

## Government of Japan

### Submission on the Global Dialogues in 2024 under the Sharm el-Sheikh mitigation ambition and implementation work programme

April 2024.

Japan welcomes the opportunity to provide views on opportunities, best practices, actionable solutions, challenges, and barriers in line with paragraph 9 of decision 4/CMA.5 relevant to “*Cities: buildings and urban systems*”, selected as the focused topic for the global dialogue in 2024 under the Sharm el-Sheikh mitigation ambition and implementation work programme (MWP).

Japan would like to reiterate the objective of the MWP, which is to urgently scale up mitigation ambition and implementation in this critical decade and underline the importance of integrating mitigation outcomes of the first global stocktake as the MWP is the sole work programme focusing on mitigation. We cannot say the MWP will have fulfilled its objective unless it can significantly scale up each Party’s mitigation ambition and implementation by 2030 to achieve the 1.5°C goal. In this context, it is crucial that global dialogues deliver actionable outcomes, and that Parties include actionable solutions in the CMA decisions so as to serve this objective. Cities and buildings, which were selected as the topic for 2024, are essential areas where mitigation efforts need to be significantly accelerated as soon as possible to achieve the 1.5°C goal. Japan believes that sharing its experiences would benefit the international community and is willing to do so.

Several mitigation strategies are mentioned in IPCC AR6 WGIII for the decarbonization of cities, including promoting renewable energy and improving energy efficiency, utilizing sustainable materials and appliances, preparing sustainable urban plans, and promoting sustainable lifestyles.

#### 1. Urban systems

- IPCC AR6 WGIII Chapter 8 divides cities into three different categories, which are emerging, rapidly growing and established, and discusses mitigation opportunities for each. The mitigation strategies to reduce GHG emissions in urban systems will differ depending on various variables: population, land use, spatial form, climate, development level, and state of urbanization. In addition, low-carbon transport systems such as non-motorized and public transport will contribute to accelerating the reductions of emissions from the road sector (paragraph 28 (g) of decision 1/CMA.5). Likewise, carbon uptake and storage through green spaces are also beneficial factors for the decarbonization of urban systems.
- From Japan’s experience, there is no one-size-fit-all solution that suits any city. For example, in terms of renewable energy, the availability of appropriate production sites, grids or batteries that meet the fluctuating demand may be crucial factors in promoting the decarbonization of cities. Yokohama, a large city with millions of populations, may have a partnership with a renewable energy production site which is hundreds of kilometers away from it, whereas a smaller city may become almost self-sufficient in energy, by promoting rooftop solar panels, etc. At the same time, in order to accelerate the decarbonization of cities across the nation, an over-arching policy measure is required.
- In Japan’s case, we look at a two-step approach. First, as the baseline, we established a statutory plan (“Plan for Global Warming Countermeasures”) that requests subnationals to set their own decarbonization plans and track their progress, which is aligned with the national long-term goal of net-zero 2050. As of today, over one thousand subnationals have declared to become net-zero by 2050 and over five hundred subnationals have set their own plan (note that there are approximately 1700 subnationals in Japan).
- The second is selecting and supporting the first movers. The Ministry of the Environment selects first-mover subnationals as “Decarbonization Leading Areas,” based on the plan prepared by each subnational under specific criteria. One contrast between the first step and this step is the time frame. Unlike the first step targeting 2050, the second step aims to select over one hundred subnationals by 2025 and achieve regional revitalization as well as carbon neutrality by 2030 so as to demonstrate best practices to be replicated across the country. This policy measure also allows a tailored approach reflecting the characteristics of each region. For example, Kamishihoro Town, a dairy town in Hokkaido, is committed to decarbonization through biogas power generation, using methane gas generated from livestock manure. Also, the City of Kyoto, which is a tourist destination, is decarbonizing one hundred cultural heritage

sites such as temples and shrines in collaboration with local energy companies and promoting decarbonized transport system (e.g., electric taxis).

- The lesson learned from this programme is that we need to respect the autonomy of each subnational, as they are the ones who take the lead in decarbonizing the community. On the other side, the programme by the central government must contain flexibility while also creating competition among subnationals, if not providing a supportive push to the subnationals, to create a "decarbonization domino effect" across the country. Another critical point is the engagement of local stakeholders. Local stakeholder engagement is crucial from multiple perspectives, such as mid-to-long-term operations by local businesses, capital from private banks, and human resources. Under this programme, regional environmental offices will act as coordinators and set a framework in which local governments, financial institutions, private companies, and others take the initiative to participate in planning and implementing decarbonization projects and policies that contribute to solving regional issues. Setting such a framework would substantially increase the chance of long-term implementation of local decarbonization.

### **Case in Japan: Decarbonization Leading Areas**

- In 2021, the Council for National and Local Decarbonization and relevant organizations and stakeholders, formulated Regional Decarbonization Roadmap to address decarbonization throughout the country by encouraging local communities' actions. The objective of the roadmap is to make decarbonization domino effects throughout Japan, by fully mobilizing policies during the 5-year intensive period to 2025, including measures such as creating at least one hundred "Decarbonization Leading Areas" and implementing priority measures (self-consumption solar power generation, zero-carbon drive, energy saving in households and private sectors etc.).
- The requirements for selection include (i) net zero CO2 emissions from electricity consumption in the consumer sector (the residential and commercial sector) by FY2030, (ii) measures to combat global warming in accordance with regional characteristics (reduction of CO2 from energy consumption other than electricity in the consumer sector and other greenhouse gas emissions, etc.) and (iii) maximum introduction of renewable energy facilities based on renewable energy potential. At least one hundred Decarbonization Leading Areas will be selected by FY 2025 and supported by the Ministry of the Environment, and seventy-three areas have been selected.

## **2. Building:**

- According to the IPCC AR6 WGIII report, total GHG emissions in the building sector accounted for 21% of the global GHG emissions in 2019, which was 12 Gt CO2-eq. Among such emissions, 57% were indirect CO2 emissions from offsite electricity and heat generation, followed by 24% of direct CO2 emissions produced on-site and 18% from cement and steel production used for construction and/or refurbishment of buildings.
- Heating and cooling emit not only energy-related CO2 but also fluorocarbon, alongside the production, use, and disposal of refrigerants. Therefore, it is important to look into the entire life cycle and supply chain as a whole to reduce all types of GHGs, which would contribute to paragraph 28 (f) of decision 1/CMA.5. Cement and steel industries are often regarded as hard-to-abate sectors, and further research and wide deployment are required to reduce GHG at scale.
- In this context, it is essential to discuss them comprehensively to produce actionable solutions that each Party can implement. Such solutions may range from politics and regulations, which include standardization, taxes, or incentives, to technologies for insulation, heating, cooling, and lighting.

### **Case in Japan: Net Zero Energy Building (ZEB)/ Net Zero Energy Housing (ZEH)**

- ZEB and ZEH are buildings that aim to balance the annual primary energy consumption by utilizing energy-saving and renewable energy, thereby achieving zero energy consumption. Japan announced the Roadmap for Energy Conservation Measures in Housing and Buildings for Decarbonized Society, which aims to ensure that the energy-saving performance of ZEB/ZEH level is secured for new buildings by FY2030 and that solar power generation facilities are introduced to 60% of newly built detached houses. It is also critical to promote energy-saving and renewable energy of existing buildings, as they far outnumber newly built buildings and, therefore,

possess a large mitigation potential. When renovating an existing building, there are many barriers compared to when building a new building, such as physical constraints of construction and schedule constraints due to relationships with building users; however, combining existing versatile technologies can improve energy performance.

#### **Case in Japan: Energy-Conservation Support Package**

- The energy-conservation support package is a system that subsidizes part of the cost of energy-conservation measures for companies and households, including the introduction of high-efficiency water heaters and renovation support for heat-insulating windows.
- Subsidies are provided for business operators to promote the replacement of boilers and industrial furnaces in factories, air conditioning equipment in buildings, and commercial water heaters with energy-efficient equipment. Experts conduct energy-conservation advice and visit small and medium-sized enterprises to provide advice on improving energy use.
- For households, support for the introduction of high-efficiency water heaters such as heat pump water heaters and household fuel cells, support for the introduction of compact and efficient water heaters for rental housing complexes where it is challenging to install heat pump water heaters due to installation space limitations, support for renovation to a highly energy-efficient insulated window, and support for the retrofitting of energy-efficient insulated windows are being promoted.

#### **Case in Japan: Switching to zero- and low- emission materials**

- As urbanization is expected to increase in many countries around the world, the consumption of cement and concrete in building construction is unlikely to decrease. In fact, in the Net Zero Emissions by 2050 scenario developed by the IEA, global cement production is projected to stay relatively flat until 2030. Low and zero-emission cement and concrete by innovative technologies, such as the substitution of clinker as a raw material for cement and CO<sub>2</sub> sequestration during the cement curing process, are needed to reduce CO<sub>2</sub> emissions while meeting the demand for cement and concrete. Japanese companies have already begun research and development of these new cement and concrete products, and it will be desirable to accelerate these research and development and discuss measures for market expansion and diffusion, as well as international cooperation.
- As a construction material, timber stores a considerable quantity of carbon with a relatively small ratio of carbon emissions-to-material volume. It is also a regenerative material. By substituting steel and concrete with timber in mid- to high-rise and non-residential rise urban buildings, cities could take advantage of these human-made carbon sinks. In this context, Japan adopted the Act for Promotion of Use of Wood in Buildings to Contribute to the Realization of a Decarbonized Society. Under this act, the use of wood is promoted by providing technical advice and financial incentives to private entities that have signed an agreement with the national and local governments.

#### **Case in Japan: Life-Cycle Management of fluorocarbon**

- Along with promoting energy-efficient natural refrigerants and low-GWP equipment, Japan addresses fluorocarbon management, particularly in use and at the disposal. Indeed, to promote fluorocarbon lifecycle management, Japan launched the Initiative on Fluorocarbons Life Cycle Management (IFL) at COP25 in 2019.

### **3. Lifestyle**

- In the IPCC AR6 WGIII report, it is stated that demand-side measures and new ways of end-use service provision can reduce global GHG emissions in end-use sectors (buildings, land transport, and food) by 40–70% by 2050 compared to baseline scenarios (SPM C.10).
- Despite its vast mitigation potential, the demand side has so far received less focus than the supply side. In order to promote mitigation globally, supply-side and demand-side mitigation strategies and measures, especially on socio-cultural options and behavioral change, need to be enhanced. All Parties should further strengthen demand-side mitigation actions to enhance the transition to sustainable lifestyles and sustainable patterns of consumption and production as stated in paragraph 36 of decision 1/CMA.5.

- The IPCC's Special Report on Global Warming of 1.5 °C stated that mitigation options in the energy-demand sector have more potential for synergies and less for trade-offs with sustainable development goals than those in the supply-side sector. This analysis implies that demand-side measures can provide just and equitable solutions in the context of sustainable development.
- This is especially important for cities considering the large population, which is projected to increase from approximately 4.3 billion in 2018 to 6.8 billion by 2050 (IPCC AR6 WGIII Chapter 8). In the global dialogue, we could discuss (i) behavior and lifestyle changes, which are associated with individual choices of action related to consumption and services, considering different social norms and cultures, (ii) policy and governance, and (iii) technology, infrastructure, and services, which are related to the design and use of supporting hard and soft end-use technologies and infrastructure and services that enable changes in individual choices.

#### **Case in Japan: Nationwide action**

- Japan launched a nationwide action to build a new prosperous lifestyle as a demand-side measure that leads to net zero by encouraging behavioral changes in consumers, including product and service selection. This experience can be shared in the dialogue.

#### **4. International collaboration**

- The issue of diversity among cities also applies in the international context; therefore, learning from or partnering with cities across borders is helpful in order for cities to contribute to the global efforts identified in paragraph 28 of decision 1/CMA.5.
- One approach is peer-to-peer learning. In April 2023, Roundtable on Subnational Climate Actions was launched to become a useful platform for mutual learning and cooperation among G7 members. Some key points addressed at the roundtable include the position of synergies among climate action and biodiversity and circular economy, the use of blended finance, and the importance of city networking. Furthermore, bilateral initiatives are also helpful. For example, in January 2023, EU-Japan 100 Cities Event on Climate Action was held, with the aim of facilitating the exchange of views between EU and Japanese cities on practical topics including energy security and resilience, contribution to local economies, smart city and innovation and financing local decarbonization.
- Another approach is direct partnership. Under the framework of the “City-to-City Collaboration for Zero Carbon Society” programme, the Japanese government has been supporting local partners in developing countries and Japanese companies/municipalities to work together to design local systems to promote zero carbon society, introduce low-carbon technologies, and conduct capacity building for local staff.
- The programme also promotes the Joint Crediting Mechanism (JCM), which accelerates the diffusion of advanced decarbonizing technologies and infrastructure including the implementation of mitigation actions, through investment by Japanese entities in partner countries. If adopted under JCM scheme, financial support will be provided for the initial investment cost of such introduction of equipment and machinery that use advanced zero-carbon technologies, then a part of and credits of the reductions/removals in a partner country will be transferred to for Japan's contribution.
- The City-to-City Collaboration for Zero Carbon Society programme has linked fifty-two subnational governments abroad, especially in developing countries, with 20 Japanese subnational governments. It has formulated 26 JCM model projects, including the introduction of renewable energy in various sectors.
- Building upon such experience, Japan launched the "Clean Cities Partnership Program (C2P2)" in February 2023 to provide a comprehensive and synergetic support to the urban agenda, including climate change, environmental pollution, and the circular economy.
- The lesson learned from these programs is that in order to carry out the above initiatives continuously and stably, local governments must take a holistic approach in learning, setting decarbonization plans, forming the partnership, implementing their plans, and track the progress. This cycle leads to predictability and transparency, which may bring financial support.

### **Case in Japan: City-to-City Collaboration**

- Under this framework where cities in developing countries collaborate with cities in Japan, support is provided for human resources development and the creation of institutional foundations in the towns in developing countries by considering the development of net zero projects in collaboration with private companies and sharing knowledge and experience on urban management in Japan through intercity cooperation.
- Due to the concentration of various infrastructures in cities, the introduction and development of superior zero-carbon technologies, products, and systems in these facilities will not only help with the zero-carbon development of cities, but are also expected to produce various co- benefits, such as improving the environment and energy supply in cities.

**Reference:** [https://www.env.go.jp/earth/coop/lowcarbon-asia/english/project/https://www.env.go.jp/earth/coop/lowcarbonasia/english/project/data/jcm\\_guidbook\\_C2C\\_2021\\_EN.pdf](https://www.env.go.jp/earth/coop/lowcarbon-asia/english/project/https://www.env.go.jp/earth/coop/lowcarbonasia/english/project/data/jcm_guidbook_C2C_2021_EN.pdf)

### **Case in Japan: Cleaner Energy Future Initiative for ASEAN (CEFIA)**

- This initiative aims to accelerate energy transition and decarbonization in the ASEAN region through international technical cooperations focusing on local realities. It facilitates the collaboration between the public and private sectors in Japan and ASEAN countries to promote (1) the diffusion of clean energy and decarbonizing technologies, (2) the improvement of the environment for energy-related businesses and (3) job creation, through the implementation of decarbonizing projects called Flagship Projects in the ASEAN region.
- One of the Flagship Projects is the promotion and development of Net-Zero Energy Building (ZEB) which is implemented by Japanese industrial association called ZEB Solution WG of the Japanese Business Alliance for Smart Energy Worldwide (JASE-W). It promotes awareness of ZEB related technologies and ISO/TS23764, a standard which advocates a step-by-step approach to introduce ZEB, through workshops and seminars in the ASEAN region, and also conducts a demonstration project in Malaysia.
- Another Flagship Project is the dissemination of energy efficient air conditioning system. Noticing the ASEAN culture on people demanding excessive cooling of office buildings, it promotes an air conditioning system to achieve both energy saving and comfort by maintaining optimal indoor temperature and humidity through seminars and trials in buildings in ASEAN countries.
- One cross cutting Flagship Project is finance which aims to assist the decarbonizing projects to have access to finance, which is implemented by Association of Development Financing Institutions in Asia and the Pacific (ADFIAP) who have network of development banks in ASEAN. They are working on Transition Finance Acceleration Laboratory (TFAL), a virtual laboratory to provide capacity building to help Financial Institutes, such as Development Bank of the Philippines, adopt programs to finance ZEB and green buildings.

**Reference:** <https://www.cefia-dp.go.jp>

### **Modality Suggestions**

Lastly, in terms of modalities, Japan believes that the modalities of the MWP should be improved to deliver actionable outcomes for further discussion under the agenda item under the SBI, SBSTA and CMA. Japan would like to propose that the co-chairs and the secretariat encourage the experts and relevant organizations in the global dialogues to include in their presentation a summary of approaches that have been effective in reducing emissions, together with an analysis of the reason why they were effective, in order for the Parties to identify possible actionable outcomes. Having a summary of possible actional options at the global dialogue would make the discussion more active and practical.

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