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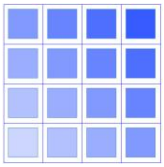

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【Invited Paper】

Em'power'ing *chihō* ?
The Adoption of the SDGs Framework Its Consequences on Local Governance

Marco Zappa*

Abstract

Since 2015, the UN-sponsored Sustainable Development Goals (SDGs) have become a dominant policy framework in Japan. Its adoption has favored the strengthening of international partnerships and has influenced trends in policymaking domestically, in the so-called regions (*chihō*) particularly with regards to initiatives at the urban planning and management level. The SDGs framework and its standardized measuring indicators have in fact come to encompass previously devised policies in respect of Information and Communication Technologies (ICT)-based ecologically sustainable urbanism (*smart city*). Considering these facts, what makes a city *smart* today? How do previously widespread ideas on smart cities (SCs) interact with new frameworks such as that of the SDGs? How, in other words, do international commitments affect local policymaking? This article will offer a preliminary multilevel analysis focusing on both national and local policymaking level to show how the SDGs framework has become all-encompassing and comprehensive. Furthermore, the adoption of said framework appears consistent with long-standing national level policies intended to foster local government (jichitai)'s autonomy and financial self-sufficiency. With the adoption of the SDGs framework, *jichitai* have increasingly leveraged on their capacities to (a) use a common language (that of the SDGs) to comply with the central government's directives; (b) create a place identity through the implementation of specific policies in respect of technology or welfare; and (c) foster partnerships with private actors.

* Ca' Foscari University of Venice. This research was made possible by the Nagoya University Center for Asian Legal Exchange (CALE) where I had the opportunity to work as Visiting Scholar in early 2023. Specifically, I would like to express my gratitude to Martina Baradel, Giorgio Colombo, David Green, Aziz Ismatov, Makino Emi, Matsumoto Yurika, Murakami Masako, Naiki Yoshiko, Saitō Kazuhisa and Yokomizo Dai for their help, support and advice.

Contents

I. Introduction

According to a recent report in the Mainichi Shimbun, by 2025, new buildings in the two cities of Tokyo and Kawasaki will have to be equipped with solar panels. Despite a projected rise in housing costs, the two local administrations have proved adamant about their respective CO2 reduction strategies[1]. With their respective decisions, the two municipalities will be at the forefront of Japan's decarbonization strategy[2]. In reality, local governments across Japan have been working on this issue since the mid-2010s. The transformation of Tokyo into a "smart city", for instance, has been central in the program of current governor Koike Yuriko since the inception of her term. In a February 2018 policy speech, Koike pledged to cut the city's CO2 emissions to zero by, among the other measures, investing in electric mobility, renewable energy generation, implementing new standards for environmentally friendly construction, safeguarding the urban green, promoting small and medium enterprises' productivity through advanced technology and expanding the city's railway network[3].

The idea to improve urban life and reduce the discomforts of cities for its inhabitants and surrounding natural environments has been at the center of national and local governments' agendas throughout the globe since the early 2010s, when it has appeared clearly that cities – particularly large business centers across the world – would continue growing as a consequence of economic globalization and the digitalization of the global economy[4]. In the last three decades, neoliberal turns

[1] The Mainichi, "Kawasaki to Become 2nd City in Japan to Require Solar Panels on New Buildings," *Mainichi Daily News*, February 9, 2023, https://mainichi.jp/english/articles/20230209/p2a/00m/0sc/004000c.

[2] Announced by former Prime Minister Suga Yoshihide in October 2020, the strategy aims to cut Japan's carbon emissions by 46% from the 2013 level and reach "zero" emissions by 2050. Marco Zappa, "A 'Post-Carbon' Diplomacy? Japan's Southeast Asia Conundrum," May 26, 2021, https://www.twai.it/journal/tnote-101/.

[3] Yuriko Koike 小池百合子. "Heisei 30 Nen Dai Ikkai Togikai Teireikai Chiji Shisei Hōshin Hyōmei 平成 30 年第一回都議会定例会知事施政方針表明" Tokyo Metropolitan Government 東京都, February 21, 2018. https://www.metro.tokyo.lg.jp/tosei/governor/governor/shisehoshin/30_01.html.

[4] Saskia Sassen, *Cities in a World Economy*, 5th ed. (Thousand Oaks: SAGE, 2019), 2.

across industrialized economies have pushed cities and regions to compete for resource attraction at both a national and global scale. Resultingly, 80% of the world's GDP is already generated in cities and, according to WB estimates, 50% of the world's population already lives in urban areas. In slightly more than 20 years, 6 billion people will live in cities[5].

Such trends naturally affect Japan as well as the EU, where this researcher is based. UN data show that 71 per cent of EU citizens live in cities and, according to recent European Commission (EC) study, by 2050, functional urban areas such as Luxembourg, Stockholm and Brussels, medium size capitals (Vienna, Budapest, Prague) and large regional cities (Munich, Bologna) will increase their current population by 25-50 percent[6].

This poses great challenges to local and national administrators, particularly in the face of a growing demand for all kinds of services, from infrastructures to housing, from education to public health. The concept of a *smart* city, that is, a place where the use of information and communication technologies (ICT) makes urban spaces more efficient and sustainable economically, socially and environmentally, has gradually emerged as a leading policy idea embodying a technology-based one-fit-all solution to urban problems in advanced economies[7].

Since the outbreak of the COVID-19 pandemic in early 2020, however, we have witnessed, with some degree of difference around the world and even within the so called "Global North", how flawed certain narratives on smart cities were and how challenging life in the city, particularly for the poorer and more vulnerable, might be when *disruption*s (restrictions on the movements of people and goods, rising sea levels, earthquakes and other natural disasters or armed conflicts) affect the "normal" workings of a city. Critics point to the lack of a systemic approach to city planning and management that tend to ignore SC surroundings and the costs that need to be sustained to carry energy and resources to the city[8]. And yet, technological solutions to urban issues remain dominant in those high- and middle-income economies that since 2015 have adopted the UN Sustainable Development Goals (SDGs) as a framework to assess their growth. Several SDGs such as affordable clean energy (Goal 7), resilient infrastructure and sustainable industrialization (Goal 9) inclusive, safe, resilient and sustainable cities (Goal 11) have a direct correlation with urban life while others such as gender

[5] The World Bank, "Urban Development: Overview," Text/HTML, World Bank, April 3, 2023, https://www.worldbank.org/en/topic/urbandevelopment/overview.

[6] European Commission. Joint Research Centre, *The Future of Cities : Opportunities, Challanges and the Way Forward*, EUR (Luxembourg. Online) (LU: Publications Office, 2019), https://data.europa.eu/doi/10.2760/375209.

[7] Francesco Gonella, "The Smart Narrative of a Smart City," *Frontiers in Sustainable Cities* 1 (2019), https://www.frontiersin.org/articles/10.3389/frsc.2019.00009.

[8] Gonella.

equality (Goal 5), inclusive economic growth (Goal 8), responsible consumption and production (Goal 12) and climate action (Goal 13), given the aforementioned phenomena, inevitably concern urban areas more than the rest. As it will be shown below, since 2016 the SDGs have become a key feature of policymaking in Japan at both the national and local levels. The Tokyo metropolitan government has set up an entire webpage to share and monitor information on the progress of single local authorities within the municipality on each of the 17 SDGs. In other words, SDGs have become a set of managerial tools applied by a wide range of private and public organizations [9] that, in addition, are deemed to have a positive impact on their activities[10].

Considering these facts, what makes a city *smart* today? How do previously widespread ideas on smart cities (SCs) interact with new frameworks such as that of the SDGs? How, in other words, do international commitments affect local policymaking? Against this backdrop, based on a recent field trip to Japan, this article will focus on the first two research questions discussing the prospects of a multilevel analysis of smart city policies in Japan and provide a preliminary analysis of an illustrative case of local urban policy-making within the SDGs framework, that of Toyota city, in Aichi Prefecture.

II. Research approach

First, let us clarify the approach to the present research. As argued above, the narrative on smart cities (SCs) has so far proven far-fetched and at times misleading[11]. In fact, the strive for city livability and resilience calls into question several intertwined issues that need to be addressed systemically and from a multi-level perspective.

A focus on mere technological shifts is not enough. Adopting a sociological view on technology, it is clear that "technology has no power of itself (…) but "[o]nly in association with human agency,

[9] Armando Calabrese et al., "Implications for Sustainable Development Goals: A Framework to Assess Company Disclosure in Sustainability Reporting," *Journal of Cleaner Production* 319 (October 15, 2021): 128624, https://doi.org/10.1016/j.jclepro.2021.128624; Enrico Guarini, Elisa Mori, and Elena Zuffada, "Localizing the Sustainable Development Goals: A Managerial Perspective," *Journal of Public Budgeting, Accounting & Financial Management* 34, no. 5 (January 1, 2021): 583–601, https://doi.org/10.1108/JPBAFM-02-2021-0031.

[10] Adriana Cristina Ferreira Caldana et al., "Development of a Sustainable Brand Identity Model: Fostering the Implementation of SDGs in the Brazilian Power Sector," *Benchmarking: An International Journal* 29, no. 9 (January 1, 2021): 3008–29, https://doi.org/10.1108/BIJ-06-2021-0363; Jose Manuel Diaz-Sarachaga, "Monetizing Impacts of Spanish Companies toward the Sustainable Development Goals," *Corporate Social Responsibility and Environmental Management* 28, no. 4 (2021): 1313–23, https://doi.org/10.1002/csr.2149.

[11] Gonella, "The Smart Narrative of a Smart City"; Adam Greenfield, *Radical Technologies: The Design of Everyday Life* (London ; New York: Verso, 2017).

social structures and organizations, fulfil its functions" [12]. In other words, technologies become embedded in routines, patterns of behaviour, regulations, and so on, becoming themselves actors (though non-human) in a wide network of interactions [13].

To borrow again from Geels, SCs, interpreted as indicated earlier as ICT-based residential communities, are not just an assemblage of innovation applied to urban life. Rather, they at the center of specific a "sociotechnical configuration" that is informed by factors such as their geography and environment; infrastructure and energy supply systems; industries; markets; cultural and symbolic capital; information inflows and outflows; and regulations and policies at the central and local level.

To better exemplify, land use is subject to a series of laws and regulations promoted by both central and local governments; one locale's cultural or symbolic value originates from interactions between local governments, visitors, media, and local communities [14]. State agencies can also be involved in the promotion or the enhancement of one locale's image and attractiveness [15]; in this respect, they might use ideas and concepts that have been shaped by multilateral organizations such as the UN. Then, space utilization and mobility patterns within the SC are shaped by the previous policy choices [16], the existing infrastructure and by the daily use of their inhabitants [17]. The design of a SC depends on R&D processes conducted by private companies with public support [18], and, in addition, by global idea diffusion among experts and practitioners influencing problem identification and proposed solutions[19]. Finally, the materialization of a SC depends on a rewarding system (financial, symbolic, moral, etc.) that might attract developers as well as customer-citizens [20].

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[12] Frank W. Geels, "Technological Transitions as Evolutionary Reconfiguration Processes: A Multi-Level Perspective and a Case-Study," *Research Policy*, NELSON + WINTER + 20, 31, no. 8 (December 1, 2002): 1257–74, https://doi.org/10.1016/S0048-7333(02)00062-8.

[13] Bruno Latour, "Technology Is Society Made Durable," *The Sociological Review* 38, no. 1_suppl (May 1990): 103–31, https://doi.org/10.1111/j.1467-954X.1990.tb03350.x.

[14] Silvio Cristiano and Francesco Gonella, "'Kill Venice': A Systems Thinking Conceptualisation of Urban Life, Economy, and Resilience in Tourist Cities," *Humanities and Social Sciences Communications* 7, no. 1 (November 5, 2020): 1–13, https://doi.org/10.1057/s41599-020-00640-6.

[15] Simon Anholt, "Place Branding: Is It Marketing, or Isn't It?," *Place Branding and Public Diplomacy* 4, no. 1 (February 1, 2008): 1–6, https://doi.org/10.1057/palgrave.pb.6000088.

[16] Edward W. Soja, *Postmodern Geographies: The Reassertion of Space in Critical Social Theory* (London: Verso, 1989); Henri Lefebvre, *The Production of Space* (Oxford, OX, UK ; Cambridge, Mass., USA: Wiley, 1991).

[17] Ash Amin and Nigel Thrift, *Seeing Like a City* (John Wiley & Sons, 2017).

[18] Andrew DeWit, "Japan's Smart Cities" (Unpublished, 2018), https://doi.org/10.13140/RG.2.2.31383.06561.

[19] Sarah Moser, "'Two Days to Shape the Future': A Saudi Arabian Node in the Transnational Circulation of Ideas about New Cities," in *The New Arab Urban*, ed. Harvey Molotch and Davide Ponzini (New York University Press, 2020), 213–32, https://doi.org/10.18574/nyu/9781479880010.003.0010.

[20] Andrew DeWit, "Japan's Radical Energy Technocrats: Structural Reform Through Smart Communities, the Feed-in Tariff and Japanese Style 'Stadtwerke,'" *The Asia-Pacific Journal: Japan Focus* 12, no. 48–2 (November 26, 2014): 10.

Politically motivated entrepreneurship and speculative land use emerge in the literature as guiding motives for new city building (including *smart* and *green cities*)[21]. In Japan's case, SC are usually not built from scratch but grow out of the initiatives of actors promoting a technological transition involving a small-scale local community, or are installed within larger cities, as model areas for a large-scale transition and even for showcase purposes.

In the present theorization, it is argued that international agreements, partnerships and state-to-state cooperation influences policy ideas and decisions with regards to urban planning and management and the promotion of SCs. If on the one hand, they prove one government's commitment to a certain set of values and ideas, on the other, at the local level, the adoption of a common international framework such as the SDGs is a leverage for local governments facing issues such as depopulation and slow economic growth, to increase their image and attract new residents.

For instance, as also discussed elsewhere[22], Japan and the EU have been working together on a joint strategy to respond to climate change since the mid-2010s. Since the launch of the Agenda 2030 and the SDGs and, more importantly, with the 2015 Paris Agreement on climate change, the government of Japan (GOJ, hereafter) has aligned its strategies for economic growth, urbanization, greenhouse gases (GHG) reduction and energy efficiency to the UN-sponsored narrative. In its 2021 comprehensive energy and climate strategy, the GOJ highlighted smart communities and cities as a priority area to achieve carbon emission reduction, energy efficiency and quality of life improvement through the enhancement of ICT and cloud-based services in such areas as mobility, energy and environment, disaster risk reduction and medicine and healthcare[23]. To achieve these targets, in 2022, the GOJ allocated 111.7 billion yen (765 million euro) to several smart-city related financing schemes [24] and promoted multilateral engagements with, more relevantly the EU and ASEAN countries on sustainable development and technology-based climate action. For instance, as a follow-up to the 2018 Strategic Partnership Agreement (SPA), at the 2021 EU-Japan Summit Brussels and Tokyo signaled

[21] Sarah Moser, "New Cities: Old Wine in New Bottles?," *Dialogues in Human Geography* 5, no. 1 (March 2015): 31–35, https://doi.org/10.1177/2043820614565867; Hyun Bang Shin, "Envisioned by the State: Entrepreneurial Urbanism and the Making of Songdo City, South Korea," in *Mega-Urbanization in the Global South: Fast Cities and New Urban Utopias of the Postcolonial State*, ed. Ayona Datta and Abdul Shaban (London/New York: Routledge, 2016), 18; Sarah Moser and Laurence Côté-Roy, "New Cities: Power, Profit, and Prestige," *Geography Compass* 15, no. 1 (January 2021), https://doi.org/10.1111/gec3.12549.

[22] Marco Zappa, "Towards European 'Smart Communities'? EU's Energy Preoccupations and the Lesson of Post-Fukushima Japan, " IAI Papers (Rome: Istituto Affari Internazionali, December 2022).

[23] Government of Japan, "Action Plan of the Growth Strategy," June 18, 2021, https://www.cas.go.jp/jp/seisaku/seicho/pdf/ap2021en.pdf; DeWit, "Japan's Smart Cities."

[24] Tokunaga Tarō, and Shimobe Junko 徳永太郎・下部純子. "The future of smart cities as seen from the 2022 government budget 2022 年度予算案から見たスマートシティの行方." *The new frontline for citizen coordination/PPP community development* 新・公民連携最前線｜PPP まちづくり, March 10, 2022. https://project.nikkeibp.co.jp/atclppp/021900032/022400009/.

their resolve to build a "Green Alliance to protect the environment, stop climate change and achieve green growth" pledging to "share knowledge and experiences" in order to achieve "climate neutrality" through specific actions for "smart cities research and innovation" that can involve third parties, particularly in developing countries [25].

In this regard, in July 2022, during a meeting with Japan's Prime Minister Kishida, the Indonesian President Joko Widodo expressed his appreciation for Japan's "knowledge and technology" envisaging its utility for the development of the new capital of Nusantara in East Kalimantan, Indonesian Borneo. Nevertheless, Widodo's words may be interpreted more broadly as evidence of the impact of Tokyo's "science and technology diplomacy". As I have shown elsewhere, since the creation of a "Climate Change Division", the MOFA has been engaged in promoting Japanese solutions to environmental and societal problems in developing countries in cooperation with Japanese universities, research centers and private companies. In the last decade, MOFA scientific experts have helped the ministry to build a broader network and to internationalize Japanese solutions toward the achievement of the SDGs [26].

Instead, at a local level, the adoption of the SDGs framework seems to be working as a way to promote policy innovation, place identity and accountability on the part of the local governments, and, at the same time, decentralization with the long-term aim to disenfranchise local administrations from their dependence on financial transfers from the central government through a broader engagement with the private sector and external funding entities. This issue will be explored in the following paragraphs.

III. Reframing national and local urban policy agenda: implementing the SDGs framework

To go back to our research questions, what has been done, in practice, in Japan with regards to the SC issue? In this section I will focus on government of Japan's and local governments' initiatives between the 2010s and 2020s and on a specific case, that of Toyota, in Aichi Prefecture. Particularly, Tokyo's reform initiatives toward administrative decentralization and the role of local governments (*chihō jichitai*) will be discussed.

[25] Government of Japan and European Commission, "Towards a Green Alliance to Protect Environment, Stop Climate Change and Achieve Green Growth," May 27, 2021, https://www.consilium.europa.eu/media/49932/eu-japan-green-alliance-may-2021.pdf.
[26] Marco Zappa, "Smart Energy for the World: The Rise of a Technonationalist Discourse in Japan in the Late 2000s," *International Quarterly for Asian Studies* 51, no. 1–2 (April 21, 2020): 211–12, https://doi.org/10.11588/iqas.2020.1-2.10999.

The linkage between the promotion of renewable energy, new urbanization patterns and historical disjunctures in modern Japanese history, such as the Tohoku earthquake and tsunami and the Fukushima n. 1 disaster, has been underlined elsewhere[27].

Here, the key role played by local authorities, at the village, city, and prefectural levels, will be stressed. Japan's constitution art. 92-94 recognize the principle of local autonomy, the right for citizens to elect their prefecture governor democratically and give the local governments the power to manage properties, affairs and administration and to enact their own regulation within the law. Given this paper's limited scope, however, it will suffice to say that structural reforms sponsored by several cabinets between the early 1990s and early 2000s, aimed at reining in the central government's financial allocations to prefectures while transferring part of the tax base to the local governments, have fallen short of their targets[28]. However, several administrative procedures such as central government approval in the relevant area of city planning, have been curtailed resulting in the transfer of more responsibilities to local assemblies. At the same time, these initiatives have not properly made up for the growing demand of financial resources caused by a partial devolution of powers, spurring, if anything, a drive toward inter-prefectural competition for resource attraction. In this context, urban areas have benefitted the most, attracting flows of people and capital from both Japan and abroad[29].

In a sense, the GOJ's recent push on building a "society 5.0", or a "society based on future technologies" (*mirai gijutsu shakai jissō)*, where ICT and Artificial Intelligence (AI)-based solutions (drones, robots, etc.) are implemented in various sectors such as agriculture, manufacturing, service and logistics to foster rural revitalization [30], can be considered, in fact, as a part of the long-term plan to materialize decentralization. If on the one hand, environmental and energy issues have served as the dominant framework within which policy could be articulated, the importance of disaster preparedness shall not be overlooked.

There are currently more than a hundred smart city projects broadly categorized as Eco-cities (*kankyō kyōsei toshi*), Transit-oriented development (TOD) areas (*kōkyōkōtsū shikōkata toshi kaihatsu*) and Resilient cities (*saigai ni tsuyoi machidzukuri*). By enhancing ICT, (particularly the Internet of Things (IoT), and big data), vehicle automation and car sharing service (Mobility as a Service, MaaS)

[27] Zappa, "Smart Energy for the World."

[28] Towa Niimura, "Decentralization Reform in Japan," *Seikei Hōgaku* 89 (December 2018): 101.

[29] Hideo Nakazawa 中澤英雄 "The Centre and The Periphery: The End of the Myth of Equal Development 地方と中央―「均衡ある発展」という建前の崩壊" in *Heisei Shi* 平成史. (Tokyo: Kawade shobō sinsha 河出書房新社, 2014).

[30] Tokunaga Tarō, and Shimobe Junko 徳永太郎・下部純子. "The future of smart cities as seen from the 2021 state budget, part 1 第 1 回 2021 年度予算案から見たスマートシティの行方." *The new frontline for citizen coordination/PPP community development* 新・公民連携最前線｜PPP まちづくり, March 2, 2021, https://project.nikkeibp.co.jp/atclppp/021900032/021900002/.

and biometrics-based services (such as automatic remote bus-fare payments), each smart city project aims at the resolution of a specific issue, but, in addition, the GOJ has identified thirty "super cities" where intersecting issues are addressed in a more comprehensive manner, primarily through efficient data management, always within the SDGs framework[31].

Recent GOJ initiatives aimed at enhancing ICT utilization for infrastructure management and maintenance have centered around a series of subsidy programs and public awareness initiatives. Under the II Abe cabinet, for instance, such efforts have been expanded under the banner of the "society 5.0" whose scope encompassed both urban and rural areas (*chihō*). Against the backdrop of a sluggish pace of installation of optical fiber and 5G in remote areas, both the Suga and Kishida cabinets have stepped up their efforts in promoting digitalization and infrastructure modernization.

The current Japanese Prime Minister, Kishida Fumio, has gone as far as to launch a Digital Garden City Nation (DGCN) plan aiming to capitalize on previous experiences and spur "bottom-up growth" through massive public and private investments in the digital sector and infrastructure modernization (Kishida 2022). On top of these initiatives, the GOJ has designated more than 200 administrations as SDGs model cities (*SDGs mirai toshi*) and local governments' SDGs model projects (*Jichitai SDGs moderu jigyō*)[32].

Under the GOJ's direction, several public-private and community-based projects have gathered attention in the last decade. A key feature of GOJ's subsidy programs is their being proposal-based; i.e., to have access to the GOJ's support local governments have to submit plans and strategies (*sōgō senryaku*) that are monitored and assessed by ad hoc expert committees.

Project proposals need to be written along certain standards that are defined by the central government, and particularly by the Cabinet secretariat (*naikaku kambō,* CS) which is in charge, among other things, of coordinating and monitoring the GOJ's initiatives in the area of regional revitalization. Since 2014, with the entering into force of the "City, people, job creation Law" (now repealed), the GOJ has stepped up its efforts to promote local economic development and revitalization drafting successive medium term comprehensive strategies (*sōgō senryaku*) that it expects to be reflected in single local authorities' growth plans (*chihō ban sōgō senryaku*). At the core of these instructions was the urge to spur "local Abenomics", to promote local innovation, local branding and

[31] The Government of Japan, Prime Minister's Office 首相官邸. "Japan's Smart Cities: Solving SDGs-related and global issues through Japan's Society 5.0 日本のスマートシティーSDGs など世界が抱える課題を日本の Society5.0 で解決." October 29, 2020. https://www.kantei.go.jp/jp/singi/keikyou/pdf/smart_city_catalog.pdf.

[32] Cabinet Secretariat, Regional Revitalization Bureau 内閣府地方創生推進事務局. "The rural revitalization through the SDGs and the Environmental Future City visions 地方創生 SDGs・「環境未来都市」構想." 2020. https://www.chisou.go.jp/tiiki/kankyo/index.html.

the productivity of local services through a mix of financial, educational and informational supports, with the ambitious aim to "create a new inflow of people in the regions" (*chihō e atarashii hito no nagare o tsukuru*)[33].

Specifically, the strategies have integrated a series of standard managerial tools and concepts such as the Plan Do Check Act (PDCA) used to promote continuous improvement (*kaizen*) of the local performances based on a series of Key Performance Indicators (KPI) which must respond to the specificities of individual projects or specific local contingencies[34]. In addition, local governments are encouraged to create their own networks across sectors of society and beyond prefectural and regional boundaries. For instance, in a CS' city, people, and job creation bureau report, local administrators are urged to engage with external experts, young people in the deliberative phase and to benchmark with other administrations[35]. Against this backdrop, the government agency has guidelines and manuals (*tebiki*) available on its portal, providing advice to local administrators for a successful submission.

In this context, the implementation in the first half of the 2010s of "microgrids", i.e., local self-sufficient electric power networks supported by small-scale power generators (usually PV), storage units, and ICT-based energy management systems (smart meters, home energy management systems [HEMS], etc.) allowing for energy efficiency and CO2 reduction, fits in the GOJ's revitalization targets, particularly as they are central to the promotion of local innovation and disaster preparedness[36]. Large companies such as Panasonic and Toyota have been directly engaged in the establishment of the so-called "smart communities". The Fujisawa Sustainable and Smart Town (Kanagawa Prefecture) is a notable example. A cluster of 2–3 story "smart" housing units with PV panels installed on the roof, surplus energy storage facilities (usually solid oxide fuel cell batteries), electric vehicles (EVs) charging facilities, HEMS and energy data management system (EDMS) connected to the Internet, built on a former Panasonic plant, it is almost entirely powered by REs (70 percent of the total energy demand) and has reduced CO2 emissions, ensuring energy reserves in case of power outages.

More recently, community-led smart communities have emerged. Flagged as a successful revitalisation project by the Ministry of Economy, Trade and Industry (METI), that of Naraha, a small

[33] Jichitai Tsūshin Online 自治体通信 Online. " On the City, People, Job Creation Law まち・ひと・しごと創生法について." June 29, 2020. https://jt-tsushin.jp/articles/column/casestudy_machi-hito-shigoto_sosei.

[34] Jichitai Tsūshin Online 自治体通信 Online.

[35] Cabinet Secretariat, Bureau for city, people, job creation 内閣官房まち・ひと・しごと創生本部事務局. "Survey report on the advancements of the general strategy for the rural areas 地方版総合戦略の策定状況等に関する調査結果." September 9, 2021, https://www.chisou.go.jp/sousei/about/chihouban/pdf/sakuteijoukyou210909.pdf.

[36] In fact, smart communities may ensure reliable life continuity plans (LCPs) with regards to their capacity of securing energy in case of crisis Hiromi Okubo et al., "Smart Communities in Japan: Requirements and Simulation for Determining Index Values," *Journal of Urban Management*, October 12, 2022, https://doi.org/10.1016/j.jum.2022.09.003.

town affected by restrictions on residency after the 2011 Fukushima Daiichi nuclear accident, is an elucidatory case. The smart community management features a community energy management system (CEMS) enabling the mutual supply of surplus energy between commercial and disaster public housing facilities built after the 2015 lift of the residency ban and its management is entrusted to a local incorporated association (*ippan shadan hōjin*), Naraha Mirai, on behalf of the city government[37]. Currently, a 40 percent of the total energy supply is locally generated by solar panels installed on buildings and its goal to become energy self-sufficient and carbon neutral by 2030. Similar projects have been initiated in nearby communities, such as Soma and Namie [38].

IV. The SDGs at a local level level: the case of Toyota City

In a sense, the adoption of the SDGs as a comprehensive framework through which to promote and monitor local and national development has favored administrative simplification and decentralization. The effects are evident in the strategies of individual local governments which have successfully won bids for revitalization programs such as Toyota City (Aichi Prefecture). In 2018 the GOJ designated Toyota, a town in the Nagoya greater metropolitan area, an SDG-future city. The bid for this nomination stemmed out of previous efforts by the local authorities and stakeholders to make Toyota a "hybrid city" aiming at a consistent CO2 reduction (50 percent on the 1990 levels by 2030 and 70 percent by 2050). Being the site of the first historic Toyota Motor Company factory, the city boasts a long history as a manufacturing hub and, concomitantly, a developed agricultural sector and rich natural environment. The municipality includes a urban area proper, where manufacturing, transport and housing facilities are concentrated, and a mountainous outskirt. Against this backdrop, since 2009, upon its official designation as an environmental model city (*kankyō moderu toshi*), the city has become a site of experimentation and exhibition of new developments in mobility (electric scouters and cars, car-sharing systems) and housing (smart houses) thanks to state subsidies and tax discounts aimed at favoring the creation of an energy self-sufficient community. Following 3.11, Toyota became part of a broader GOJ's effort to promote low-carbon city making (*teitansō toshi zukuri*) in Japan and elsewhere. As envisaged by former Foreign Minister Gemba Koichirō at the Rio United

[37] Naraha Mirai ならはみらい. "About us - Naraha mirai: project description ならはみらい事業内容." *Ippan shadan hōjin Naraha Mirai* 一般社団法人ならはみらい. Accessed November 18, 2022, https://narahamirai.com/aboutus/service/.
[38] Shigen enerugī chō. 資源エネルギー庁."the Local Mutualism for Renewable Energy Award: Case-Studies 地域共生型再生可能エネルギー事業顕彰 事例集" (Ministry of Economy, Trade and Industry 経済産業省資源エネルギー庁, 2022), https://www.enecho.meti.go.jp/category/saving_and_new/advanced_systems/saiene_kensho/doc/case-studies_r3.pdf.

Nations Conference on Sustainable Development (Rio + 20) in June 2012, Japan would contribute to sustainable, resilient and green urban development globally based on the country's "many years of experience in advancing energy conservation and recycling"[39].

Despite the December 2012 leadership transition and the return of an LDP-led cabinet under former PM Abe Shinzō, the GOJ remained consistent with its UN pledge embracing the Paris declaration and adopting the SDGs framework in 2015. In 2016, the Abe cabinet appointed a Council for the promotion of the SDGs and proceeded with the designation of several Japanese cities, including Toyota, as "SDGs model cities" as a segue to previous initiatives. In November 2018, the Council for the promotion of the materialization of a connected society in Toyota (*Toyota-shi tsunagaru shakai jisshō suishin kyōgikai*) was formed with the direct involvement of major private and public stakeholders such as Chūbu Electric, the regional energy utility, Toyota Motor Corp., the Nagoya University Institute of Innovation for Future Society and Mitsubishi UFJ Bank[40].

From that moment onwards, the city administration has proven active in advertising materials aimed at attracting new residents and official documents illustrating the city's efforts to achieve its sustainability targets and materializing the "smart city". In this regard, in 2020, the city government laid out a 3-year plan (2021-23) ("*minna ga tsunagaru – mirai ni tsunagaru sumāto shiti*") setting a series of medium to long-term strategies for the city administration centered on the achievements of the SDGs. Premised on an analysis of the strengths and weaknesses (such as its rich natural and cultural heritage, or the growth of the elderly population and its exposure to a possible large-scale natural disaster), the report first details its development targets for 2030 identifying its economic, social and environmental priorities, then, it moves on to discussing its achievements referring to a series of detailed SDG-related KPI (e.g., number of startups, number of vacant houses, or the public participation for a community-based health service). Besides enhancing its clean energy production at 117,000 kW and reducing the production of burnable waste per capita at 131 g per day, the city aims to increase the number of smart houses by nearly 300 hundred units, reduce the number of deaths caused by car accidents, promote human resource development for innovation and attract investments in advanced technologies. Furthermore, it aims at enhancing its support services for elderly residents aged 65 to 75 and female workers, and at reducing service access unbalances between urban and rural

[39] Koichiro Gemba, "Speech by Foreign Minister Koichiro Gemba United Nations Conference on Sustainable Development (Rio + 20)" (Ministry of Foreign Affairs of Japan, June 20, 2012), https://www.mofa.go.jp/policy/environment/warm/cop/rio_20/fm_speech_en.html.

[40] Toyota-shi 豊田市. "Video: Toyota's Future City Vision 未来都市豊田ビジョン動画." Toyota Shi/Toyota City 豊田市, November 29, 2018, https://www.city.toyota.aichi.jp/shisei/kankyoumodeltoshi/1027993.html.

residents[41]. The document further elucidates the city commitment for SDG-related information and its active participation in a network of relations with NGOs, NPOs, local associations, companies, international organizations such as the UN Department for Social and Economic Affairs (DESA) and foreign city governments (such as that of Bandung, Indonesia) for the cross-sectional and global promotion of the SDGs. In this regard, it is of particular interest the launch of the SDGs point initiative, aimed at promoting awareness among citizens on the importance of the UN development framework through economic and financial incentives (by collecting SDGs points, citizens can receive discounts on purchases of food and other goods).

As maintained by the city mayor Ōta Toshihiko, the SDGs offered a "lingua franca" for improved communication between administrators, universities and enterprises in their joint effort to tackle a series of social issues (such the ageing of the local population or disaster preparedness), to improve the residents' quality of life and finally to establish a new paradigm of city and community building[42].

Ōta, who was reelected for a third term in 2020 and serves as president of the Tōkai branch of the Japan Association of City Mayors, has been a catalyst of this reform process. Upon election in February 2012, his administration has embarked in a series of initiatives aimed at promoting a new image of the city as a pivot for innovation in the energy, mobility and wellness areas. In May 2012, on a site formerly occupied by the city hospital, the city government launched a neighborhood-sized open-air museum, Ecoful Town, showcasing urban solutions for ecological sustainability, particularly "smart homes" equipped with solar panels that Toyota Home (the housing branch of the Toyota Group) has later built in two areas of the municipality, Takahashi-chō and Higashiyama-chō. The following year, an experimental city-wide electric vehicle (EV) sharing service was also implemented[43]. Toyota's physical and institutional proximity to Toyota Motor Corp. has undoubtedly provided the foundation for Toyota City's flagship Sakura project which is aimed at creating awareness and disaster preparedness using plug-in hybrid cars as mobile storage batteries in case of major power outbreak following a large-scale earthquake or tsunami.

Upon Toyota's designation as an SDGs future city by the GOJ in 2018, the exhibition has been renewed and its contents reframed along the lines of the SDGs framework with the goal to sensitize the local population to the city efforts in this regard. Significantly, apart from the smart houses installed in 2012, the site features an interactive exhibition featuring electric scouters, a humanoid robot, and,

[41] Toyota-shi 豊田市. "The Toyota SDGs Future City Plan (2021-2023): A smart city connecting everyone to each other and to the future 豊田市 SDGs 未来都市計画（2021～2023）みんながつながる ミライにつながるスマートシティ." 2020, 11-15, https://www.city.toyota.aichi.jp/_res/projects/default_project/_page_/001/025/483/keikaku_02.pdf.

[42] *"Think SDGs 2021" International Conference in Toyota*, 2021, https://www.youtube.com/watch?v=AiGGtm2GajE.

[43] Rick Docksai, "Ecoful Town: A Neighborhood Tour of Green Innovation," *The Futurist*, December 2012.

just outside the main pavilion, one of the country's few hydrogen stations provided by Tōhō Gas, a major Japanese energy company.

Certainly, the COVID-19 pandemic has certainly hampered the city's aforementioned awareness raising initiatives. The activism described above is in fact in stark contrast with data that were collected during a site visit in March 2023. At the time of this researcher's visit, the site, despite functional, looked deserted. In spite of the visit's timing (during the weekend), no other visitor accessed the main pavilion to see the exhibition. Only one customer refueling his vehicle at the hydrogen station could be observed as evidence of the site's functionality for the local resident community. Several parts of the exhibition such as an experimental solar energy-powered urban farming unit installed by construction company Daiwa Lease and an off-grid cabin, shut down. On top of this, moving on from the Ecoful Town to the city's major transit routes, it appeared clearly that a majority of commuters were driving their own private cars rather than shared vehicles[44]. Despite its empirical nature, this data may help to explain why according to the aforementioned report, the city of Toyota was lagging in comparison with the national average on single SDGs such as number 11 (sustainable cities and communities) and 13 (climate action)[45].

V. Conclusion

As shown above, since 2016, the SDGs framework has become the dominant policy framework within which urban policies have been conducted. At the international level, the GOJ's adoption of the SDGs has favored Japan's affiliation with the international society and enabled the strengthening of partnerships with like-minded regions and countries. The SPA and successive agreements with the EU clearly demonstrate how international commitments combined with the absorption of values and institutions may lead to enhanced interactions and, possibly, to the establishment of common mechanism to tackle global issues.

From a local perspective, however, the adoption of the SDGs framework has had a specific impact. First, it has changed the way local and national governments interact. To use Geels' concept, the SDGs have caused a shift in the sociotechnical configuration (the assemblage of geographical, economic, technological and social factors at the foundation of our societies) upon which national and local

[44] Site visit, 4 March 2023.

[45] Toyota-shi 豊田市. "The Toyota SDGs Future City Plan (2021-2023): A smart city connecting everyone to each other and to the future 豊田市 SDGs 未来都市計画（2021～2023）みんながつながる ミライにつながるスマートシティ." 24.

initiatives in respect of SCs had been shaped. The UN-sponsored complex of ideas and values has come to encompass previous GOJ initiatives (Environmental model cities, etc.) that had characterized local policies with regards to environmentally sustainable urbanization, energy saving, GHG reduction and disaster preparedness. To say it with Toyota city mayor Ōta, the SDGs provided a "common language" for national and local administrators, non-governmental organizations and businesses.

Second, speaking a common language inevitably leads to simplification and efficiency in the interactions between these various actors. However, the changes in actual policies are only slight. What shifts is the broader framework and the way policies are articulated within them. The case of Toyota city is elucidatory. In recent years, the city government has been proactive in respect of the SDGs, and yet, several policy outcomes (the creation of the Ecoful town open-air exhibition, its partnerships with local businesses such as Toyota Corporation, etc.) were the result of policies predating the adoption of the SDGs as an official policy framework.

Third, after urging local governments to adopt comprehensive strategies through a series of initiatives since 2014, the SDGs have become integrated, on the one hand, in a local and national management and monitoring system of progress and achievements of local governments in certain sectors. On the other, they have become part of the code local administrators need to adopt in their applications for central government's fundings, interactions with private partners and international peers. The use of this code has favored in recent years policy diffusion and with it, the diffusion of new and allegedly more sustainable urban models (centered on the idea of "smart community" or "smart city") that are deemed to be more resilient to the structural problems affecting Japan (such as a super-ageing society or the risk of a large-scale natural disaster). With the adoption of the SDGs framework, extant ideas on smart cities and communities have been adapted and are now subject to management and monitoring conducted using specific measurement standards based on the UN Agenda 2030. In this sense, "smart" comes to signify entrepreneurial in so far as local administrators are increasingly formulating policies using tools such as the PDCA and KPIs which were originated in a business management context.

Fourth, such efforts seem to be consistent with neoliberal reforms initiated in the early 2000s by the GOJ. By promoting the SDGs framework in its comprehensive strategies and by urging local governments to adopt them, the GOJ is pushing local administrators to reducing their dependence on transfers from the central government, creating new partnerships with external funders and specifically forge alliances with the private sector, with the inescapable gradual privatization of formerly public services and spaces (energy provision, public transport, healthcare, housing and so forth). As illustrated by the case of Toyota City, at the local level, administrators are also working to create a

widespread consensus among the population (a case in point is the creation of the SDGs point system that allows Toyota residents to get discounts on the purchase of goods and services). Again, the transformation of residents into customer-residents is apparent.

Further research into this matter will have to carefully investigate a series of questions. First, what kind of inequalities is produced by unequal access to technology and hence sustainability? Second, in light of the previous question, a gap between narrative and actual sustainability exits. To tackle this issue, it is necessary to ask ourselves where do key materials for electric vehicles battery come and at what cost? What is the cost of equipping houses with solar panels in terms of waste and emissions needed to manufacture and export solar panels? What will be of the technologies described above when new ones will be made available? Finally, standardized measures often miss the complexities of a certain specific territory and its social arrangements reducing complexity to figures. Is it possible to envision community-based solutions that use technology without alienating local practical and theoretical knowledges? What kind of regulation can allow for this? Ambitious as it may seem, a new research agenda in the issue of sustainability and urban development cannot overlook the aforementioned questions.

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