan is well-known for its strong ethical foundation, we then study selected examples of climate action in Japan. Finding cursory empirical evidence for our theoretical hypotheses, we mainly conclude that moral suasion is particularly worthwhile in the case of emergencies or in low-cost situations, while price incentives or regulation are necessary for achieving deep emission cuts in high-polluting firms.

I. INTRODUCTION

Global warming is undoubtedly one of the major challenges to humankind in the 21st century. The 2018 Special Report of the Intergovernmental Panel on Climate Change (IPCC) summarises the current situation in its Headline Statements as follows:[3]

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[3] Intergovernmental Panel on Climate Change (IPCC), *Global Warming of 1.5 °C – An IPCC special report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty – Summary for Policymakers* (Report, October 2018) 3, 21, 24.

- "A1. Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate (high confidence)."
- "C2. Pathways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems (high confidence). These systems transitions are unprecedented in terms of scale, but not necessarily in terms of speed, and imply deep emissions reductions in all sectors, a wide portfolio of mitigation options and a significant upscaling of investments in those options (medium confidence)."
- "D1. Estimates of the global emissions outcome of current nationally stated mitigation ambitions as submitted under the Paris Agreement would lead to global greenhouse gas emissions in 2030 of 52–58 GtCO2eq yr-1 (medium confidence). Pathways reflecting these ambitions would not limit global warming to 1.5°C, even if supplemented by very challenging increases in the scale and ambition of emissions reductions after 2030 (high confidence)."

Hence, significant global warming is unavoidable, despite of the Paris Agreement and even more ambitious climate action strategies. As a consequence, extreme weather events such as droughts, floods, and storms will become more frequent and more severe. Hence, mitigation efforts for limiting global warming have to be complemented by adaptation strategies.[4] And as emphasised by the IPCC, any such strategy significantly benefits from taking socio-cultural contexts and social values into consideration.[5]

Japan still ranges amongst the Top 5 emitters of greenhouse gases in the world in total terms and is thus a significant player with respect to global mitigation efforts. In addition, due to its geographic and geological setting, Japan has a long history of coping with natural disasters such as earthquakes, volcanic eruptions and typhoons. The year 2018 saw a series of extreme weather events such as widespread, unprecedented flooding followed by an unusually long heatwave, and a series of particularly strong typhoons.[6] In general, Japan expects a whole range

[4] For further reading e.g. IPCC, Summary for Policymakers, *Managing the Risks of Extreme Weather Events and Disasters to Advance Climate Change Adaptation* (Report Summary, 2012) 3-21.
[5] IPCC, Summary for Policymakers, *Climate Change 2014* (Synthesis Report, 2014) 19.
[6] For more details see 'Weather, Climate & Earthquake Information', *Japan Meteorological Agency* (Web Page) <https://www.jma.go.jp/jma/indexe.html>.

of negative impacts from global warming, including more frequent and intense extreme weather events.[7]

In Japanese society, enduring hardship after disasters has traditionally been supported by moral codes. Early documentation of this can already be found in Heian- and Momoyama-period art.[8] A most immediate illustration of referencing to moral codes after disaster are Kanō Kazunobu's paper scrolls of the 500 Buddhist Arhats. After the March 2011 triple catastrophe in the Tohoku region of northern Japan, the contemporary artist Takashi Murakami revived this topic. Creative arts' reflection of the disaster consequences for society and the appeal to morality allows for distinctive insights into the role that ethical behaviour plays in Japan in general and in coping with disasters in particular.

A major source of art creation has long been human existence and human interaction.[9] In order to describe things indescribable in words, individuals and societies have referred to images since the beginning of humankind.[10] In the positive sense, this is true for images such as the *Venus of Willendorf* which represents the genesis of new life. In a negative sense, death and despair have also been major topics in art works, as will be laid out in more detail below. And in a normative sense, examples for good or bad behaviour and their consequences for societal cohabitation are abound e.g. in Christian depictions of Heaven and Hell such as the 1558 *Last Judgement* by Pieter Bruegel the Elder. Hence, artworks have provided a unique and most easily accessible way of understanding human reaction to disasters and respective moral implications throughout history[11] and even across cultural boundaries.[12] Methodologically, the analysis of artworks can thus be seen as a complementary approach to moral philosophy's or other humanities' and social sciences' reflection on morality.[13] Art history is unique in the

[7] Government of Japan, 'Japan's Seventh National Communication under the *United Nations Framework Convention on Climate Change* – National Communication', 25 December 2017, 181-233.
[8] Tsuji Nobuo, *History of Art in Japan*, (University of Tokyo Press, 2018) 93-118, 283-313.
[9] For instance, one of the oldest human paintings in the Chauvett-Cave or the *Venus of Willendorf*, both dating from about 30,000 years ago; see LeRoy McDermott, 'Self-Representation in Upper Paleolithic Female Figurines' (1996) 37(2) *Current Anthropology* 227-275.
[10] Ernst H. Gombrich, *The Story of Art* (Phaidon Press, 2007) 75-97; Monica Juneja and Gerrit J Schenk (eds), *Disaster as Image. Iconographies and Media Strategies across Europe and Asia* (Schnell & Steiner, 2014) 19.
[11] Gerrit J Schenk, Monica Juneja, Alfried Wieczorek and Christoph Lind (eds), *Mensch. Natur. Katastrophe. Von Atlantis bis heute* (Schnell & Steiner, 2014); Markus Bertsch and Jörg Trempler (eds), *Entfesselte Natur. Das Bild der Katastrophe seit 1600* (Michael Imhof, 2018).
[12] Kenichi Kondo, Haruko Kumakura, Akio Takashiro, Yasumasa Akashi, Kimihiro Yuhara and Yoshimi Mizuno (eds), *Catastrophe and the Power of Art* (Mori Art Museum, 2018).
[13] Rolf Elberfeld, 'Transitions between Zen and Philosophy: A Roundtable Discussion at Transitions' (Conference Paper, Conference of the European Network of Japanese Philosophy, 7 September 2018).

sense that it studies the history, culture, philosophy, politics, economics etc. through visual art objects.

Economics, on the other hand, provides a specific social science perspective on moral suasion, the appeal to morality, and morality-based behaviour. Economics, being a social science, examines human behaviour in a specific societal setting. While economics is still perceived by many as being merely the scientific study of the economy, a more comprehensive definition of economics opens the perspective and shows the wide applicability of the economic approach to human behaviour: Economics is the scientific study of choices made by rational, but insatiable individuals in a situation of scarcity.[14] Rational behaviour in this sense means that, faced with choices in a situation of scarcity, individuals always choose the alternative that fits their given preferences best. Traditionally, changes in behaviour are considered to be the result of changes in external circumstances and are not explained by changes in preferences. However, since the 1970s there has been a growing body of literature on the relevance of intrinsic motivations and morality-based behaviour and how they could be integrated into economic models.

Against this background we ask: What is the role of morality and moral suasion in modern climate policy, particularly in one of the most polluting but on the other hand strongly morality-based countries in the world, in Japan? In order to answer this question, in a quasi-dialogue between humanities' art history and economics as a social science, first, we emphasise the importance of morality in Japan from an iconological art history perspective by looking at the particular subject of the 500 Arhats, traditionally guardians of moral codes, and then directly relating it to one of the greatest catastrophes in modern Japanese history, the March 2011 triple disaster of the Great Northern Japan Earthquake, the following tsunami, and the nuclear melt-downs in the Fukushima Daiichi power-plant, now commonly termed 3/11. Second, we show that even economics, traditionally skeptical about intrinsic motivations, has recently accepted the importance of morality-based behaviour, and we also analyse the role of moral suasion as a climate policy instrument. Third, we look at selected climate policy instruments in Japan, in order to find cursory support for our hypotheses. We conclude with a summary of the findings and policy recommendations for climate policy.

[14] Peter Weise et al, *Neue Mikroökonomie,* tr Peter Weise et al. (Physica-Lehrbuch, 5th ed, 2005).

II. THE ART HISTORY NARRATIVE: THE ART'S REFLECTION OF NATURAL DISASTERS AND MORALITY AND THE CASE OF 3/11 IN NORTHERN JAPAN

The Arhats are figures of belief and faith and they have been depicted throughout Japanese art history many times. Traditionally, the Arhats (jap.: rakan 羅漢) stand in close relation to Buddhism, particularly Zen-Buddhism. Images of the Arhats can be found in Buddhist temples all across Japan. The number 500 originates from Mahayana-Buddhism, in which the number of the original 16 central Arhats (jap.: juroku rakan 十六羅漢) grew to 500. Different from Buddha, Arhats are still connected to and interact with this world and human beings. They are active disciples of Buddha, which have, following an important Buddhist idea, refused greed, hate and infatuation completely. And as every being is responsible for its own action and a transfer of merits to other beings is impossible, an Arhat can only guide others on the way to awakening by teaching the dharma, the Buddhist cosmic law and order and a code for ethical behaviour. Arhats are capable of doing this only by giving human beings the possibility to produce good karma, i.e. a way of action that generates positive outcome. However, Arhats have no ethical commitment to spread the doctrine or to give instructions. So it is up to the willingness of the Arhats themselves to help other beings, while it is not a precondition for accomplishing the status of Arhat. Because of their connection to Buddha and their closeness to divinity, Arhats are able to deliver narratives about humankind, by raising issues related to religion, art, and morality. Hence, the Arhats have played an important role in Japanese history and culture, are often treated as examples for good behaviour, and act as moral guides.

An early account is Kanō Kazunobu's set of scrolls *The Five Hundred Arhats*. Kanō Kazunobu (1816-1863) is a well-known Japanese artist of the Kanō school. The Kanō school is one of the most famous Japanese schools of painting, starting in the late 15th century and lasting until the Meiji period in the late 19th century. Kazunobu mainly produced Buddhist paintings, and the set of 100 paper scrolls of *The Five Hundred Arhats*, commissioned in 1854, is one of his most impressive works.[15] Scrolls 1-20 mainly show the daily life of the Arhats, bathing, cutting a tonsure, eating, teaching, reading, and debating scriptures. From scroll 21 onwards, they leave their idyllic life and engage in interaction with other beings. While some scrolls show how bad people are punished in a hell-like setting, other parts show how ethical behaviour is rewarded.

[15] Edan Corkill, 'Edo disaster images strike grim chords', *The Japan Times* (Web Page, 19 May 2011) <https://www.japantimes.co.jp/culture/2011/05/19/arts/edo-disaster-images-strike-grim-chords/#.XcbHnzMzbIU>.

Major parts of the artwork show the Arhats doing good deeds such as living in harmony with nature (scrolls no. 61-70) or showing their own and bringing out other people's Buddhahood (e.g. scrolls no. 30). Scrolls 81-90 directly answer to the 1855 Edo (now Tokyo) 6.9 magnitude earthquake, which caused massive destruction and cost the lives of more than 4,300 people. In scrolls 81 and 82, Kazunobu shows the earthquake directly, depicting destroyed buildings and buried citizens. The Arhats float over these scenes, protecting and helping human beings such as by praying, extinguishing fires, or scattering lotus petals, a symbol for purity and repentance. In sum, Kazunobu's scrolls emphasise the roll of the Arhats as moral guides, admonishers, and alerters of moral codes, but also as helpers of humankind. Not least, the Arhats show the benefits of moral behaviour as well as the punishment of the opposite.

A more recent example of immediately referring to the 500 Arhats for moral guidance after disasters is Takashi Murakami's painting *The 500 Arhats* (Figure 1). The March 2011 triple catastrophe in the Tohoku region of northern Japan, being at least partly a natural disaster, had dramatic impacts on Japanese society and Japanese arts. Murakami admitted that the 2011 triple catastrophe changed his attitude towards art creation fundamentally: "I think I was able to gain some understanding of what I had previously wondered – the reason why people desire storytelling and religion – after the experience of the 2011 quake."[16] Born 1962 in post-war Japan, Murakami is most well-known for his colorful large sized paintings and sculptures, which remind of Pop Art. Before 3/11, his motives originated from everyday culture, mass media, and the world of consumption and advertisement. But the 2011 convulsion called for explanation and created an urgent need for hope, societal support, and reorientation, which Murakami intended to offer by referring to tradition and by appealing to morality using the Arhats as moral guides and helpers in times of despair. In Murakami's newly developed mindset, destruction leads to creation.[17] And concerning his art creation process, Murakami mentioned that painting a picture is like praying a Buddhist prayer.[18] Hence, already the process of planning and completing the artwork provided hope and healing.

With its large-scale size, Takashi Murakami's quasi-mural *The 500 Arhats* can be considered a rather big painting in art history. The painting measures three meters in height and 100 meters

[16] Tran Anh Hung and Takashi Murakami, 'A Conversation between Tran Anh Hung and Takashi Murakami: What Makes a Story a Story – Language, Structure, Form, and Sacredness' in Akiko Miki (ed), *Takashi Murakami: The 500 Arhats* (Mori Art Museum, 2016) 258, 262.
[17] Ibid.
[18] Akiko Miki, 'Takashi Murakami's The 500 Arhats: Return and Rebirth' in Akiko Miki (ed), *Takashi Murakami: The 500 Arhats* (Mori Art Museum, 2016) 36, 39.

in length. Due to its gigantic size, more than 200 people had to work on Murakami's acrylic painting day and night.[19]

Figure 1: Takashi Murakami's *The 500 Arhats*

Source: Takashi Murakami: *The 500 Arhats*, Mori Art Museum, Tokyo, 2015, photo by the authors.

The mural is broken down into four parts each 25 meters long. It shows a detailed description of the 500 Arhats, some of them in small scale at the bottom of the mural, others in supernatural size across the entire height of the artwork. The big figures can be identified as the legendary Sixteen Arhats. Their predominant, untended and eccentric appearance emphasises that the Arhats live their modest lives as beggars and vagabonds, an indication for having left all worldly desires behind in order to focus on adhering to the way of Buddha.

Each of the Sixteen Arhats has its supernatural power. Despite of their rather emaciated look and their worn-out robes, the Arhats emanate tremendous power and life experience. The ninth of the Sixteen Arhats, e.g., carries a fan. This fan can reduce the affliction of nescience. He usually appears in profile and is called Jīvaka. The tenth of the Sixteen Arhats is Panthaka. He is holding a book and makes judgements of value. He is depicted with bloodshot twisted eyes, probably hinting at serious shortcomings in this realm in present human societies. The twelfth of the Sixteen Arhats, Nāgasena, is holding a fly-whisk, which expels human desire and passion. Nāgasena is known for his loud laughter, nothing can bother it. But despite of their

[19] Ibid.

supernatural powers and their ability to bring relief, the Arhats usually stay secluded in the mountains and only appear after disasters like fires, earthquakes, or tsunamis. All Sixteen Arhats are thus immediately related to the Buddhist moral code and provide guidance and relief in times of troubles.

At first sight, the painting seems to be cluttered with a milling mass of figures, lines and colors, as the grotesque looking 500 Arhats are interspersed with, e.g., depictions of sacred beasts and mythical creatures. But the background colors give a first structuring orientation. They subdivide the artwork into four panels, which can be distinguished by their coloring in light ochre-yellowish, red, blue, and black. These four panels are attributed to the four deities that govern the four cardinal directions in Chinese mythology. These four symbols are the Azure Dragon of the East, the Vermillion Bird of the South, the White Tiger of the West and the Black Turtle of the North, all of them creatures that are also used as guardians in Japanese cities such as the former imperial capital Kyoto. The light ochre-yellowish panel of the Azure Dragon is associated with colorful abstract swirling wind and wave motives and a big white whale with its mouth agape. The dragon appears to the left of the center with its muzzle lying flat on the ground, incapable of further action. What it could not do, has to be done by the other guardians. The red panel of the White Tiger has the largest number of Arhats, around 220 in total, most of them standing upright and facing forward. The red background is interspersed with flames, amongst them appears the divine creature of Baku, which is said to devour nightmares. The White Tiger is enshrined on top of a boulder on the right side of the panel. The rather dark, black and blue Vermillion Bird panel is associated with the universe. In massive scale the Vermillion Bird appears in the center of the panel in a phoenix design. The Arhats sit in meditation on the surface of water or fly around in postures associated with the Chinese martial art of Kung Fu. On the Black Turtle panel most of the Arhats fold their hands in prayer. The turtle, a traditional symbol of a dark, mysterious warrior, is represented by the sacred mountain, which is crowned by a Shrine, again surrounded by Arhats in prayer or doing Kung Fu. The center mountain is guarded by open-mouthed red and blue demons. Clouds and Shen, a type of dragon, appear on the again light ochre-yellowish panel. Hence, all panels combine scenes of destruction with signs of hope and protection, again with the Arhats as moral guides.

This combination is supposed to encourage the observer to contemplate about the state of the world and to create his or her own respective narrative of the relation between destruction and recreation, between hope and despair, between moral and unethical human behaviour. Murakami himself, however, appears impartial and unconfident about whether his *The 500*

Arhats really contain an explicit epic story.[20] The artist rather intends to motivate the audience to rethink its own behaviour, to overcome the static shock moment, and to transition to a state in which individuals engage in action against the miseries of the world.

In order to provoke this, technically, he uses the artistic tool of disruptions. One of these disruptions is the ostentatious contradiction of the background colors, the motifs, and the cardinal directions with their representative creatures. The Azure Dragon is arranged on a light ochre-yellowish panel, the White Tiger is shown against a background interspersed with reddish flames, the Vermillion Bird resides on a black and blue panel, and the Black Turtle sets itself apart from an again light ochre-yellowish background. This makes the mural appear like a circle, possibly the circle of life with its many interruptions, transformations, and recreations. Colors and cardinal directions, which actually should serve as orientation, are in complete disorder, the world seems to be in shambles. This impression is intensified by raging flames and roaring winds. However, this disorder is balanced by the rather comforting 500 Arhats, which seem to endure the chaos without much worry, even providing hope by praying, enduring, fighting, and moving forward.

Size and coloring of the acrylic painting give a firsthand impression of mightiness and reminds of Pop Art. With its black contours the quasi mural hints at the world of comics, manga and anime. Thereby, on the one hand, Murakami evokes a light and playful atmosphere and, on the other hand, he passes the topic of the Arhats on to the younger generation, and with it also the responsibility to follow respective moral codes and act respectively e.g. toward nature.

A second closer look, however, reveals the sincerity and severity of the painting. Murakami's use of the color red refers to something serious and rather burdensome. The raging flames and roaring winds in the background underline this. Life, death and the impermanence of the secular world come together. By this, Murakami also intends his oversized artwork to act as a reminder of the 500 Buddhist sins, which arise from sensual craving and the adherence to the objects and phenomena of this world. They inflict greed, hate and selfishness. The resulting action but also the impact of respective thoughts eventually backlash on the protagonists themselves. This produces bad karma. In turn, avoiding this and predominantly behaving and thinking ethically correct produces good karma. In order to facilitate the latter, for centuries, Japanese people have called upon the Arhats for help and redemption from the 500 sufferings

[20] Nobuo Tsuji and Takashi Murakami, 'A Conversation between Tsuji Nobuo and Takashi Murakami: The 500 Arhats and "Laughter" – Takashi Murakami's Transformation of Japanese Art' in Akiko Miki (ed), *Takashi Murakami: The 500 Arhats* (Mori Art Museum, 2016) 54, 55.

inflicted by respective sins. By reminding of these 500 sins and sufferings, Murakami hints at the partially anthropogenic causes of the 3/11 triple disaster, i.e. the melt-downs in the Fukushima Daiichi nuclear power-plant but also the building density in coastal areas.

Still, combined with the seriousness of the issue there is also a fresh and encouraging, even playful way in which the Arhats deal with suffering. The Arhats are playing around and are organising joyful festivals[21]. Flying through the air and doing Kung Fu is another example for this attempt to take things lightly, an impression that has been created by popular modern culture e.g. in Bruce Lee or Jackie Chan Kung Fu movies of the 1970s, 80s, and 90s. However, even though the Arhats evoke a light and easy impression, originally Kung Fu is a most serious Chinese martial arts, which refers to any study, learning, and practice that requires patience, energy, and much time to achieve mastership. It includes achievements in life that can only be realised through hard work and perseverance. Hence, the Arhats are not only reminders of moral codes, modesty, and peaceful coexistence. They also encourage people to lightly move ahead, while still continue their fight against evil and their endurance of hardship. Hence, conveying safety, humor, and calmness, the Arhats seem to have answers to the hardships of life, one of which is behaving ethically correct.

Murakami unveiled his *500 Arhats* first in 2012 in Doha. This was a sign of gratitude, hope, but also an appeal to morality, because Murakami himself wanted to thank the State of Qatar for their immediate offer of support after 3/11. In general, international response to the catastrophe was overwhelming with more than 163 countries, 43 international organisations, and 670 Non-governmental Organisations participating in the effort. And in Japan more than 1.5 million people volunteered between 2011 and 2016; without doubt a great act of morality-based engagement.[22]

In sum, the Arhats, being helpers and protectors in times of destruction and despair, act as moral guides. They themselves act ethically by supporting humans and other beings, they show others a possible inner Buddhahood based on strict moral codes, and they clearly indicate the benefits of ethical behaviour – while also warning of unethical behaviour. Buddhist mythology has it, that Arhats only appear after disasters, such as earthquakes, volcanic eruptions, or

[21] Miki (n 18) 40.

[22] Prime Minister Naoto Kan, 'Message from Prime Minister Naoto Kan Regarding Assistance Received from Overseas' (Statement, Cabinet Ministry, 22 March 2011); Ministry of Foreign Affairs Japan, 'Offer of Assistance from Foreign Countries, Regions and International Organizations (as of September 15)', *MOFA* (Release, 11 September 2012) <https://www.mofa.go.jp/j_info/visit/incidents/pdfs/offer_assistance.pdf>; Kyodo, '2011 quake and tsunami drew fewer volunteers than Kobe quake in '95', *The Japan Times* (Web Page, 16 February 2017) <https://www.japantimes.co.jp/news/2017/02/16/national/2011-quake-tsunami-drew-fewer-volunteers-kobe-quake-95/#.XExLu81Cc2w>.

tsunami, and as climate change will most certainly increase the frequency and severity of extreme weather events with potentially catastrophic consequences, the Arhats' strict ethical codes might serve as a basis for ambitious, morale-based climate mitigation and adaptation policies.

III. THE ECONOMICS PERSPECTIVE: INTRINSIC AND EXTRINSIC MOTIVATION IN ENVIRONMENTAL POLICY AND THE CASE FOR MORAL SUASION VS. PRICING

Traditional economics has been rather skeptical about human behaviour being driven by morale. Different from Greek philosophers like Plato and Aristotle, who struggled with analysing the relationship between egoistic individual behaviour and the common good, the founding father of economics as a distinct science, Adam Smith, solved this issue in his own particular way. He argued that self-interested individual behaviour could also serve society, sometimes even better than altruistic individual behaviour, if only labor division and market transactions are allowed and good governance is practiced. In the probably most cited passages of his most influential 1776 book "An Inquiry into the Nature and Causes of the Wealth of Nations" he writes:

> "[M]an has almost constant occasion for the help of his brethren, and it is in vain for him to expect it from their benevolence only. He will be more likely to prevail if he can interest their self-love in his favour, and show them that it is for their own advantage to do for him what he requires of them. … It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own self-interest. We address ourselves not to their humanity but to their self-love, and never talk to them of our own necessities, but of their advantages. … [E]very individual, therefore, … neither intends to promote the public interest, nor knows how much he is promoting it. … [H]e intends only his own gain … By pursuing his own interest, he frequently promotes that of the society more effectually than when he really intends to promote it."[23]

He supports his belief by claiming human nature to have "a certain propensity … to truck, barter, and exchange one thing for another"[24] and continues to characterise trading as follows:

[23] Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (Liberty Fund Inc., 1981) Book 1 Ch 2, Book IV Ch 2.
[24] Ibid.

> "Whoever offers to another a bargain of any kind, proposes to do this. Give me that which I want, and you shall have this which you want, is the meaning of every such offer; and it is in this manner that we obtain from one another the far greater part of those good offices which we stand in need of."[25]

However, Adam Smith did not entirely deny human beings' capability of acting on the basis of morality. Instead, in his second most influential work "The Theory of Moral Sentiments" of 1759 he emphasised that morality is a natural part of humans as social beings, that human beings do in fact care about others, and that other people's happiness or suffering even plays a central role in individuals' well-being. In the opening passage he thus writes:

> "No matter how selfish you think man is, it's obvious that there are some principles in his nature that give him an interest in the welfare of others, and make their happiness necessary to him, even if he gets nothing from it but the pleasure of seeing it."[26]

However, this ambivalence in Smith's works has been largely ignored by neoclassical economic theory. As a consequence, one of neoclassical economics' paradigms is that human behaviour is solely based on extrinsic motivations. Just as Smith already indicated in his famous example of the baker, butcher, and brewer, extrinsically motivated individuals only perform an activity because a corresponding reward is received from some other person. An intrinsically motivated individual, however, would perform an activity for its own sake – the Buddhist Arhats analysed above provide a good example for this. Relative prices then play a central role in extrinsic motivation in the sense that positive monetary incentives increase the supply of a good or service (e.g. renewable energy) while negative monetary incentives reduce demand (e.g. for gasoline). Applying the idea of relative prices and extrinsic motivations has made The Economic Approach to Human Behavior[27] greatly successful in many areas beyond the actual realm of "the economy", e.g. in areas such as politics, crime, or the environment for which distinct and comprehensive economic theories exist.

Neoclassical environmental economics also believes that extrinsic motivations are most effective. One of the earliest comprehensive accounts of environmental economics' view on selected policy instruments, Wallace E. Oates and William J. Baumol's 1975 "The Instruments

[25] Ibid.
[26] Adam Smith, *The Theory of Moral Sentiments and on the Origins of Languages* (Liberty Fund, 1981) Ch 1.
[27] Gary S Becker, *The Economic Approach to Human Behavior* (University of Chicago Press, 1976); Bruno S. Frey, *Economics as a Science of Human Behavior – Towards a New Social Science Paradigm* (Springer, 1999).

for Environmental Policy", already states the skepticism of economists towards moral suasion, appeals to conscience, and voluntary action:

> "[W]e tend to be somewhat skeptical about the efficacy of long-run programs which require costly acts of individuals but offer no compensation aside from a sense of satisfaction or the avoidance of a guilty conscience."[28]

Hence, environmental economics has long favored instruments that build on extrinsic motivation and monetary incentives. From an economics perspective, environmental problems are a result of the public good character of nature's resources, which sets incentives for individuals to free-ride on the provision of a healthy environment and to overuse the resource.[29] As first suggested by Arthur C. Pigou in 1912, resulting external effects need to be internalised by monetary incentives such as taxes in the case of negative externalities (e.g. greenhouse gas emissions) or subsidies in the case of positive externalities (e.g. renewable energy), in order to achieve the optimum level of production.[30] In policy debates, making polluters fully pay for the use of natural resources is also referred to as the strong Polluter-Pays-Principle (PPP).

Despite of the elegancy of Pigou's approach to solving environmental problems efficiently, his textbook solution has never been fully implemented, mainly due to difficulties in determining the social cost of pollution and the optimal tax rate.[31] Based on this critique of Pigouvian Taxation, Baumol and Oates proposed the Standard-Price-Approach in 1971, which, instead of full internalisation of pollution costs, only aims at achieving a politically pre-set goal at minimum cost to society by means of a unit-based emissions tax.[32] In addition to cost minimisation,[33] Standard-Pricing sets steady innovation incentives, implements the PPP, and reduces administrative as well as transaction costs.[34] But again, as in the case of Pigouvian

[28] Wallace E Oates and William J Baumol, 'The Instruments for Environmental Policy' in Edwin S Mills (ed), *Economic Analysis of Environmental Problems* (Columbia University Press, 1975) 95, 108-109.
[29] Alfred Endres, *Environmental Economics – Theory and Policy,* tr Iain L. Fraser (Cambridge University Press, 2011).
[30] Arthur C. Pigou, *The Economics of Welfare* (London: Macmillan, 1932).
[31] However, significant progress has been made in calculating e.g. the so-called Social Cost of Carbon. For more details see Christopher Kellett, Elena Aydos, Sven Rudolph and Steven Weller, 'The Social Cost of Carbon Dioxide – Policy and Methods for Pricing Greenhouse Gas Emissions' in Trevor R Finlayson (ed), *Our Changing World in the South Pacific – Australasian and German Perspectives* (Australian Association of Humboldt Fellows, 2018) 3.
[32] William J Baumol and Wallace E Oates, 'The Use of Standards and Prices for Protection of the Environment' (1971) 73(1) *Swedish Journal of Economics* 42.
[33] Some studies estimate cost savings of up to 90% compared to a traditional command-and-control approach. See Thomas H. Tietenberg, *Emissions Trading: An Exercise in Reforming Pollution Policy* (Resources For The Future (RFF) Publications, 1985).
[34] Endres (n 29).

Taxation, emission-reducing behaviour of polluting firms would be driven only by extrinsic motivation, i.e. by negative monetary incentives for polluting activities.

This same is true for cap-and-trade (or emissions trading), an idea first introduced by John H. Dales in 1969, which basically also builds on the Standard-Price-Approach.[35] Here, polluters are forced to acquire economically valuable emission allowances in order to cover the respective amount of company emissions. The cap, a quantitative absolute limit to total emissions, guarantees that only a politically accepted number of allowances based on a politically pre-determined environmental target is issued. If the cap is lower than status quo emissions, the cap creates scarcity of emission allowances and thus a price signal on the market for emission allowances. This price, in turn, penalises polluting behaviour and extrinsically motivates firms to reduce emissions.

But even Oates and Baumol agreed already in 1975 that there is at least one particular role for morale-based voluntary action to be played in environmental protection. That is in the case of unanticipated emergencies with time costs of other approaches being too high.[36] Examples given by the authors are situations of sudden dangerous deteriorations of air or water quality that cause immediate health risks such as smog: disaster relief measures, e.g. after nuclear melt-downs such as the one in Fukushima, may serve as another current example. The sense of urgency and social pressure to engage are underlying motivations for individuals to engage in these cases. But the authors also point out that this motivation fades as soon as the problem loses its urgency by using cursory empirical evidence from the early 1970s such as blood donation in New York, US-nationwide company recycling programs, and low-cost auto-emission control device sales from General Motors and Chrysler as examples. A more recent example for this is volunteering after the 3/11 triple catastrophe in northern Japan. While in total 1.5 million volunteers were registered, the trend followed the predicted pattern: numbers dropped sharply from 960,000 in 2011 to 260,000 in 2012, and then continued to steadily decline year by year to 40,000 in 2016.[37]In 1992, then, Bruno S. Frey offered a surprising argument on why market-based instruments such as taxes and cap-and-trade had not been widely used in practice despite of their obvious merits.[38] In addition to already well-known arguments such as high transaction costs, political resistance of polluters' interest groups and

[35] John H. Dales, 'Land, Water, and Ownership' (1968) 1(4) *Canadian Journal of Economics* 791.
[36] Oates and Baumol (n 28).
[37] Kyodo (n 22).
[38] Bruno S Frey, 'Pricing and Regulating Affect Environmental Ethics' (1992) 2(4) *Environmental and Resource Economics* 399.

bureaucrats, or inadequate institutional settings, he suggested that policymakers could fear a crowding-out effect. Based on an economic model, he showed that, under certain well-defined circumstances, environmental pricing destroys environmental ethics and even leads to counterproductive effects on the environment. Individuals might feel that a strong moral stance is unnecessary in presence of extrinsically motivating price incentives. Steven Kelman had already warned of environmental ethics being destroyed by pricing instruments a decade earlier.[39] Frey advanced six propositions based on his model: pricing is less effective in improving the environment,

(1) if applied to individuals instead of firms;
(2) if applied to institutions not maximising profits;
(3) when applied to profit-maximising firms
    a) the more consumer-oriented firms are,
    b) the closer their interaction with governments is, or
    c) the less intensive competition amongst firms is;
(4) the smaller the sector of the environment is in which pricing is applied;
(5) if pricing is introduced gradually; and
(6) only if pricing is broadly applied at a high price level, environmental quality is likely to improve.

This crowding-out of intrinsic motivation by external monetary incentives, or more general the Motivation Crowding Effect, is now widely accepted in economics. Since the issue has been first raised in Richard M Titmuss' 1970 book "The Gift Relationship" with respect to blood donation,[40] cognitive psychology has supported the view that monetary external rewards undermine intrinsic motivation and that there are "Hidden Costs of Reward"[41] as well as a "Corruptive Effect"[42]. Two psychological processes lead to the crowding-out of intrinsic motivation by external interventions:

(1) External intervention might be perceived by individuals as a reduction of self-determination, so that intrinsic motivation is substituted by extrinsic control and the locus of control is shifted from inside to outside of the respective person (formally termed as Impaired Self-Determination);

[39] Steven Kelman, *What Price Incentives? Economists and the Environment* (Boston: Auburn House, 1981).
[40] Richard M. Titmuss, *The Gift Relationship: From Human Blood to Social Policy* (Allen and Unwin, 1970).
[41] Mark R. Lepper and David Greene, *The Hidden Costs of Reward: New Perspectives on Psychology of Human Motivation* (New York: Halsted Press, 1978).
[42] Edward L. Deci, *Intrinsic Motivation* (New York: Plenum Press, 1975).

(2) Outside intervention might be perceived by the respective person as a lack of acknowledgement of her or his intrinsic motivation (formally termed Impaired Self-esteem).

Economics has tried to incorporate these ideas into economic models in the Motivation Crowding Theory, which offers a continuum between intrinsic and extrinsic motivations. Movements between the poles of pure intrinsic and pure extrinsic motivation can be accounted for e.g. in a change of preferences.[43] The general Motivation Crowding Theory explicitly names the natural environment as one area of individual behaviour in which intrinsic motivations and crowding-out effects are potentially relevant. Strong empirical support for crowding-out effects has been provided by circumstantial evidence, laboratory evidence both from psychology and economics, and econometrics-based field evidence in a variety of societal areas including children's learning behaviour, the amount of civic virtue exhibited with respect to fulfilling tax obligations, or the readiness to offer voluntary work or accept nuclear waste repository siting.[44]

In sum, while neoclassical (environmental) economics used to be skeptical about intrinsic motivations, Adam Smith emphasised morality being a natural part of human beings. In addition, the modern Motivation Crowding Theory has successfully incorporated moral behaviour into economic models. The application of this theory to environmental policy has even identified concrete conditions under which pricing, and to some extent also regulation, in environmental policy crowds out intrinsic motivation and might even lead to environmental deterioration.

Against the two distinct backgrounds of art history's and economics' views on morality-based behaviour in environmental protection, we now take a closer look at climate action in Japan.

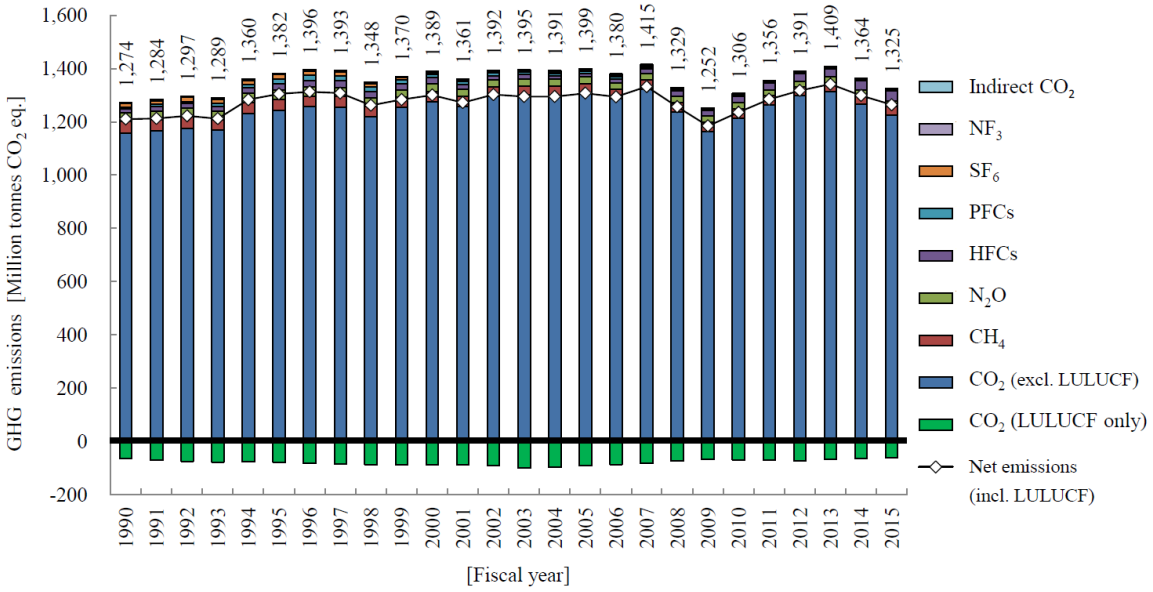
IV. THE CASE OF JAPAN: VOLUNTARY CLIMATE ACTION AT INDIVIDUAL AND FIRM LEVELS

Japan still ranges amongst the top 5 emitters of greenhouse gases (GHG) in the world, with total emissions of 1,325 million tons of carbon dioxide equivalents (CO_2e) in 2015, which is 4% above 1990 levels, but no clear trend in emission development (Figure 2). The biggest share

[43] Bruno S Frey, *Not Just for the Money: An Economic Theory of Personal Motivation* (Edward Elgar, 1997).
[44] A survey of empirical studies is provided by Bruno S. Frey and Reto Jege, 'Motivation Crowding Theory' (2001) 15(5) *Journal of Economic Surveys* 589.

of all CO_2 emissions comes from fossil fuel combustion in power plants (34%), followed by combustion emissions from the industry (29%) and transport sectors (19%), while the commercial (8%), household (5%), industrial processes (3%) and waste (2%) sectors only account for minor shares of total CO_2 emissions in Japan.

Figure 2: GHG emissions in Japan 1990-2015



Source: Government of Japan, 'Japan's Seventh National Communication under the UNFCCC' (GoJ, 2017) 4.

In international climate policy, Japan signed and ratified both the Kyoto Protocol and the Paris Agreement, with targets committing Japan to emission reductions of 6% between 1990 and 2008-12 and 26% between 2013 and 2030, respectively. Particularly the Paris Agreement target of 26% reduction can be judged as being rather unambitious as it represents a reduction of only 8-12% compared to 1990 emission levels. While Japan reached its Kyoto target during 2008-2012, only 0.6% came from domestic reductions, while 3.8% originated from removal projects in forestry and 1.6% from Kyoto Protocol Flexible Mechanisms such as the Clean Development Mechanism (CDM) and Joint Implementation (JI).

Moral suasion and voluntary action have been important parts of climate policy strategies in Japan. In order to reduce electricity consumption in room heating and cooling, in 2005 the Japanese Ministry of the Environment introduced two campaigns that follow the moral suasion

concept, CoolBiz and WarmBiz.[45] Both programs were started in government offices but quickly spread to private companies and even households. CoolBiz aims at setting air-conditioning temperatures in summer, i.e. June to September, no cooler than 28°C. The program was introduced and initially popularised by the CoolBiz fashion show at the 2005 World Exhibition in Nagoya, advertising a more liberal dress code for Japanese offices workers in summer. Adverti campaigns followed in 2008 with presentations in Tokyo and the CoolBiz Train in 2009. The program was further intensified after the 3/11 triple catastrophe as SuperCoolBiz, e.g. by bringing forward the starting date of the campaign from June 1 to May 1, and renewed in 2015 as CoolBizNext. In order to support this goal, a list of concrete advices have been put forward including items such as wearing cool clothing, going to work early in the morning, using ice for cooling, turning off machines that are not in use, or using fans instead of air conditioning. Results of CoolBiz are well documented and are summarised in Figure 3:

Figure 3: Results of CoolBiz 2005-2010

Survey year	Degree of familiarity (% of all businesses)	Percentage of offices with temperatures ≥28°C	CO_2 emission reductions
2005		32.7%	920,000 t
2006	96.1%	43.2%	1,140,000 t
2007	96.0%	48.1%	1,400,000 t
2008	93.6%	61.8%	1,720,000 t
2009	95.0%	54.5%	1,850,000 t
2010	88.2%	52.9%	1,690,000 t

Source: based on data collected from *CoolBiz* <https://ondankataisaku.env.go.jp/coolchoice/>.

WarmBiz has followed a similar pattern with the aim of setting heaters not higher than 20°C from November 1 to March 31. Naturally, dressing more warmly has been the major strategy suggested by the Japanese government in addition to eating traditional Japanese hotpot (*nabe*) for lunch or taking baths instead of showers. Results are not as well documented as in the case of CoolBiz, but in order to evaluate WarmBiz at an early stage, the Japanese government

[45] Program description and results can be found at *CoolBiz* (Web Page) <https://ondankataisaku.env.go.jp/coolchoice/>; see also *WarmBiz* (Web Page) <https://ondankataisaku.env.go.jp/coolchoice/warmbiz/about/index.html> (Japanese only).

conducted a survey in fall 2005 amongst 350 salary men of which 188 responded.[46] 72.2% confirmed that they voluntarily follow CoolBiz guidance. 93% reported that they know WarmBiz and 55.6% were planning to follow WarmBiz in the following winter. Around 20% of respondents were willing to set room temperatures to 20°C and more than 75% were willing to keep it below 23°C. 38.9% of participants spent between 5,000 and 10,000 Yen per campaign complying with the program, while another 26.3% spent 3,000-5,000 Yen. Still, WarmBiz has not been as successful as CoolBiz in reducing electricity consumption, not least because direct fossil fuel heating, e.g. with kerosene stoves, is still widespread in colder northern Japan. In sum, CoolBiz and Warm Biz aimed at voluntary electricity consumption reduction in offices and households. While most certainly the setting of temperatures in offices falls into the responsibility of employers, still, adherence to the concrete behavioural advices depends on office workers willingness to adopt respective advices such as wearing more adequate clothing. As households are also targeted – though results have not been evaluated yet – and the intense advertising campaigns for adequate clothing had office workers as their major addressees, the partial success of the program can be interpreted as a preliminary proxy for the penetration of both programs and the effects of moral suasion in Japanese climate policy targeted specifically at offices and households.

Japanese climate policy in the industrial sector has also strongly depended on voluntary action, a strategy already heavily criticised by the OECD in 2002 for its high costs.[47] Historically, in 1991 in preparation for the Rio World Summit, the major Japanese industry group Keidanren published a "Global Environment Charter", which was then followed by the 1996 "Appeal on the Environment".[48] The 1997 "Voluntary Action Plan"[49] (VAP) then concretised Keidanren's contribution to Japan's Kyoto Protocol target. Towards the end, it covered 34 industries and 83% of the industry's GHG emissions and 44% of total emissions from Japan. The concrete target of the VAP was initially a reduction of GHG emission to below 1990 levels by 2010, but was unilaterally increased by eleven industrial sectors in 2007. Keidanren conducted internal annual monitoring and communicated the accumulated results to the government. In 2013, after

[46] Results can be found at *CoolBiz* (Web Page) <https://www.fukui-kan-ene.net/anq_bak05.html> (Japanese only).
[47] OECD, *OECD Environmental Performance Reviews: Japan 2002* (OECD Publishing, 2002); Rie Watanabe, *Climate Policy Changes in Germany and Japan: A Path to Paradigmatic Policy Change* (Routledge, 2011).
[48] Keidanren, 'Keidanren Appeal on Environment: Declaration on Voluntary Action of Japanese Industry Directed at Conservation of Global Environment in the 21st Century', *Keidanren Policy & Action* (Web Page, 16 July 1996) <https://www.keidanren.or.jp/english/policy/pol046.html>.
[49] 'Keidanren Voluntary Action Plan on the Environment (Final Report)', *Keidanren Policy & Action* (web page, 17 June 1997) <https://www.keidanren.or.jp/english/policy/pol058/index.html>.

the end of the first Kyoto Protocol commitment period, Keidanren made a "Commitment to a Low Carbon Society I", with individual sectors setting targets for 2020 and 2030 in the "Commitment to a Low Carbon Society II" in 2015. Currently, 60 industries and companies participate in the "Commitment".[50]

As a result of the VAP, by the end of the first Kyoto Protocol commitment period, GHG emissions of the covered sectors were reduced by 12.1% or around 61 million tons of carbon dioxide equivalent (CO_2e) relative to 1990 levels. After that, emissions continued to decrease from 2013 to 2015 by 4.7% under the "Commitments". However, significant doubt persists with respect to Keidanren's ambition.[51] First, the process of dividing the total Keidanren target amongst member industries is not transparent, and reduction target setting is not limited to absolute volume targets: it can also be done in intensity terms. Second, data about abatement costs is not available. In other countries, abatement costs under voluntary agreements were calculated to be extremely high, e.g. 75-110 Euro per ton of CO_2 for German industry's Voluntary Action Plan.[52] Third, the major share of emissions reduction was not achieved by domestic reductions but by buying emission offsets from abroad. Domestic reductions, in turn, merely followed business-as-usual.

A mixed instrument combining price incentives and voluntary action, the Ministry of the Environment's (MoE) subsidy-based Japan Voluntary Emissions Trading Scheme (JVETS), ran from 2005 to 2012. While the participating companies emission reductions of up to 29% were quite impressive, coverage was limited to only 389 low-emitting firms over the entire lifespan of the program and thus to only 0.25% of total GHG emissions in Japan.[53] A pure mandatory national level GHG cap-and-trade scheme, the Integrated Domestic Market of Emissions Trading (IDMET), was announced in a 2008 Cabinet Decision on the Low Carbon Society Establishment Plan. However, this has never been realised, despite it also being mentioned as an important instrument in the 2010 Global Warming Policy Act. Keidanren's successful lobbying against a national mandatory cap-and-trade scheme was – and continues to be – the major reason for its political failure.

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[50] Keidanren, 'Keidanren's Commitment to a Low Carbon Society: Fiscal 2017 Follow-up Results: Summary (Performance in fiscal 2016)', *Keidanren Policy & Action* (Results Summary, 29 March 2018) <https://www.keidanren.or.jp/en/policy/2017/101_summary.pdf>.
[51] Sven Rudolph, *Marktbasiert Klimapolitik in Japan: Eine Fallstudie zur politischen Ökonomie nachhaltiger Treibhausgas-Emissionshandelssysteme (Ökologie und Wirtschaftsforschung)* (Metropolis, 1st ed, 2013).
[52] Sven Rudolph, *Handelbare Emissionslizenzen: Die politische Ökonomie eines umweltökonomischen Instruments in Theorie und Praxis (Hochschulschriften)* (Metropolis, 1st ed, 2005) 109.
[53] Rudolph (n 51) 117.

Instead, Japan implemented the Japanese Global Warming Tax (JGWT) and a Feed-in Tariff (JFIT) in 2012 as part of its post-Kyoto climate strategy.[54] The JGWT is imposed on fossil fuel consumption by using CO_2 emission factors for each fuel. The tax rate per quantity unit was set so that the tax burden equals 289 Japanese Yen per ton of CO_2. Hence, tax rates vary for each type of fuel. They are added on the pre-existing Petroleum and Coal Tax. The tax rates were to be raised gradually over three and a half years to their final level in April 2016: since 2016, the tax rate has been frozen, and no plans exist to further increase it. Exemptions and refunds also are provided for certain fuels and measures. Revenues are to be used for energy-related CO_2 emission reductions measures, such as energy-savings, the promotion of renewable energy, and the clean and efficient use of fossil fuels. A study of the Ministry of the Environment Japan found concerning results estimating emission reductions from the tax to be between 0.5% and 2.2% in 2020 compared to 1990 levels or about 6 million to 24 million tons of CO_2. An additional study calculated CO_2 emission reductions for 2030 compared to 2013 to be around 7.3%. In both cases, reductions are almost entirely achieved by revenue spending, not by price incentives, so that the pricing effect of the tax cannot be judged effectively.

JFIT, on the other hand, has been largely effective with an almost doubling of the share of renewables in electricity production between late 2012 and 2016 compared to pre-JFIT early 2012, driven mainly by solar deployment.[55] However, JFIT basically builds on obligations for power companies to buy renewable energy at a fixed price, while the extra costs compared to traditional power production are paid by rate payers. Hence, JFIT can neither be considered a price-incentive based scheme nor a voluntary action-based program.

In sum, while moral suasion aimed at Japanese office workers and households, as well as partly voluntary participation in JVETS by low-emitting firms, seems to have shown some positive effect, voluntary action in heavy-polluting Keidanren industries has not significantly reduced domestic emissions. Big industrial emitters have rather purchased international GHG offsets in order to compensate domestic emissions. Also, widespread, but low-level, gradually phased in carbon pricing via the JGWT is not predicted to show major effects in terms of emission reductions.

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[54] Roberta Mann and Tracey Roberts (eds): *Tax Law and the Environment: A Multidisciplinary and Worldwide Perspective* (Lexington Books, 2018) 85 in referring to Takeshi Kawakatsu, Soo-cheol Lee and Sven Rudolph, *The Japanese Carbon Tax and the Challenges to Low-carbon Policy Cooperation in East Asia* (Kyoto University Press, 2017).

[55] Keiji Kimura, Renewable Energy Institute (REI), *Feed-in Tariffs in Japan: Five Years of Achievements and Future Challenges* (REI Report, 8 September 2017) 3.

V. CONCLUSION

In our unique interdisciplinary collaboration between an art historian and an ecological economist, we have analysed the role of morality and moral suasion in modern climate policy mitigation and adaptation. We argued that climate policy needs an ambitious combination of mitigation and adaptation efforts and that in both areas, social norms, ethical behaviour, and moral suasion have to play a significant role. We then asked whether ethical behaviour can really live up to this expectation and focused our research on a country that is known for its strict moral codes, Japan.

In our theoretical analysis, we first focused on the reflection of morality in Japanese art, concretely on the subject of the 500 Arhats and its implications in selected artworks that referred to major natural disasters in Japanese history. Secondly, we looked into modern economics and how it has answered the demand for integrating intrinsic motivations in its models. Based on both approaches, we argued that behaviour based on morality as well as moral suasion as a policy instrument could play an important role in climate policy mitigation and adaptation

By analysing selected climate policy instruments in Japan, we tried to evaluate this hypothesis. The cursory data suggests that morality-based behaviour and appeals to morality are most effective in the case of sudden emergencies, where time costs for other approaches are too high. Adaptation to more frequent and severe weather events in the wake of global warming could thus greatly benefit from such approaches. Also, if addressed to individuals or low-emitting polluters in general, moral suasion seems to deliver emissions reductions to some extent. Energy savings and fossil fuel use reduction in households, offices, and small firms could be a worthwhile area of application. However, intrinsic motivation seems to taper off quickly as soon as urgency declines, and moral-based behaviour usually only leads to small-scale, low-cost emissions reductions. Appeals to morality and voluntary action in profit-maximising, heavy-polluting companies is, in turn, not effective. But low-level, gradually phased in carbon pricing is not expected to deliver major emission reductions in Japan.

We therefore conclude that climate adaptation in the case of immediate disaster relief can rely on morality-based action, as can small-scale, low-cost emission reductions of low-emitting polluters. Large-scale, cost-intensive deep emission cuts in high-polluting industries, however, require ambitious, high-price monetary incentives, e.g. generated by carbon taxes that reflect

the Social Cost of Carbon[56] or by truly sustainable GHG cap-and-trade schemes[57] that reflect total emissions limits given by the goal of decarbonising our economy in the 21st century. As much as we might hope for morality to rule climate policy, we would like to finish with the following warning:

> "In fact, the appeal to conscience can often be a dangerous snare. It can serve to lure public support from programs with real potential for the effective protection of the environment."[58]

[56] Kellett, Aydos, Rudolph and Weller (n 31).
[57] Sven Rudolph, Elena Aydos, Takeshi Kawakatsu and Achim Lerch, 'How to Build Truly Sustainable Carbon Markets' (2018) 9(1) *The Solutions Journal*.
[58] Oates and Baumol (n 28) 109.