

Final Report for Commissioned Projects FY2023
MOEJ City-to-City Collaboration for
Zero-Carbon Society project

**(Developing an Institutional Framework Towards KL Zero
Carbon City and Neighborhood in Collaboration with
Tokyo Metropolitan Government and Saitama City)**

March 2024

Institute for Global Environmental Strategies
Tokyo Metropolitan Government / Saitama City Hall
UTM Low Carbon Asia Research Centre

Final Report for Commissioned Projects FY2023
MOEJ City-to-City Collaboration for
Zero-Carbon Society project

**(Developing an Institutional Framework Towards KL Zero
Carbon City and Neighborhood in Collaboration with
Tokyo Metropolitan Government and Saitama City)**

March 2024

Institute for Global Environmental Strategies
Tokyo Metropolitan Government / Saitama City Hall
UTM Low Carbon Asia Research Centre

Table of Contents

1	Summary	5
2	Purpose of the work.....	6
3	Description of the work.....	6
3.1	Low-carbon building sector.....	7
3.2	Low-carbon mobility sector	7
3.3	Nature based solutions (NbS)	7
4	Support offered	7
4.1	Low-carbon building sector.....	7
4.2	Low-carbon mobility sector.....	12
4.3	Nature based solutions	15
5	Progress of Implementation of carbon neutrality initiatives.....	17
5.1	Energy-efficient air-conditioning equipment installed in KL City Hall	17
5.2	Developed a 2050 carbon neutral scenario for KL City.	17
5.3	Developed guidelines for the Wangsa Maju Carbon Neutral Growth Centre.	18
5.4	Installation of area lighting with solar technology along the Bunus River.....	18
5.5	Solar panels on roofs of bus and taxi stands.....	19
5.6	Installation of solar panels on commercial buildings.	19
5.7	Free shuttle bus service 'GoKL' uses EV buses	20
5.8	Installation of cycle and pedestrian lanes	21
5.9	Promoting urban/community agriculture	23
6	Mayor Shimizu of Saitama City's mission to KL City.	24
7	International conferences, etc.....	28
7.1	High-Level Talks (@ KL).....	28
7.2	TIME TO ACT Forum 2023	34
7.3	High-Level Talks (@IGES Tokyo Office).....	36
7.4	Children's International Conference on the Environment 2023	43
7.5	KL study tour for Tokyo's high school students	44
8	Invitation of KL officials to Zero Carbon City International Forum 2023	45
9	Annual list of activities	46
	References.....	47

1 Summary

The City of Kuala Lumpur (hereinafter referred to as KL City) has declared intentions to transform the entire city area into carbon neutral (hereinafter referred to as CN) status and designated a district "Wangsa Maju Carbon Neutral Growth Centre" for piloting efforts with the support from the "project developing a policy and implementation framework for building energy efficiency through city to city collaboration between KL City and Tokyo Metropolitan Government (FY2021 - FY2021)" (hereinafter referred to as Phase 1). In Phase 2, the Tokyo Metropolitan Government (hereinafter referred to as TMG) has welcomed Saitama City and the two cities are sharing policies and social implementation experiences that contribute to the realisation of carbon neutral in KL City, while continuing to support the creation and operation of a mechanism for the diffusion of energy efficiency (renewable energy) in buildings that was promoted in Phase 1.

So far, support for the CN for the entire KL city area has centered on generous sharing of TMG's experience on energy and resource circulation initiatives within TMG's CN strategies, "Zero Emission Tokyo 2050" and "Carbon Half by 2030". This year, TMG has shared its most recent efforts for CN: its' preparation for the introduction in 2025 of an ordinance to mandate housebuilders who supply new houses to install solar PV on the roof and to install high thermal insulation, is one of them. Another is Saitama City's experience in involving businesses to popularise electric vehicles through its E-KIZUNA Project. Also a Saitama City initiative, the NbS (nature-based solutions) on greening and flood control measures using rice paddies, was shared.

On the occasion of a mission to Japan by new KL Mayor Kamarulzaman (appointed in April 2023), the mayor was offered a guided tour of the Smart Home Community in the Misono area of Saitama City, which is a leading example of CN urban development. He was also offered the opportunity to visit Azabudai Hills, a recently completed zero emission building in Tokyo.

In terms of support for the introduction of Japanese technology, Takasago Construction, a member of the consortium for building decarbonised urban smart home communities in Saitama City, and the Department of Architecture at University of Technology Malaysia (here in after referred to as UTM), met in February 2024. They sought to explore the possibility of joint research on the feasibility of introducing Japanese-style wooden houses with high airtightness and thermal insulation to Malaysia. UTM expressed a willingness to work together on this as an activity for the next year.

The collaboration has been promoted mainly by government officials and private businesses, but in FY2023, as a new approach, the two municipalities of TMG and KL City worked together to establish an environmental education programme for children, and

expanded the circle of understanding and recognition for CN to the citizen level.

2 Purpose of the work

According to the Report of Working Group III of the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) published in 2022, approximately 70% of global GHG emissions originate from cities, and accelerating climate action in cities is essential to achieve the 1.5 degree target set in the Paris Agreement. Japan is taking steps to create more than 100 leading decarbonisation regions and expand them across the country under the Regional Decarbonisation Roadmap formulated in June 2021, with the aim of realising zero-carbon cities in cooperation between the State and cities.

To achieve a decarbonised society as a whole, it is necessary to accelerate the movement towards building a sustainable decarbonised society, particularly in Asia, where economic growth has been rapid, and there is a growing international movement to support urban initiatives to decarbonise cities, which are the places of activity that support socio-economic development.

As an example, the Japanese Ministry of the Environment launched the Clean Cities Partnership Programme (C2P2) with JICA in February 2023, based on this project, in order to address today's challenges faced by cities worldwide from multiple perspectives. The programme will provide comprehensive and synergistic support for urban challenges in partner cities, including climate change, environmental pollution, circular economy and nature revitalisation (nature positive), in collaboration with Japanese local authorities, private companies and financial institutions to further mobilise technology and finance. It also promotes collaboration with other key stakeholders, including the G7 and other like-minded countries and international development finance institutions.

In this project, Japanese research institutes, private companies and universities, together with Japanese cities that have experience and know-how in decarbonisation, conducted a research project to support partner cities in their efforts to create a decarbonised society and to introduce equipment that contributes to the creation of a decarbonised society.

3 Description of the work.

The following activities were carried out in this study with the aim of reducing greenhouse gas emissions in KL, supporting its pledge to become a CN city by 2050, through the realisation of carbon neutrality for the entire city and decarbonised smart community districts in three sectors: low carbon buildings, low carbon mobility, and

nature based solutions.

3.1 Low-carbon building sector.

The following case studies from the TMG and Saitama City were presented, contributing to the development of a CN policy and mechanism across KL.

3.1.1 The key points of discussion on TMG's initiative to introduce an ordinance requiring housebuilders to supply new housing to install solar PV on roofs and to install high thermal insulation.

3.1.2 Advanced case studies of low carbon buildings in TMG and Saitama City, and Saitama City based housebuilder's Japanese highly airtight and insulated housing technology.

3.2 Low-carbon mobility sector

The following examples of low-carbon mobility were presented and their feasibility in KL was discussed.

3.2.1 TMG's 'measures to promote the installation of EV charging facilities in new private-sector buildings and the introduction of such facilities in metropolitan-owned facilities

3.2.2 Saitama City's expertise in partnering with the private sector to offer rental sharing services for micro EVs and electrically assisted bicycles.

3.3 Nature based solutions (NbS)

Saitama City's efforts to protect, manage and restore natural or altered ecosystems was discussed with KL, showing that NbS is a valid solution without trade-offs between climate change measures and biodiversity conservation.

4 Support offered

4.1 Low-carbon building sector.

4.1.1 Movement in Malaysia

The Malaysian Government has set a goal of decarbonisation by 2050 and has launched a series of related policies, such as revising renewable energy targets and formulating an energy transition roadmap. Key areas such as renewable energy conversion and carbon capture have been identified, and large companies, including those working in partnership with Japanese companies, are leading the way.

According to a report by JETRO Kuala Lumpur office, "In July/August 2023, the National Energy Transition Roadmap (NETR) was launched in a big way, led by the Ministry of

Economy, with the first phase identifying 10 key projects in six sectors, where RM25 billion (approximately JPY775 billion, 1 ringgit = JPY31) will be invested. The second phase includes, in addition to this, specific measures and targets for implementing these projects, with the establishment of a fund and governance by the National Energy Council as the main pillars." As far as the list of projects is concerned, the building-related projects aim to improve energy efficiency in the residential sector and install renewable energy generation equipment. In the former, a 20% emissions reduction by 2050 is set as a target value. Residential photovoltaics is one of several projects aimed at increasing the renewable energy share from the current 32% to 70% by 2050. However, according to local experts, in Penang, where the industrial park is located, condominiums are covered with shading film and energy efficient air-conditioners have been installed, but as airtight building materials and construction methods do not yet exist in Malaysia, there are many problems with rapid deterioration due to condensation. As in Japan, potential demand for highly airtight and insulated housing can be seen in Malaysia.

Furthermore, in recent years, smart city development has been in the spotlight in Malaysia, with the development of TRX (Tun Razak Exchange), a mixed-use development in an international financial special zone with a sustainability theme in the city centre, attracting foreign investors to KL City. In addition, the Malaysian Industry Government Group for High Technology (MIGHT), a national research institute, with support from the GEF (World Bank Group) and UNIDO, is developing a smart grid demonstration in MELAKA city, incorporating Chinese smart city technology.

4.1.2 Information sharing workshop

In response to such moves by the Malaysian Government, KL City, with the support of TMG, has been accumulating know-how on the creation and operation of a system for the diffusion of energy efficiency (and renewable energy) in buildings. As a result, through the implementation of a pilot project both high-energy efficiency equipment and renewable energy has been introduced to municipal facilities in KL City in order to realise more comprehensive and sustainable energy management. In light of the current situation and interests of the KL City, this information-sharing workshop introduced the measures and schemes taken by TMG for private sector businesses, such as housebuilders and developers, in installing solar power generation equipment and low-carbon materials.

Date of workshop: 29 August 2023.

Participants: people from TMG, KL City, Saitama City, UTM, SEDA, IGES

4.1.2.1 TMG ordinance requiring housebuilders supplying new housing to install solar PV on the roof and to install high thermal insulation.

This year's workshop was held to introduce details of TMG's 'Ordinance Requiring Housebuilders Supplying New Housing to Install Solar PV on Roofs and High Insulation' to the city of KL, which newly expressed interest in measures to promote energy efficiency (renewable energy) in private buildings and housing.

The regulation, also known as solar obligation, mandates housebuilders building new detached houses to install a certain percentage or more of solar equipment and high thermal insulation. Preparations are now underway for the regulation to start in April 2025. TMG assumes that half of existing buildings will be replaced by new buildings by 2050, and considers it necessary to give maximum consideration for the environmental performance of new buildings. The regulation therefore obliges businesses supplying buildings with a total floor area of 20 000 m² or more per year in Tokyo to install a certain amount or more of ZEB, power generation equipment, efficient air-conditioning and other equipment. The energy efficiency standard is set one rank (10-15%) higher than the national level.

TMG has been seeking views on the introduction of this regulation through public comments and social networking, and has carefully explained the significance and content of the regulation in response to the objections received. The TMG has also received praise for its transparent process and broad range of input.

For more information on the regulation, please refer to the reference material at the end of the report.

4.1.2.2 Tokyo's initiatives to promote the use of low-carbon materials.

The city of KL, where large-scale urban development is underway, is struggling with the disposal of building materials generated during the demolition of existing buildings and is considering the possibility of recycling building materials. In response to a request from the KL City, TMG shared their approach to low-carbon materials, including recycled materials.

The TMG is establishing a scheme to 'rate' (rather than ban) new buildings using low-carbon materials in preparation for the launch of the aforementioned regulation in 2025. The scheme targets large-scale new buildings and defines low-carbon materials as those with low life-cycle carbon emissions. Conversion of building frame materials to timber with low carbon emissions, use of low-carbon concrete and steel with high carbon

dioxide (CO₂) emissions during manufacture, and use of recycled materials are some of the examples that will be evaluated, with environmental assessment points ranging from 1 point to 3 points awarded to the target building depending on the level of effort made to use these materials.

Both TMG and KL are home to large numbers of buildings, and both cities emit large amounts of CO₂ in the process of supplying large quantities of construction materials to construction sites. TMG therefore considered it important to act proactively to reduce emissions in the supply chain by identifying, selecting and using low-carbon materials during the construction of new buildings. The TMG shared with KL City its commitment to achieving zero emissions in the future through the use of renewable energy and sustainable use of resources, considering the carbon footprint of activities outside Tokyo, since urban activities are based on supply chains.

※ For more information on the initiatives, please refer to the reference material at the end of the report.

4.1.3 Case study site visits

On the occasion of the Mayor Kamarulzaman of KL and his delegation's visit to Japan on 20 October 2023, TMG offered him the opportunity to see the demonstration of perovskite solar cells in TMG-owned facilities and to visit Azabudai Hills, the latest decarbonised building in the city at this time.



Figure 4.1.1 Perovskite solar cells (metropolitan facility)



Figure 4.1.2 Azabudai Hills (the latest decarbonised building in Tokyo)

On the occasion of the KL Mayor's visit to Japan (21 October 2023), the City of Saitama offered the Mayor the opportunity to visit Takasago Construction's model house of highly airtight and insulated wooden houses and the smart home community in the Misono area, a leading example of a decarbonised urban area.



Figure 4.1.3 Takasago Construction model house.



Figure 4.1.4 'Smart home community' in Misono

4.1.4 Feasibility of introducing highly airtight and insulated housing by Japanese domestic housebuilders to Malaysia.

Takasago Construction, a member of the consortium for the decarbonised urban smart home communities in Saitama City, and the Department of Architecture at UTM, the premier architecture school in Malaysia, met to explore the possibility of joint research on the feasibility of Japanese-style highly airtight and insulated wooden houses in Malaysia. A delegation from Japan travelled to Malaysia in February 2024 to explore this. As a result, Dr LIM YAIK WAH, a leading expert on timber construction in Malaysia, is willing to consider collaboration with Takasago Construction, and hopes to conduct joint research while experimenting with 'building performance' and 'dweller's perception of the timber housing environment'. He also suggested the necessary initial steps to be taken to introduce Takasago Construction's technology in Malaysia, including the use of local materials, the procurement of skilled labour, and economic efficiency.



Figure 4.1.5 Meeting at UTM



Figure 4.1.6 Group photo at UTM.

4.1.5 Outcome in KL City

- The Mayor Kamarulzaman of KL revealed to project proponents who visited him in

February 2024 his plan to promote low carbonisation of new private sector buildings by establishing KL's own reporting system for buildings. A low carbon building checklist will be developed and private developers and construction companies will be required to report 10% of their building materials as low carbon materials (including recycled materials). However, the specific details are still under consideration and KL City hoped to have opportunities to exchange views through online meetings to learn from the TMG experience.

- In addition, there has been a lot of new building construction in KL by demolishing old industrial buildings. A lot of discarded building materials are generated but are landfilled due to the lack of incinerators. Due to the limited volume of landfill sites, KL City is looking for ways to reuse building materials and would like to further exchange views on practical actions online with the TMG.

4.2 Low-carbon mobility sector.

4.2.1 Movement in Malaysia

As mentioned above, the Malaysian Government has put in place several roadmaps and concrete measures with the goal of decarbonisation by 2050. In the mobility sector, the Low Carbon Mobility Blueprint was released in 2021 and the Ministry of Environment and Water (KASA) has indicated that a shift to electric vehicles (EV) is the most effective way to reduce carbon emissions. The plan is to replace 15% of new car sales with EVs by 2030 and 38% by 2040. Major industrial policies to facilitate supply of EVs are :

- Preferential tax treatment and reduced import tariffs that would lead to the local manufacture of EVs
- Tax incentives for the manufacture of EV charging equipment,
- Exemption from various taxes on finished EVs and domestic assembly, etc.

To further stimulate demand the policies are:

- Subsidies for the installation of EV charging facilities,
- Government initiative (conversion of official vehicles to EVs),
- Tax incentives to promote EVs in taxis and buses,
- Tax incentives for the use of EV motorcycles by delivery services

According to local experts, although the Malaysian government has positioned EVs as one of its key industries, Malaysia lags far behind neighbouring Thailand and Indonesia

in the introduction of EVs, so it is likely that the country will be moving quickly to catch up.

In response to this national trend, KL City has taken it upon itself to put 60 Malaysian-made EV buses into regular operation from 2022, which are used for the 'GoKL' free shuttle bus service operated by the KL City. The buses run on a 13 km long bus route connecting the Wangsa Maju Carbon Neutral Growth Centre, major residential areas, shopping centres and light rail transit (LRT) stations. This high-specification bus service is linked to a mobile app (<https://gokl.app.geoxspot.com/>), which allows users to check the real-time running position and estimated arrival time of the 'GoKL' buses.

4.2.2 Information sharing workshops

KL City, which has started operating the "GoKL" EV bus as a government initiative, is now trying to formulate a concept for the installation and introduction of charging facilities that will lead to the purchase of EVs by private sector businesses and private households. TMG introduced "measures to take the lead in introducing EV charging facilities in metropolitan-owned facilities and to promote their installation in new private-sector buildings", and Saitama City introduced its know-how on the city's "shared multi-mobility" project using micro EVs and electrically power assisted bicycles, to support KL City's policy formulation.

Date of workshop: 4 September 2023.

Participants: TMG, Saitama City, KL City, UTM and IGES officials.

4.2.2.1 'Measures to promote the installation of EV charging facilities in new private-sector buildings and the installation of EV charging facilities in metropolitan-owned facilities on a first-come, first-served basis' (by TMG)

TMG has set three pillars for the diffusion of zero emission vehicles (ZEV) in its Zero Emission Tokyo Strategy. The three pillars are: 1) to create infrastructure for the diffusion of EVs, 2) to increase the number of ZEVs, and 3) to create a social momentum to understand ZEVs. With regard to the first policy, infrastructure, the plan sets a target of 1,000 quick chargers in public and private facilities and 60,000 basic household chargers by 2030, with interim targets set for multiple years.

For metropolitan-owned facilities, a list of spaces where charging facilities can be installed is compiled and the departments who "own" the assets are encouraged to actively install EV charging facilities. For private facilities and detached houses,

subsidies are provided to cover the costs of equipment purchase, construction, maintenance and operation. TMG's basic policy for the layout of EV charging facilities is to place basic charging facilities at households and enroute charging at public facilities. KL City showed great interest in the three pillars for the promotion of ZEVs and also highly appreciated the fact the multiple target years that have been set in the plan for the number of vehicles to be installed.

4.2.2.2 'Shared multi-mobility' project using micro EVs and electrically power assisted bicycles (Saitama City)

In this workshop, Saitama City explained its efforts to promote EVs and its shared multi-mobility project. The reason why Mayor Shimizu actively introduced next-generation vehicles (EV, HEV, PHEV, FCV) to decarbonise the city and promote new technologies stems from the fact that the transport sector had the largest sectoral share of Saitama City's CO2 emissions. Therefore, the city reconsidered the practice of local governments to evaluate official vehicles only on the basis of their procurement value, and actively introduced next-generation vehicles for official vehicles. The city also worked with automobile manufacturers and others on the E-KIZUNA project to create a society of next-generation vehicles.

With regard to the development of charging facilities, as the range of early EVs was short in distance, subsidies were provided to ensure that they were placed throughout the city, mainly for basic charging at workplaces and homes, and efforts were made to popularise EVs. Furthermore, the 'Shared multi-mobility' project was launched to implement various mobility services in society as a new urban transport system that improves the convenience of travel and urban circulation while reducing environmental impact. The "shared multi-mobility" is a service that allows users to borrow and return ultra-compact EVs, scooters and electrically power assisted bicycles via an app, and is used by citizens because of its ease of use, enabling them to experience the advantages of EVs in a casual manner.

On the KL City side, there was interest in the fact that the municipality took the lead in promoting the use of EVs in Saitama City, and that it involved the private sector in the process.

※ For more information, see the reference materials at the end of the report.

4.2.3 Case study site visits

On the occasion of the Kamarulzaman KL Mayor's visit to Japan (21 October 2023),

Saitama City provided an opportunity to visit smart home communities and shared multi-mobility in the Misono area, a leading example of a decarbonised urban area. In addition, when KL working level officials visited Japan (27 February 2024), they were offered the opportunity to see the shared multi-mobility service.



Figure 4.2.1 Observation of shared multi-mobility

4.2.4 Outcome in KL City

The KL City plans to limit the buses that can travel in the city centre to EV vehicles from July 2024. In order to realise this plan, the KL City will introduce 900 EV buses and set up six bus terminals at certain distances from the city centre, where citizens can transfer from privately-owned buses (petrol vehicles) to city-operated EV buses. Mayor Kamarulzaman has announced that the city is considering wooden structures for bus waiting facilities, and as Saitama City has experience in building bus terminals out of wood, KL City is looking forward to exchanging ideas.

4.3 Nature based solutions

4.3.1 Global movement

Reducing the carbon footprint through landscape design has become a global trend, and nature-based solutions (NbS) that utilise the characteristics of green areas have attracted a lot of attention recently. Nature in urban areas is not only a place for citizens to relax, but also acts as a green infrastructure, absorbing carbon dioxide, infiltrating rainwater, and as an ecosystem preservation system.

4.3.2 Information sharing workshop

KL City aims to be a green, vibrant, diverse and a global city by 2050, with lush plantings, beautiful landscaping and climate change resilience. However, it is difficult to maintain a lushly planted landscape in KL, where much urban development is taking

place. Furthermore, flooding has become more frequent in recent years, and there is a high level of interest in flood control projects and flood prevention.

Therefore, Saitama City introduced the Minuma rice field, which is an important flood control measure for the city. Seeing the number of abandoned farmland in Minuma rice fields increases due to the ageing of the farming population, Saitama Prefecture, Saitama City and Kawaguchi City have placed rules to protect it from development. Saitama City's role is to preserve the green pastures, plant and preserve the cherry blossom trees along the water corridors, and designing citizen walking events to show the natural environment and the local resource to a wider audience. In KL City, abandoned farmland is often used for development of residential areas, and government-led initiatives, such as those in Saitama City's Minuma rice paddies that are being used to protect the natural environment from development, was highly evaluated as an effective means of maintaining water reservoirs and biodiversity.

4.3.3 Case study site visits

Saitama City provided an opportunity to inspect the Minuma rice fields when Mayor Kamarulzaman of KL visited Japan (21 October 2023). KL working level officials visited Japan (27 February 2024), and were offered the opportunity to visit a public park to see the beautiful landscape design that makes use of the natural landscape.

4.3.4 Outcome in KL City

The KL City has a strong interest in the landscape design of Saitama City's parks, and is currently exploring with Saitama City the possibility of a personal exchange between experts.

5 Progress of Implementation of carbon neutrality initiatives

5.1 Energy-efficient air-conditioning equipment installed in KL City Hall

With TMG's support, a low-carbon building system was established in KL City. This included a method for selecting public buildings for energy-saving retrofits, standard specifications for the installation of energy-saving and renewable energy equipment and a simple reduction potential calculation tool. As a result, equipment with high CO₂ emission reduction potential was identified for the renovation of four KL City Hall buildings, and this was reflected in the KL City budget plan.



Figure 5.1.1 Highly energy efficient AHUs

Figure 5.1.2 Highly energy efficiency Cooling Tower

5.2 Developed a 2050 carbon neutral scenario for KL City.

Supported KL City's consideration of carbon neutrality, which was expected to be the first of its kind in a major Asian city, with a scenario for KL City to achieve virtually zero emissions by 2050, thereby leading to KL City's commitment to carbon neutrality by 2050.

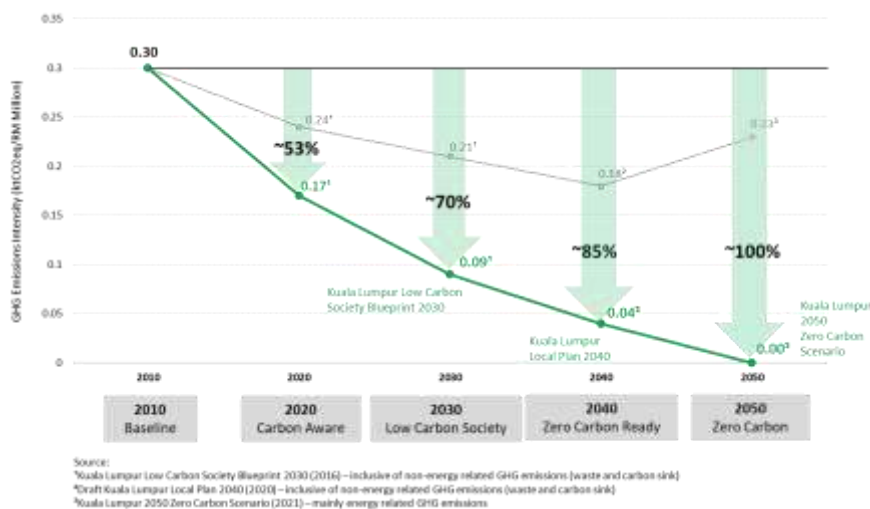


Figure 5.2.1 KL City 2050 carbon neutral scenario

5.3 Developed guidelines for the Wangsa Maju Carbon Neutral Growth Centre. The KL City has decided to focus on projects in five strategic areas in the decarbonisation demonstration site 'Wangsa Maju Carbon Neutral Growth Centre': 'Power and Energy', 'Mobility', 'Waste', 'Greening' and 'Community'. The diagram below was prepared by UTM and used by KL City as a guideline to identify feasible and implementable projects.



Figure 5.3.1 Wangsa Maju Carbon Neutral Growth Centre guidelines

5.4 Installation of area lighting with solar technology along the Bunus River

A total of 55 units of solar-powered area light sticks have been installed along the Bunus River in the first phase of the project. Total electricity generation is estimated at 1,188 kW, leading to a monthly savings in electricity bill of MYR 831.60 or an annual savings of MYR 9,979.20. Apart from savings in energy consumption and reduction in carbon emissions, the project yields other benefits of promoting active mobility among the local community with a co-benefit of improvement in public health; increasing community appreciation of the value of urban waterways and green network; and increasing public awareness of, and direct involvement in, climate change mitigation efforts in Wangsa Maju and KL City.



Figure 5.4.1 Solar-powered LED street lights



Figure 5.4.2 Solar-powered LED street lights (left) (right)

5.5 Solar panels on roofs of bus and taxi stands.

As an effort towards improving the visibility and public awareness of GHG emission reduction efforts in KL City, a total of 20 bus and taxi stops have been installed with solar panels on the bus shelters. These 20 solar panel installations presently provide electricity for 63 lamps in the bus and taxi stops, with an estimated 793.8kW generated, yielding a savings in electricity bills of RM555.66 a month or RM6,667.92 a year.

To further enhance the positive impacts and community appreciation of renewable energy use, KL City plans to also include smart phone and mobile device charging points at the bus and taxi stops.



Figure 5.5.1 Bus shelters and taxi ranks with photovoltaic panels.

5.6 Installation of solar panels on commercial buildings.

KL City has been promoting, recognising and celebrating private sector renewable energy initiatives in KL City. The completion of the installation of solar panels on the roof and

parking areas of the AEON Alpha Angle Shopping Mall in Wangsa Maju is one publicly visible example. Total electricity generation from the installed solar panels is estimated at 1.5MWp, giving rise to an estimated 1,372 metric tons of annual CO2 avoidance, which is equivalent to planting about 35,000 trees (estimated from the 1.5MWp share of AEON Alpha Angle from a total 3.6MWp generated that included the AEON Taman Maluri Shopping Centre). Other benefits gained from the ESG effort include lower electricity expenses for AEON, provision of covered parking bays for AEON shoppers, and reduction in the heat from the flat roof which resulted in lower chiller electricity consumption. In supporting KL City's aspiration to develop the Wangsa Maju Carbon Neutral Growth Centre, apart from the installation of solar panels, AEON Alpha Angle also provides recycling centres in the mall as well as a dedicated section for the public to learn more about sustainability.



Figure 5.6.1: Aeon's Alpha Angle shopping mall (right: after installation of solar panels)⁶

5.7 Free shuttle bus service 'GoKL' uses EV buses

The KL City Hall has successfully operated 60 Malaysian EV buses in regular service from 2022, which are used for the KL City's free shuttle bus service 'GoKL', and four more at the Wangsa Maju Carbon Neutral Growth Centre. The buses run on a 13 km long bus route connecting major residential areas, shopping centres and LRT stations. "GoKL" is available as a mobile app (<https://gokl.app.geoxspot.com/>), which allows users to check in real time where the buses are travelling and when they are due to arrive.



Route map (left)



Route map (right)



Free EV shuttle bus



Charging pattern

Figure 5.7.1 Free shuttle bus service "GoKL".

5.8 Installation of cycle and pedestrian lanes

KL City is supporting the construction of dedicated bicycle and pedestrian lanes in the section from 'Sungai Bunus' in Wangsa Maju to 'Saloma Link' in the north of the central business district area as a demonstration site for 'active mobility'. If successful, the dedicated lanes will be extended beyond Saloma Link to KLCC (Kuala Lumpur City Centre) and further to TRX Park (Tun Razak Exchange Park). The intention is to make the area around the Wangsa Maju Carbon Neutral Growth Centre more bicycle-friendly.



Figure 5.8.1: Anticipated bicycle and pedestrian lanes.

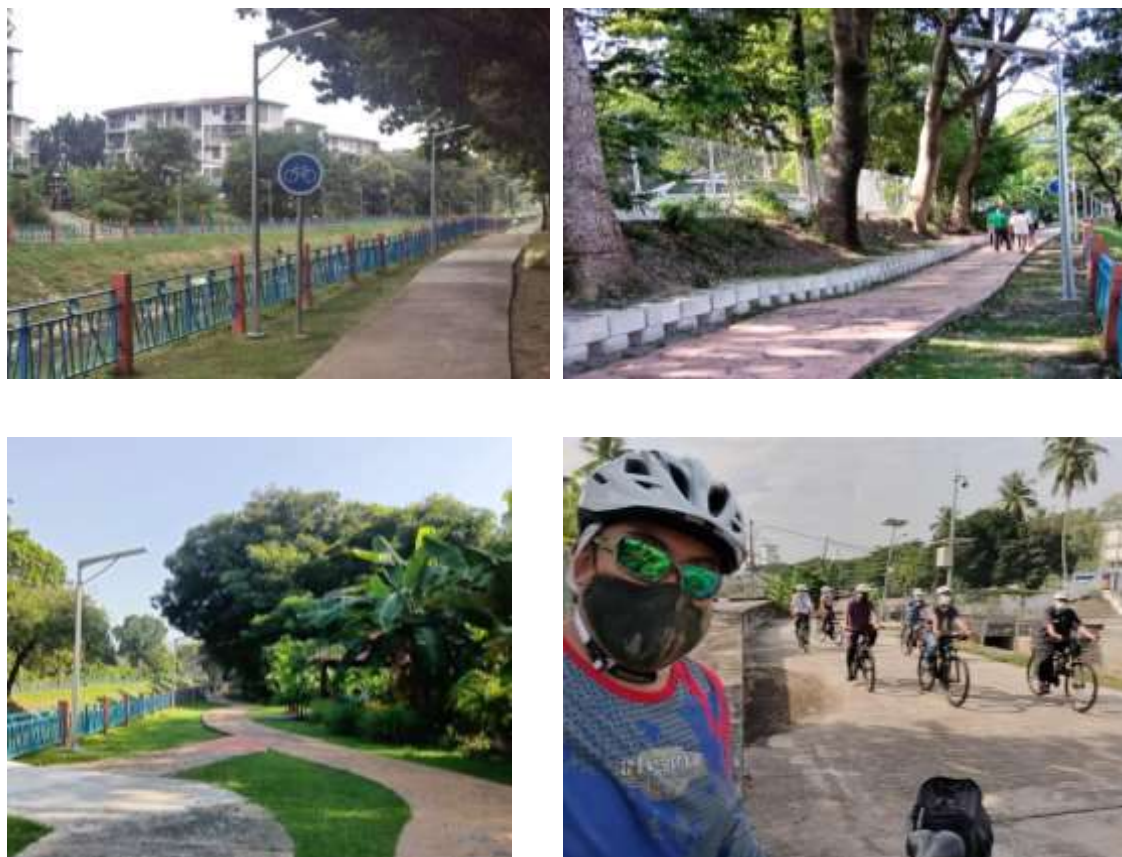


Figure 5.8.2 Bicycle and pedestrian lanes in Wansamaju

5.9 Promoting urban/community agriculture

KL City provides technical guidance and financial assistance to residents of public housing estates to grow food crops on vacant land in their estates and on green spaces along rivers. Farming not only fosters good neighbourly relations and community cohesion, but also helps to keep the neighbourhood environment green and clean. The activities also generate income for the local population and raise community awareness of climate change mitigation, local food security and sustainable consumption of food.



Figure 5.9.1 Urban/community agriculture

6 Mayor Shimizu of Saitama City's mission to KL City.

Purpose of mission

Mayor Shimizu of Saitama City travelled to meet KL Mayor Kamarulzaman shortly after Mayor Kamarulzaman took office and confirmed the continuation of city to city cooperation between the two cities. The accompanying delegation traveled to KL to support Mayor Shimizu's trip and to hold the annual 'High-Level Talks' seminar that introduces advanced case studies.

Date of mission

Aug 6th – 10th 2023 (5 days)

Members of the delegation

	Affiliation	Name and job title
1	Saitama City	Hayato Shimizu, Mayor of Saitama City
2	Saitama City	Koji Hamasaki, Deputy Executive Director, Future City Promotion Department City Strategy Headquarters
3	Saitama City	Osamu Kanda, Chief, Department of Futuristic City Promotion, City Strategy Headquarters
4	Saitama City	Masami Araki, Chief Officer, Secretarial Section
5	IGES	Junichi Fujino, Programme Director, Centre for Sustainability Integration
6	Takasago Construction Co.	Hlsanobu Ogawa Director, Head of Design Department
7	IGES	Ryoko Nakano, Research Manager, City Task Force
8	IGES	Michiko Inoue, Project Officer, Strategic Management Office

Details of implementation

- Bi-Meeting between Mayor Kamaruzaman of KL and Mayor Shimizu of Saitama
- Visit to TRX (Tun Razak Exchange), a mixed-use development zone in the International Financial Special Zone, and Wangsa Maju
- "High-Level Talks" seminar (about 200 participants).
- Courtesy call on Ambassador Takahashi, Embassy of Japan.
- Meeting with Mr Sawamura, President, Japanese Chamber of Commerce and Industry Malaysia
- Courtesy visit to JETRO Kuala Lumpur office

- Courtesy visit to JICA Malaysia office

Main results.

- A bilateral meeting between Mayor Kamarulzaman and Mayor Shimizu confirmed the cooperation between the KL and Saitama will continue.
- In the "High-Level Talks" seminar, the visiting Mayor of Saitama City, Hayato Shimizu, and the cities of KL and TMG presented their unique approaches to carbon neutrality. Ambassador Takahashi expressed hope that the three-city partnership will be a driving force for bilateral cooperation in 'decarbonisation'. The Director of JETRO Kuala Lumpur Office, Ms Onozawa, and the President of the Japanese Chamber of Commerce and Industry Malaysia, Mr Sawamura, also indicated that Malaysia is a promising market for decarbonisation technologies and products, and that interest in collaboration is growing in both Japan and Malaysia.
- The event was featured in JETRO's business brief.
<https://www.jetro.go.jp/biznews/2023/08/1421c4acb04dab2d.html>
- The meeting with Mr Sawamura, President of the Japanese Chamber of Commerce and Industry Malaysia, confirmed that Japanese companies have high expectations for a potential market for new decarbonisation technologies in Malaysia and that they are looking for a subsidy system that will ensure a steady transition rather than a rapid one.
- A courtesy call to the JETRO Kuala Lumpur office confirmed that Malaysia has shown interest in decarbonisation, but concrete measures have been postponed due to the change of government, and that the EV shift is behind Thailand and Indonesia, but the government considers it one of its priority industries.
- During a courtesy call on the Japanese Ambassador, Ambassador Takahashi stated that when Prime Minister Anwar visits Japan the collaboration between KL, Saitama City and TMG will be taken up as one of the best examples of the two countries.



Figure 6.1.1 Group photo of the "High-Level Talks" seminar



Figure 6.1.2 Bilateral meeting between the Mayor of Saitama and the Mayor of KL



Figure 6.1.3 TRX site visit



Figure 6.1.4 Dinner hosted by the Mayor of KL



Figure 6.1.5 Embassy of Japan in Malaysia



Figure 6.1.6 SDG centre site visit



Figure 6.1.7 Wansa Maju site



Figure 6.1.8 Courtesy visit to JICA Malaysia office



Figure 6.1.9 Courtesy visit to JETRO Kuala Lumpur office



Figure 6.1.10 MIGHT courtesy visit

7 International conferences, etc.

7.1 High-Level Talks (@ KL)

on City-to-City Collaborations towards Zero Carbon Kuala Lumpur



Figure 7.1.1 High-level seminar group photograph.

While various initiatives are being taken around the world to become carbon neutral, the Malaysian Government also announced the first phase of its Energy Transition Roadmap (NETR) (July 2023), which sets out a roadmap for decarbonisation by 2050. Around the same time, neighbouring Singapore announced its policy to promote innovation in the clean energy sector and develop professional human resources, and expectations are high for concrete measures to realise the roadmap to be announced by the Malaysian government in the future.

KL City has been aware of these national-level moves towards carbon neutrality, and has been taking its own initiative in dialogue with the Tokyo Metropolitan Government and Saitama City. At the plenary session, the visiting Mayor of Saitama City, Hayato Shimizu, as well as KL City and TMG presented their unique approaches towards carbon neutrality and expressed their intention to continue to work together. Ambassador Takahashi expressed hope that the three-city partnership will be a driving force for bilateral cooperation in the sectors associated with 'decarbonisation arena' during the plenary session.

According to Ms. Onozawa, head of JETRO's Kuala Lumpur office, and Sawamura, president of the Japanese Chamber of Commerce and Industry Malaysia, Malaysia is seen as a promising market for decarbonisation technologies and products, and interest in collaboration is growing both in Japan and Malaysia.

Conference outline

Dates and time	8 August 2023 10:30-12::30.
Venue.	Venue at Kuala Lumpur City Hall Building will be connected online
Co-Organisers	Kuala Lumpur (KL) City Universiti Teknologi Malaysia (UTM) Institute for Global Environmental Strategies
In Partnership with	Ministry of the Environment Bureau of Environment, Tokyo Metropolitan Government Saitama City Sustainable Energy Development Authority of Malaysia (SEDA) Japanese Chamber of Commerce and Industry of Malaysia (JACTIM)
Supported by	Embassy of Japan in Malaysia Japan External Trade Organisation (JETRO) Kuala Lumpur Office
Event page	https://www.iges.or.jp/jp/events/20230808

Results of implementation

(Number of participants) 258 in total

	Japan	Malaysia	Singapore	Other.	plan
Venue (people)	14	72			87
Online (people)	142	13	5	11	171

Summary of remarks

Note: The summary is the work of the secretariat

~ Opening remarks ~.

Nor-FAJARIAH-binti-Sulaiman, Director at the Town Planning Department

Acting as the proxy for Mayor Kamarulzaman, Ms. Fajariah thanked the City of Saitama and the Tokyo Metropolitan Government for their past cooperation. She stated Kuala Lumpur's target to become a smart and carbon neutral city by 2050. She also welcomed the continuation of their partnership together.

~Welcome greetings~.

Yutaka Matsuzawa, Vice-Minister for Global Environmental Affairs,, Ministry of the Environment (online).

Mr. Matsuzawa stressed the important role of cities in combating climate change. He

introduced two projects supported by the Ministry of Environment Japan: the 100 Leading Decarbonization Areas in Japan, and the City-to-City Collaboration Programme for Zero Carbon Society. The latter facilitates Japanese municipalities' collaboration with municipalities located outside Japan, and to which the City of KL and Iskandar Malaysia are participants. It serves as an important pillar for the Ministry's other program, the Clean Cities Partnership Programme (C2P2), which comprehensively addresses urban issues. He expressed hopes for good results from the sharing of knowledge between Saitama City, Tokyo Metropolitan Government and Kuala Lumpur City.

Yuriko Koike, Governor of Tokyo (video letter)

Governor Koike welcomed the rich cooperation between TMG and KL City from 2019 and the fact that both are aiming for carbon neutrality in 2050. She also stated her commitment to work together with Kuala Lumpur City Hall to achieve a decarbonized society, and with Saitama City, who joined last year.

They

Katsuhiko Takahashi, Ambassador of Japan to Malaysia

Ambassador Takahashi called on Kuala Lumpur City to actively utilise the decarbonization-related case studies presented by Saitama City Mayor Shimizu (in his keynote speech) and those of Tokyo. Last year, which was the 40th anniversary of the Look East Policy, 'decarbonization' was highlighted as one of the promising themes for bilateral cooperation. He expressed his hope that the three-city partnership would be a driving force for bilateral cooperation in sectors associated with 'decarbonization'.

-Session 1: Presentation from participating municipalities on initiatives towards carbon neutrality and the possibility of further collaboration in the future –

Keynote speech Hayato Shimizu, Mayor of Saitama City

Mayor Shimizu referred to the G7 communiqué which recognized the 'transformative power of cities' and stressed the role of cities was becoming even more important than ever. Several of Saitama City's best practices were introduced. The features of Saitama's 'smart home community', a group of high-performance houses that combine a complex of technological solutions, was described. Next, he presented a good practice for a circular economy, which uses the thermal energy of waste incinerators to power waste collection trucks. He then introduced Saitama's efforts to become a walkable city: a sharing service for electric bicycles and EVs that connects the last mile from the nearest

train station in the city to the home.

Junichi Fujino Institute for Global Environmental Strategies

Dr. Fujino thanked Mayor Shimizu for his enthusiastic keynote speech and introduced the other speakers.

YBhg. Dato Hamzah Bin Hussin, CEO, Sustainable Energy Development Authority Malaysia (SEDA)

Dato Hamzah stated that there had been many enquiries to SEDA since the release of the Malaysia Renewable Energy Roadmap. This indicates a high level of interest for renewable in Malaysia, he said. The Malaysian Government has stated that it will gradually increase the share of renewable energy in its energy mix. He also added that expectations for Malaysia's renewable energy market seem to have been heightened by the size of the RE market and the overview presented in IRENA's Malaysia Energy Transition Outlook (published in March this year).

Nik Mohammed Faizal Bin Nik Ali Chief Assistant Director, Projects and Building Maintenance Department, KL Municipality

Mr. Faizal highlighted KL City Hall and the Tokyo Metropolitan Government's achievement of being the joint recipient of the C40 Cities Bloomberg Philanthropies Awards for climate change action. He expressed hopes that the collaboration with Saitama City would allow KL City Hall to acquire new knowledge on microgrid related technology and skills for bonsai trees. He also highlighted how KL City Hall has taken the lead in implementing activities that lead to decarbonization at the Wangsa Maju Carbon Neutral Growth Centre, such as the installation of solar PV in public facilities, promoting and educating people about waste recycling activities, and the introduction of EV buses and car-free zones.

Toshiko Chiba, Climate Change Policy Specialist and Director, Climate Change and Energy Division, Bureau of Environment, Tokyo Metropolitan Government (online).

TMG's targets and actions towards decarbonization, as well as the collaboration with KL City to date, was shared by Ms. Chiba. She showed how the TMG had been diligently working towards the 2025 implementation of an ordinance requiring housebuilders and others supplying new housing to install solar PV on roofs and to improve thermal insulation. TMG committed to working with KL City and Saitama City to further decarbonize their respective cities

Hisanobu Ogawa Director, Head of Design Department, Takasago Construction Co.
Mr. Ogawa shared the advantages of the high airtightness and thermal insulation methods, as well as those of wooden building materials that are the hallmarks of Takasago Construction's products. First, he explained that by improving airtightness and insulation, people can live with less energy consumption. Next, he explained that the use of domestic wooden building materials reduces carbon dioxide emissions compared to transporting them from overseas, and that they also have the function of maintaining forests by planting trees at the same time as cutting them down.

~ Session 2: Trends in decarbonisation activities in Malaysia and ASEAN~.

Loon Wai Chau Senior Lecturer, Universiti Teknologi Malaysia Low Carbon Asia Research Centre Co Director

The framework for session 2 was explained by Mr. Chau. He indicated the speakers from JICA, JETRO and JACTIM would be speaking about their support measures and cooperation possibilities for carbon neutral-related projects in Malaysia and ASEAN.

Minako Sugawara Chief Representative of JICA Malaysia

Ms. Sugawara expressed JICA's appreciation to the University of Technology Malaysia who had been the key actors for developing the Low Carbon Society Blueprint for Iskandar Malaysia 2025 under the JICA-SATREPS project (implementation period 2011-2016). The blueprint now serves as a template for the Kuala Lumpur City's version and the low carbon scenarios for other Malaysian cities, she said. JICA will support the Ministry of Natural Resources, Environment and Climate Change (NRECC) in its efforts for the 'Climate Action and Support Transparency' in terms of human resource development, she explained.

Mai Onozawa, Managing Director of JETRO Kuala Lumpur

According to Ms. Onozawa, with the Malaysian Government announcing a number of roadmaps to achieve carbon neutrality by 2050, the country is seen as a promising market for decarbonization technologies and products, and interest in collaboration is growing in both Japan and Malaysia, leading to an increase in enquiries to JETRO. JETRO will provide support for individual matching and participation in business meetings in Japan.

Takero Sawamura, President, JACTIM (online)

As the collaboration between Kuala Lumpur City Hall, Saitama City and the Tokyo Metropolitan Government enters the implementation phase with the aim of introducing decarbonization technologies, JACTIM also expressed its intention to support the project by sharing information on the project with its member companies in the architecture and engineering sectors. He explained that E&E is a promising sector as an engine of growth in the country, as the Malaysian Government has released the National Energy Transition Roadmap (NETR) and Hydrogen Economy and Technology Roadmap (HETR).

Ryoko Nakano Research Manager, Institute for Global Environmental Strategies
Dr. Nakano thanked JICA, JETRO and JACTIM for sharing Malaysia's high commitment to carbon neutrality and for their strong willingness to cooperate.

~ Closing remarks ~.

Chin Siong HO Professor, Universiti Teknologi Malaysia Director, Low Carbon Asia Research Centre

Prof Ho thanked Kuala Lumpur Mayor and Kuala Lumpur officials for their work to date. Prof Ho indicated that the project would continue to support the collaboration by expanding the scope of their activities and work together with KL City, other Asian cities and additional partners to achieve a decarbonized society by 2050.

Kazuhiko Takeuchi, President, Institute for Global Environmental Strategies (IGES) (online)
Prof Takeuchi hailed the collaboration between KL, TMG and Saitama as a leading example in the world of delivering results for both climate change action and the SDGs. As the president of IGES, he pledged to continue to support the efforts of those who are raising ambition and promoting local climate action to achieve zero carbon emissions by 2050.

7.2 TIME TO ACT Forum 2023

Energy Decarbonisation - Towards the accelerated implementation of renewable energy in cities (organised by the TMG)

TMG has been leading the TIME TO ACT climate crisis action movement, which aims to accelerate effective action towards decarbonisation. The forum held this year invited the Mayor of KL, Kamarulzaman, who spoke at the panel discussion, as well as the representatives of UTM and the Chief executives of Malaysian local governments to the venue. TMG Deputy Governor Mr. Nakamura and KL Mayor Kamarulzaman held discussions with policy makers and researchers from the US, Europe and the Middle East. The parties agreed on the following.

- Accelerating the implementation of renewable energy is important from the perspective of both combating climate change and ensuring energy stability.
- Importance of the role of cities.

Outline of implementation

Dates and times.	19 October 2023 10:30-12:00.
Venue.	Hybrid event
Organizer	Tokyo Metropolitan Government
Supported by	ICLEI C40 Cities.
Speakers In order of appearance	• Mr. Michiharu Nakamura, Deputy Governor, Tokyo Metropolitan Government • Mr. Gino Van Begin, Secretary General, ICLEI – Local Governments for Sustainability • Mr. Francesco La Camera, Director-General, International Renewable Energy Agency (IRENA) • Dr. Ali Izadi Najafabadi, Head of Asia Pacific, BloombergNEF • Datuk Sr Haji Kamarulzaman bin Mat Salleh, Mayor of Kuala Lumpur • His Excellency Mr. Jean-Eric Paquet, Ambassador Extraordinary and Plenipotentiary of the European Union of Japan • Ms. Kahori Miyake, Co-chair, Japan Climate Leaders' Partnership (JCLP) Executive Manager, ESG Planning and Promotion Department, Sumitomo Mitsui Trust Bank, Limited • Mr. Mohammed Al-Dahlawi, Ministry of Investment of Saudi Arabia Representative for Japan, Saudi-Japan Vision 2030 Office

	Representative • Her Excellency Ambassador Nina Hachigian, U.S. Special Representative for City and State Diplomacy • His Excellency Mr. Shihab Ahmed Alfaheem, Ambassador Extraordinary and Plenipotentiary of the United Arab Emirates • Mr. Togo Uchida, Executive Director, ICLEI - Local Governments for Sustainability, Japan Office (moderator)
Event page	https://www.kankyo.metro.tokyo.lg.jp/policy_others/international/time-to-act/



Figure 7.2.1 Group photo of speakers, with Deputy Governor Nakamura of TMG and Mayor Kamarulzaman of KL in the centre.



Fig. 7.2.2 TMG Deputy Governor Nakamura, KL Mayor Kamarulzaman and KL City at the reception.

7.3 High-Level Talks (@IGES Tokyo Office)

Towards Smart, Zero Carbon and Climate-Resilient Cities in Malaysia and Japan'



Figure 7.3.1 High-level talks group photograph.

Summary of the event

The mayors of Malaysia's major cities gathered at the IGES Tokyo Sustainability Forum in Tokyo to share the latest news on climate sustainability. They described their initiatives to realise smart, zero-carbon, and climate-resilient cities, and whether they saw any possibilities to collaborate with the key stakeholders in this space. In the session, TMG introduced an initiative to promote decarbonisation and energy security in an integrated manner, and Saitama City introduced a case study of urban development in the Misono District. In addition, Takasago Construction shared a pioneering case of circular wood utilisation as an exemplary initiative in the private sector.

Outline of implementation

Dates and time.	19 October 2023, 13:30-17:00.
Venue.	Online connection to the IGES Tokyo Satellite Office venue
Co-organizers	Kuala Lumpur (KL) City Universiti Teknologi Malaysia (UTM) Institute for Global Environmental Strategies
In cooperation with	Ministry of the Environment Tokyo Metropolitan Government, Bureau of Environment, Saitama City Sustainable Energy Development Authority of Malaysia (SEDA)

	Japanese Chamber of Commerce and Industry of Malaysia (JACTIM)
Supported by	Embassy of Japan in Malaysia Japan External Trade Organisation (JETRO) Kuala Lumpur Office

Results of event

(Number of participants) 36 in total

	Japan	Malaysia	plan
Venue (people)	14	18	32
Online (people)	2	2	4

Summary of remarks

Note: The summary is the work of the secretariat

Main messages.

- The importance of the role of local authorities in achieving decarbonisation targets and implementing the roadmap was highlighted. Municipalities have contacts with local economic actors and other stakeholders and can contribute significantly to the realisation of decarbonisation targets. In doing so, it is also important for mayors to show leadership and vision. It is also important to have close cooperation between national and local levels, such as in the case of Takasago Construction, which uses central government guidelines to show its decarbonization efforts.
- All of the city participants are building a circular economy and developing green infrastructure, even though they have different economic activities and geographical characteristics. The urgent need to reduce plastic waste and the importance of combining innovative technologies to create a low-carbon society was emphasized..
- The joint research and demonstration project proposed by Takasago Construction with Universiti Teknologi Malaysia (demonstration research on highly airtight housing using Malaysian timber) is a good example of this.
- The Malaysian Government has published their National Energy Transition Roadmap (NETR), which sets out a path towards decarbonisation by 2050. Japanese companies in Malaysia should also contribute to the realisation of a decarbonised society while working together with local authorities towards sustainable economic growth in Malaysia.

- Malaysia will continue to learn about Japanese decarbonisation technologies and research, but would like to contribute as a bridge between Japan and ASEAN countries, which are developed countries.
- JICA has just launched a specific project with the Malaysian central government and the future is promising.

Summary of each speaker's presentation

~ Opening remarks~.

Kazuhiko Takeuchi, President, Institute for Global Environmental Strategies (IGES)

Prof Takeuchi thanked the Malaysian and Japanese participants and expressed his intention to present the results of the discussions at this meeting at COP 28.

Yoshihiro Mizutani, Director for International Cooperation for Transition to Decarbonization and Sustainable Infrastructure, Global Environment Bureau MOE (online)

Mr. Mizutani stated the MOE considers the cooperation between central government and local authorities to be crucial in achieving Japan's decarbonisation targets and implementing the roadmap. For this reason, the MOE supports a number of local authorities in Japan through the Support for Decarbonisation Leading Regions project and abroad through the City-to-City Partnerships project, which is also scheduled for a session at COP28.

Junichi Fujino, Programme Director, Centre for Sustainability Integration, IGES

Dr Junichi Fujino, served as moderator of this meeting is also a member and acting chair of the "Decarbonisation Leading Regions" project. He conveyed the presentation materials of the speakers at this meeting will be posted on the IGES website and a summary of the discussions will be shared at COP28.

Chin Siong HO, Professor, Universiti Teknologi Malaysia, Co-Director for UTM Low Carbon Asia Research Centre

Moderator of this meeting, Prof Ho stated that like Japan, the Malaysian state is building momentum to seriously tackle the transition to a decarbonised society. The cities of KL, North Kuching, Penang and Petaling Jaya, which are participants are leading the momentum in Malaysia.

~Mayor's Talk~.

Datuk Sr. Haji Kamarulzaman Bin Mat Salleh, Mayor, Kuala Lumpur City Hall

Mayor Kamarulzaman presented Kuala Lumpur's strategy to grow as a zero carbon, smart and resilient city in the Kuala Lumpur Climate Action Plan 2050, which emphasizes partnerships with other cities, including TMG and Saitama, to achieve this. new measures and activities were introduced, such as the upcoming environmental exchange between children from Tokyo and KL City. In addition, the KL City, together with institutions and companies from the UK and Germany, is considering retrofit projects for city-owned buildings and the introduction of a district cooling system using the river.

Haji Hilmy Bin Haji Othman, Mayor, Kuching North City Hall

North Kuching is the capital of the state of Sulawak on the island of Borneo and close to Indonesia's new capital, Nusantara. The city has developed a CBS (Clean, Beautiful, Safe Smart Sustainable) plan that follows Sulawak's strategy of becoming a clean energy hub and aims to build a sustainable society. The city is the only city in Malaysia with FCVs driving in the city and is preparing for the introduction of a hydrogen-powered light rail system in 2025. The city will continue to focus on green mobility, including smart traffic control systems and car-free days.

Dato' Ir. Rajendran P. Anthony, Mayor, Penang Island City Council

Penang City is known as an industrial zone with a high concentration of multinational companies. On the other hand, it is also committed to realising a low-carbon society and has formulated the Penang Green Agenda 2030. In realising climate sustainability, a number of activities have been implemented to conserve forests, trial disaster prevention and mitigation through digital twinning, promote smart mobility and realise a circular economy.

Prof Kazuhiko Takeuchi, President, Institute for Global Environmental Strategies

Although the presentations were from cities with different economic activities and geographical characteristics, it was striking that they all addressed the establishment of a circular economy and green infrastructure. Prof Takeuchi emphasized the urgent need to reduce plastic waste and the importance of combining innovative technologies to create a low-carbon society.

Lee Lih Shyan, Director, Development Planning, Petaling Jaya City Council

Petaling Jaya, a satellite city of KL, has developed the Petaling Jaya Climate Action Plan 2030. The city has introduced a number of building-related measures. It requires buildings with a total floor area of 5,000 m² or more to install rainwater harvesting systems. The city was also awarded the ASEAN ENERGY AWARDS 2022 for its project to produce biogas from biomass.

~Solutions~.

Toshiko Chiba, Climate Change Specialist and Director, Climate Change Division, Bureau of Environment Tokyo Metropolitan Government

TMG introduced two building-related low-carbon schemes in Tokyo, to work towards virtually zero CO₂ emissions by 2050. The first is an obligation to reduce total CO₂ emissions and an emissions trading system for large-scale office buildings. At the time of introduction, the system was unprecedented in the world as an urban cap-and-trade system and efforts will be made to continuously strengthen the system. The second is an ordinance obliging housebuilders and others supplying new houses to install solar PV on the roof and to improve thermal insulation. The ordinance was approved at the city council last year and the metropolitan government aims to implement it in 2025.

Osamu Kanda, Supervisor, Department of Futuristic City Promotion, Urban Strategy Division, Saitama City

Saitama City's 'Smart Home Community' model is a local grid combining solar power generation with storage batteries in a district consisting of 51 detached houses. Solar panels were installed on all 51 detached houses, and the electricity generated was supplied to the community. Surplus power in the community is stored in storage batteries and two electric vehicles in the recharging area. The homeowners can use the electricity generated and stored in the power network dedicated to the 51 homes in the event of a grid failure.

Hironobu Ogawa, Director, Design Department Manager, Takasago Construction Co.

Takasago Construction, together with Universiti Teknologi Malaysia, has high hopes for the implementation of a demonstration project for decarbonised, airtight housing using Malaysian timber.

Takasago Construction, together with Universiti Teknologi Malaysia, has high hopes for implementing a demonstration project for decarbonised highly airtight housing using Malaysian timber. The company believes that the technology it uses, which combines external insulation and ventilation with a dehumidifying ventilation system, is a

constructive way to prevent condensation and mould in Malaysia's hot and humid climate. In addition, concerns about earthquake and fire resistance, which are often expressed in relation to timber construction, have been addressed by obtaining certification from the Japanese public authorities. Furthermore, the project is also suitable for decarbonisation projects, as it uses local timber and is involved in forestation in accordance with the guidelines set out by the central government of Japan, and is practising 'visualisation' of CO2 absorption and fixation.

Kazuhiko Takemoto, President, OECC

Dr. Takemoto stressed the importance of the role of local authorities in decarbonisation. Municipalities can contribute to the realisation of national decarbonisation targets as they often interact with local economic actors and other stakeholders. In doing so, it is also important for mayors to show leadership and vision. It is also important to have close cooperation between national and local levels, such as in the case of Takasago Construction, which uses central government guidelines to proceed.

Takero Sawamura, President, JACTIM (online)

The Malaysian Government has published the National Energy Transition Roadmap (NETR), which sets out a path towards decarbonisation by 2050. The willingness of the three Malaysian mayors who spoke at this meeting to decarbonise the country, and the support for Malaysia from the MOE, TMG, Saitama City and Takasago Construction are commendable. JACTIM member companies will work with their local governments to help Malaysia achieve sustainable economic growth while contributing to the realisation of a decarbonised society.

Koji Mitomori, Director, Office for Sustainability Management (Climate Change, Nature), JICA

The main objectives of climate change-related support projects are to 'facilitate the implementation of the Paris Agreement' and 'implement mitigation and adaptation measures using the concept of co-benefits' JICA has just launched a specific project with the Malaysian central government and the future is promising.

LOON WAI CHAU. senior lecturer of Urban Design, Universiti Teknologi Malaysia, Co-Director for UTM Low Carbon Asia Research Centre

Mr. Chau thanked the MOE, JICA and JST for their past support, the information sharing between TMG and Saitama City, and the new links between JACTIM and JETRO. While continuing to learn about Japanese decarbonisation technologies and research, he stated UTM would like to contribute on behalf of Malaysia as a bridge between Japan, a developed country, and ASEAN countries.

~ Closing remarks ~.

Yasuo Takahashi, Executive Director, IGES

Mr. Takahashi thanked the speakers and expressed his hopes for the transition to a decarbonised society in Malaysia, Japan and other Asian countries. He heard that some of today's participants will be attending the Ministry of Environment's City-to-City Partnerships Project session at COP28, and conveyed to them the hopes to meet in Dubai.

7.4 Children's International Conference on the Environment 2023

By TMG and KL City

Event outline

Date and time	18 November 2023.
Venue.	Online event
Co-organizer	Tokyo Metropolitan Government Bureau of Environment Kuala Lumpur (KL) City
In cooperation with	Institute for Global Environmental Strategies Mindshare Inc.
Activities	An event for children under the theme climate change action and SDGs initiatives. The participants were members to TMG's environmental awareness program "Director of Our Home for the Environment" and primary school children from KL City. . Ten primary school students from each city participated.
Activity results	The children were able to share the environmentally friendly initiatives (especially energy saving and renewable energy) and experiences they take on a daily basis at home, while also having the opportunity to share their culture to each other.



Figure 7.4.1 Primary school children in Tokyo (left)



Primary school children in KL (right).

7.5 KL study tour for Tokyo's high school students

Event outline

Date and time	Dec 2023.
Venue.	KL City
Co-organizer	Tokyo Metropolitan Government Bureau of Environment, High schools in Tokyo. Kuala Lumpur City, High schools in Kuala Lumpur
Activities	Presentation exchange between 20 high school students from Tokyo and high school students from KL on the theme of the environment and life cycle.
Activity results	In addition to presentations and joint research activities, the grass-roots exchange between high school students, including cultural exchanges and lunch meetings, provided an opportunity to enhance common understanding between the two countries.



Figure 7.5.1 High school students in Tokyo and KL

8 Invitation of KL officials to Zero Carbon City International Forum 2023

Two KL officials visited Japan to participate in the Zero Carbon City International Forum 2023 and related events held on 26 and 27 February 2024. On that occasion, Saitama City and KL City met to exchange views on the content of cooperation in the next year.

Saitama City offered site visits to the following.

- A tour of the smart home community in Misono district.
- A tour of the model house of Takasago Construction,
- A tour of the demonstration sites for 'shared multi-mobility' services for micro EVs and electrically power assisted bicycles.



Figure 8.1.1 At the Zero Carbon City International Forum 2023



Figure 8.1.2 Misono District Smart Home Community



Figure 8.1.3 Model house of Takasago Construction



Figure 8.1.4 Multi-mobility sharing in Saitama City

9 Annual list of activities

- 31 July Kick-off meeting
- 6 Aug Meeting with the President of JACTIM
- 7 Aug Mayor Shimizu of Saitama City visits KL city
- 8 Aug Mayor Kamarulzaman of KL and Mayor Shimizu of Saitama's bilateral meeting
- 8 Aug High Level Talks (@KL).
- 8 Aug Mayor Shimizu of Saitama's courtesy call to Ambassador Takahashi.
- 9 Aug Meeting with JETRO Kuala Lumpur office
- 9 Aug Meeting with JICA Malaysia office
- 9 Aug Meeting with Malaysian Industry Government Group for High Technology (MIGHT)
- 29 Aug Information sharing workshop (low-carbon buildings, online)
- 4 Sept Information sharing workshop (low carbon mobility, NbS, online)
- 19 Oct Mayor Kamarulzaman of KL visits Japan and speaks at 'TIME TO ACT 2023' organized by TMG.
- 19 Oct Mayor Kamarulzaman of KL speaks at 'High Level Talks (@IGES Tokyo Office)'
- 20 Oct Mayor Kamarulzaman of KL and three Malaysian mayors together with their delegation visit perovskite solar cell demonstration tests at TMG-owned facilities and the Azabudai Hills decarbonisation zone (Tokyo).
- 22 Oct Mayor Kamarulzaman of KL and three Malaysian mayors visit decarbonized district 'Smart Home Community in Misono District' (Saitama City), model house of Takasago Construction and Minuma rice fields.
- 18 Nov International Conference on Children's Environment 2023 by TMG and KL City
- Dec KL study tour by Tokyo high school students
- 22 Feb Meeting with the Ministry of Natural Resources, Energy and Climate Change, Malaysia
- 22 Feb Saitama City official pays a courtesy call to the Mayor of Mayor Kamarulzaman.
- 23 Feb UTM Director of Architecture and Takasago Construction agree in principle to pursue joint research.
- 23 Feb Meeting with the Director of the Johor Sustainability Centre
- 26 Feb KL officials participate in Zero Carbon City International Forum 2023
- 27 Feb KL officials visit the decarbonised district 'Smart Home Community in Misono District' (Saitama City), Takasago Construction model house and Saitama City's public park.
- 28 Feb Saitama City and KL City bilateral meeting

References



Mayor of Saitama City, Japan
SHIMIZU Hayato

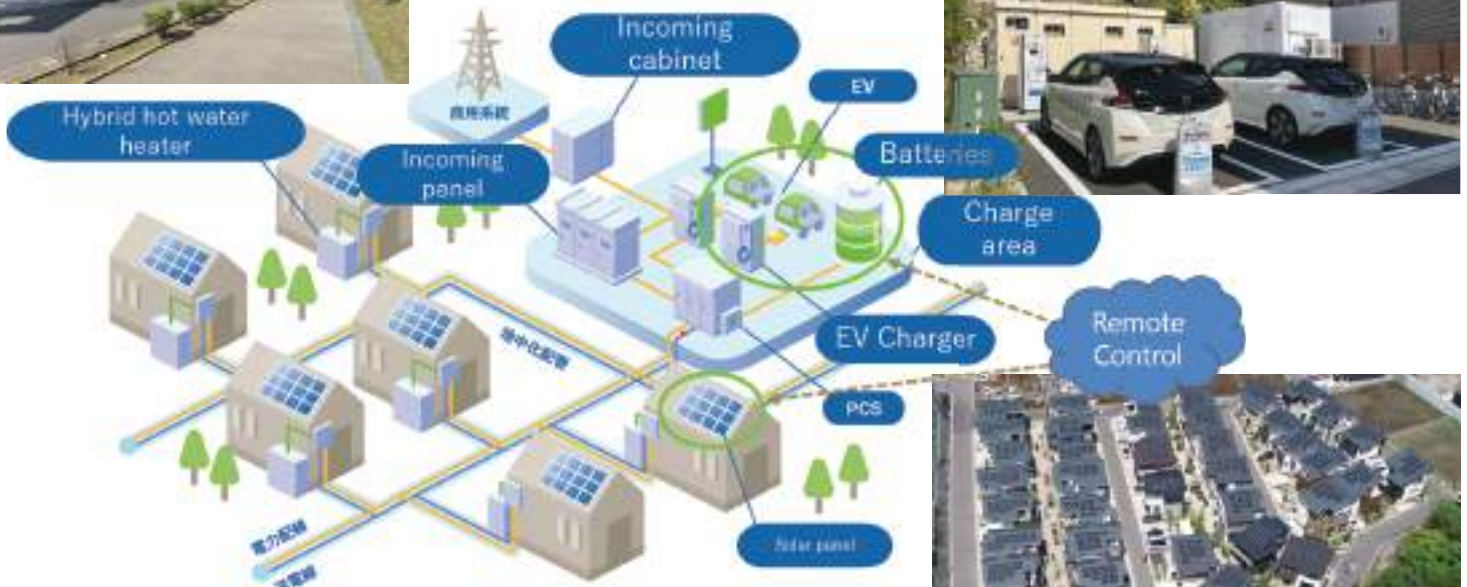


About Saitama City





Smart Home Community Resilience with Local Grids



Sustainable Wooden Architecture Highly Airtight and Insulated Houses

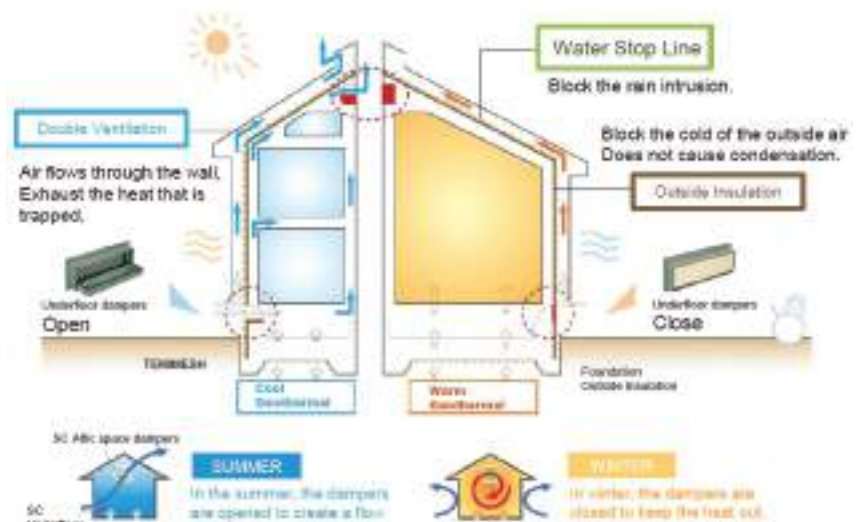


image provided: Takasago construction co, ltd

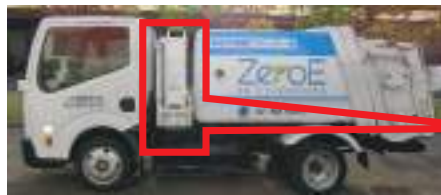
Overview of Battery Exchangeable Electric Garbage Truck and Battery Exchange Station



Battery replacement time

1m

battery exchange station



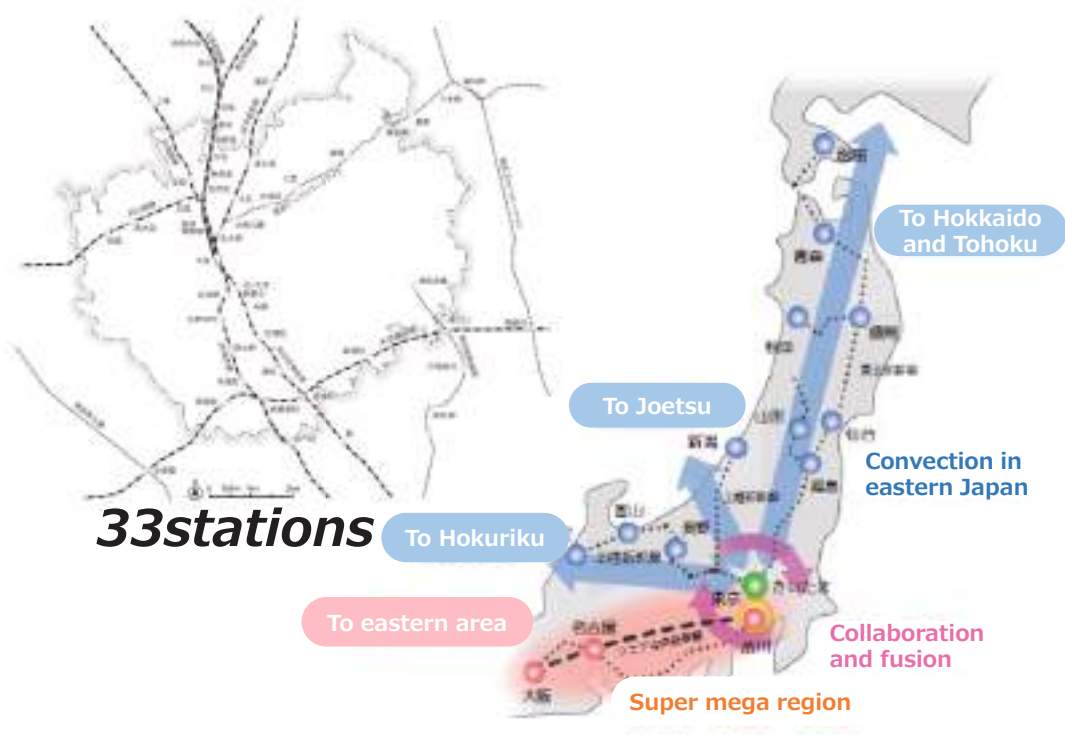
Removable battery pack



Battery exchangeable electric garbage truck

image provided: JFE Engineering Corporation 5

Enhancement of public transportation



Super express



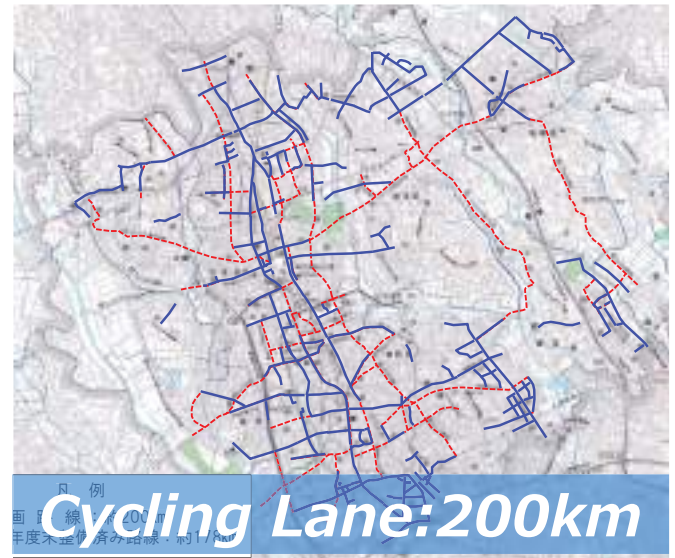
Popularization of Sharing Vehicle Improvement of Cycling Lane



400 Sharing Vehicle Station



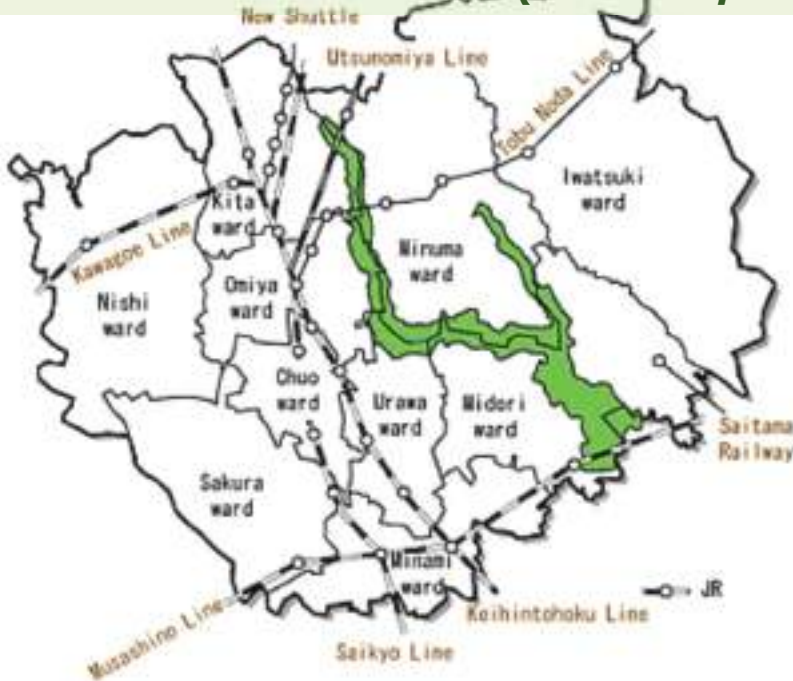
Copyright © OpenStreet Co., Ltd. all rights reserved.



Redevelopment in front of the station Walkable City



Nature Positive Minuma-Tambo (Green Space)



**INITIATIVES BY
SUSTAINABLE ENERGY DEVELOPMENT AUTHORITY
(SEDA) MALAYSIA**

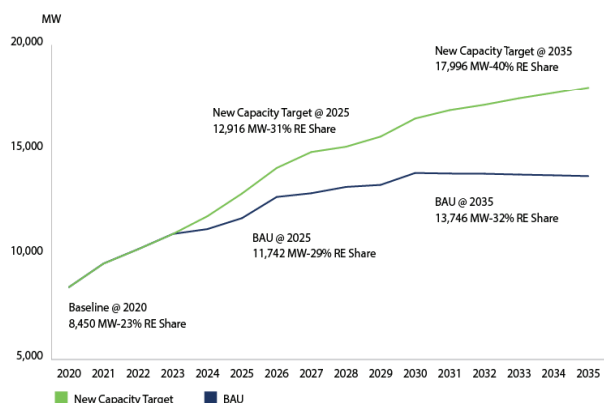
8th AUGUST 2023



SEDA Malaysia was established on 1st September 2011 in accordance with **SEDA Act 2011 [Act 726]**.

A statutory body under **Ministry of Natural Resources, Environment and Climate Change**.

Malaysia RE Roadmap (MyRER)



RE CAPACITY MIX TARGET IN 2025



RE CAPACITY MIX TARGET IN 2035

RE Programmes by SEDA Malaysia



EE Programmes by SEDA Malaysia



RETROFITTING OF GOVERNMENT BUILDINGS



TRAINING – CAPACITY BUILDING ON SUSTAINABLE ENERGY

Bil.	Module	Training Provider
1.	Grid-Connected PV Systems Design Course	✓ Universiti Teknologi MARA (UiTM) ✓ Selangor Human Resource Development Centre (SHRDC)
2.	Off-Grid PV Systems Design Course	✓ Universiti Teknologi MARA (UiTM) ✓ Pusat Latihan Proaktif (PLP) Sarawak
3.	Grid Connected Solar PV for Wireman & Chargeman.	✓ Universiti Kuala Lumpur British Malaysian Institute (UniKL BMI) ✓ Universiti Teknikal Malaysia Melaka (UTeM) ✓ Akademi Binaan Malaysia (ABM) Wilayah Utara ✓ Kolej Kemahiran Tinggi MARA (KKTM) Pasir Mas ✓ Institut Kemahiran MARA (IKM) Kota Kinabalu
4.	Installation & Maintenance of the Grid Connected Solar PV	✓ SHRDC ✓ ABM Wilayah Utara ✓ Kedah Industrial Skills and Management Development Centre (KISMEC) ✓ Terengganu Skills and Development Centre (TESDEC) ✓ German Malaysian Institute (GMI)
5.	Operation and Maintenance of Biogas Power Plant	✓ Universiti Tenaga Nasional (UNITEN)
6.	Energy Efficient Management in AC & Mechanical Ventilation System (ACMV)	✓ ASHRAE Malaysia Chapter (MASHRAE)

6

THANK YOU



Sustainable Energy Development Authority (SEDA) Malaysia
 Galeria PJH, Aras 9, Jalan P4W, Persiaran Perdana
 Presint 4, 62100 Putrajaya, Malaysia.

T • +603 8870 5800
 F • +603 8870 5900
www.seda.gov.my

Sabah Branch:
 Likas Square Commercial Centre,
 Unit 32, Level 1, Lorong Likas Square,
 Jalan Istiadat Likas, 88400 Kota Kinabalu, Sabah.

T • +6088 252 101/251 462
 F • +6088 257 337
 GPS Coordinate:
 5°59'32.8"N 116°06'31.0"E

@SEDMalaysia
 SustainableEnergyDevelopmentAuthority-SEDMalaysia

7

HIGH LEVEL TALKS ON CITY-TO-CITY COLLABORATIONS TOWARDS ZERO CARBON KUALA LUMPUR : Initiatives Towards Carbon Neutrality And Possibilities For Further Collaboration In The Future

NIK MOHAMMED FAIZAL BIN NIK ALI

Architect

Department of Project Implementation and Building Maintenance, Kuala Lumpur City Hall



HIGH LEVEL TALKS ON CITY-TO-CITY COLLABORATIONS TOWARDS ZERO CARBON KUALA LUMPUR :
Initiatives Towards Carbon Neutrality And Possibilities For Further Collaboration In The Future



KUALA LUMPUR LOCATION



Kuala Lumpur today is Malaysia's engine of growth, leading the country's economic productivity, driving sociocultural trends and shaping the nation's future.

Road to Carbon Neutral: Kuala Lumpur Low Carbon Society 2030 to Carbon Neutral City 2050

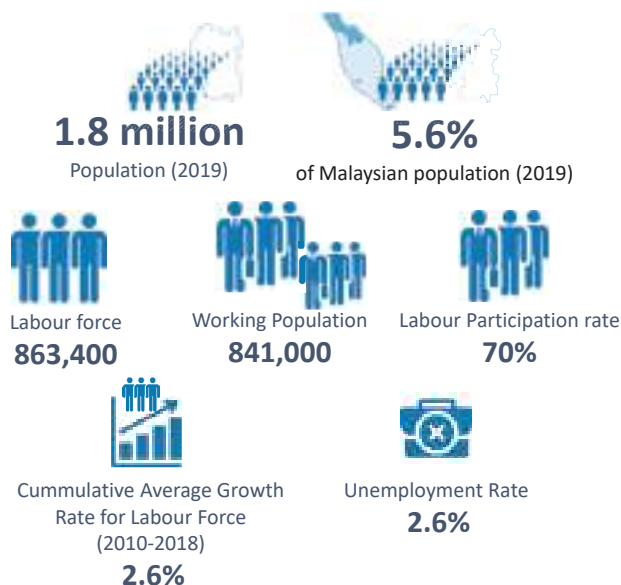
KUALA LUMPUR LOCATION



OLD KUALA LUMPUR



KUALA LUMPUR TODAY



*Source: Draft of PSKL 2040

Multinational Companies (MNCs)

62 MNCs based in Kuala Lumpur as of 2019

4,367 MNC skilled workers in 2019

100 MNCs in KL by 2040

Tourist Destination

13.78mil International visitors in Kuala Lumpur in 2019

6th most visited destination in the world in 2019

Global Employment Hub

119 Financial institution in Kuala Lumpur including Insurance, Takaful, Islamic Financing etc.

104 Embassies and High Commissioners offices in Kuala Lumpur

27 International organisations based in Kuala Lumpur

Global Positioning

2nd Most Developed Islamic Finance Market in 2019

12th Ease of Doing Business Globally in 2020

*Source: Draft of PSKL 2040

MASTER PLANS



SUSTAINABLE DEVELOPMENT GOALS (SDGs)



Raise public awareness of our commitment to our sustainability agenda

PARTNERS & COLLABORATORS

NATIONAL



INTERNATIONAL



UN-HABITAT SCROLL OF HONOUR AWARD & C40 CITIES BLOOMBERG PHILANTHROPIES AWARDS[TOKYO-KUALA LUMPUR]

WUP LEGACY PROJECTS

UN-HABITAT SCROLL OF HONOUR AWARD
 Walk the Gap - Leave No One and Place Behind



2022

UN-HABITAT
 City of the Future



SAITAMA-CITY

Saitama Sustainable Cities Summit
 ~E-KIZUNA Global Summit~



C40 CFF GIZ INITIATIVES



EE & SOLAR PV KUALA LUMPUR CITY HALL



Pasar Harian Selayang



KERAMAT MALL



AEON SOLAR PV

AEON Wangsa Maju has installed solar panels on their rooftops and parking areas, provided recycling centres in the mall as well as a dedicated section for the public to learn more about sustainability.



AEON-Wangsa Maju



Kuala Lumpur has reduced emissions from this effort by 91,699 tonnes of CO₂ which is equivalent to 5558 matured trees.

VISIBILITY IS KEY

PRIVATE SECTOR-SOLAR PV EFFORTS



KL CITY HALL-LOW CARBON INITIATIVES (Renewable Energy)



PV Street Lights-Sungai Bonus



Pasar Keramat-KLCH

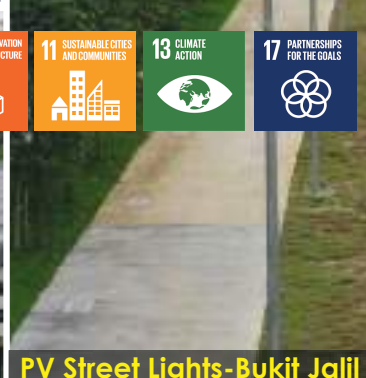
Kuala Lumpur City Hall has reduced emissions from this effort by 32 kilo tonnes of CO₂ which is equivalent to 1960 matured trees.



RE: Vertical Axis Turbine-Zero Energy Kiosk



Pasar Harian Selayang-KLCH



PV Street Lights-Bukit Jalil



PLANTING MORE TREES



From 2010 until 2022, Kuala Lumpur has planted a total of 170,351 mature trees and it can absorb carbon in the city as much as 2,810,792 tonne CO₂.



Pocket Park



1 COMMUNITY 1 RECYCLE PROGRAMME



In 2021, Kuala Lumpur has reduced carbon emissions by 47.29 kilo tonnes of CO₂, the difference with 2014. The difference is equivalent to the planting of 2866 trees



EV BUS : FIRST-MILE LAST-MILE CONNECTIVITY



GoKL City Bus free bus service to go fully electric by early 2023, using 60 Malaysian-made SKS EV buses

Hybrid, EVs and Alternative Fuel, Local News, Public Transport | by Anthony Din | 18 October 2022 8:42 pm | 0 comments

Since the use of EV GOKL Buses in 2022, Kuala Lumpur has reduced as much as 593 tonnes CO₂ which is equivalent to 36 matured trees.



ELECTRIC TRAIN : FIRST-MILE LAST-MILE CONNECTIVITY



The Electric Train Transportation System has successfully enabled the transportation sector to contribute to the reduction of Kuala Lumpur City's carbon emissions by 47,341 tonne Co2 in 2022. This value is equivalent to carbon absorption by 2869 trees.

PEDESTRIAN AND CYCLING NETWORK



CAR FREE AREA

This Car Free Area is fully pedestrianised with street artists, buskers, entertainers, cultural performances and food carts.



WANGSA MAJU CARBON NEUTRAL GROWTH CENTRE



Wangsa Maju Carbon Neutral Growth Centre will set the stage for a greener and more sustainable and liveable Kuala Lumpur

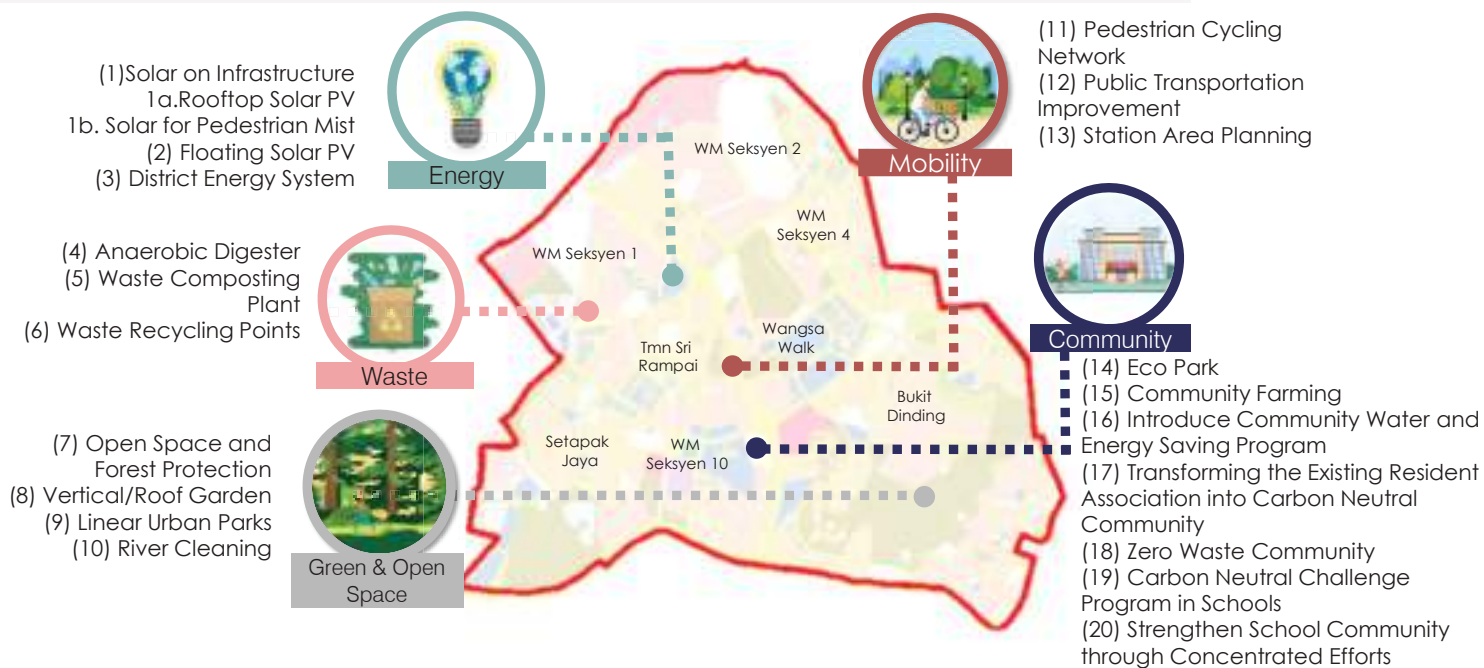
Percentage of Land Use in Wangsa Maju CNGC



Population in Wangsa Maju CNGC



CARBON NEUTRALITY OPPORTUNITIES IN WANGSA MAJU GROWTH CENTRE



CONCLUSION





Arigatou gozaimasu
ありがとうございます
Thank You!
Terima Kasih!



8 August 2023, 10:30-12:00 (MYT), 11:30-13:00 (JST)

High Level Talks on Collaborations towards Zero Carbon Kuala Lumpur

Tokyo Initiatives for Achieving Zero Emission

-Fast Forward to
"Carbon Half" by 2030

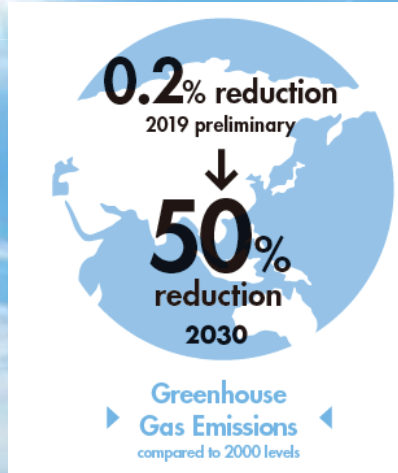


Toshiko CHIBA
Bureau of Environment
Tokyo Metropolitan Government

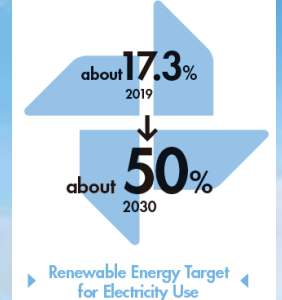
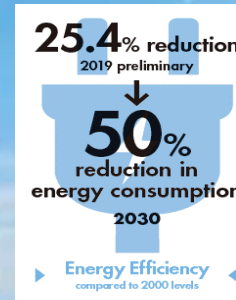
Tokyo



Yuriko Koike,
Governor of Tokyo



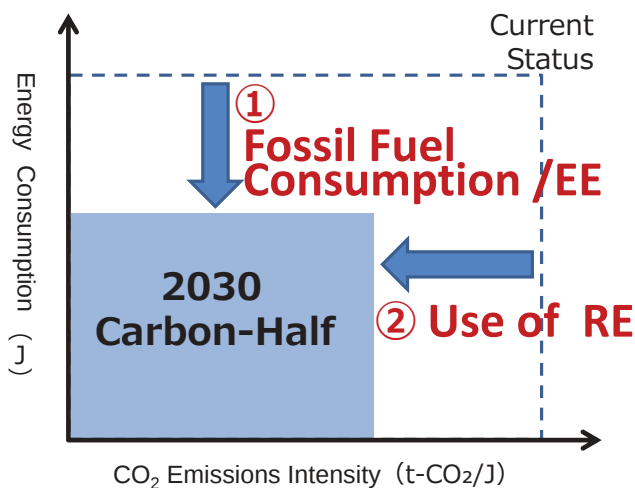
2030 GOALS



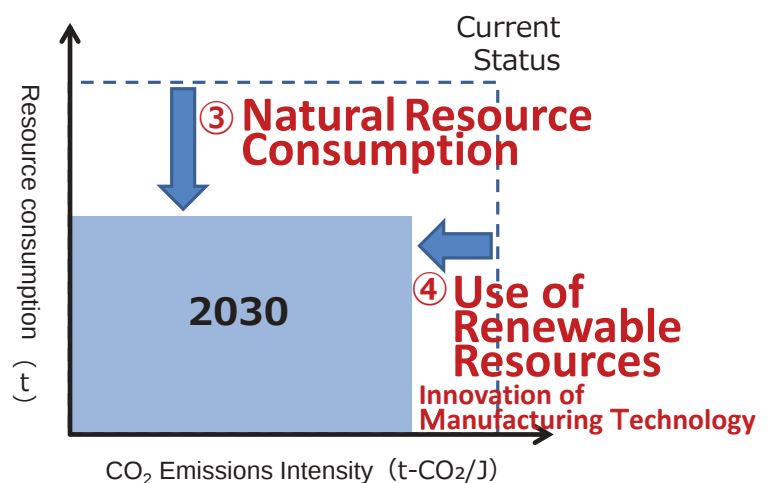
Basic Concept of "2030 Carbon-Half"

- ✓ Now until 2030 : Crucial period for establishing the building blocks needed to achieve significant reductions from 2030 to 2050

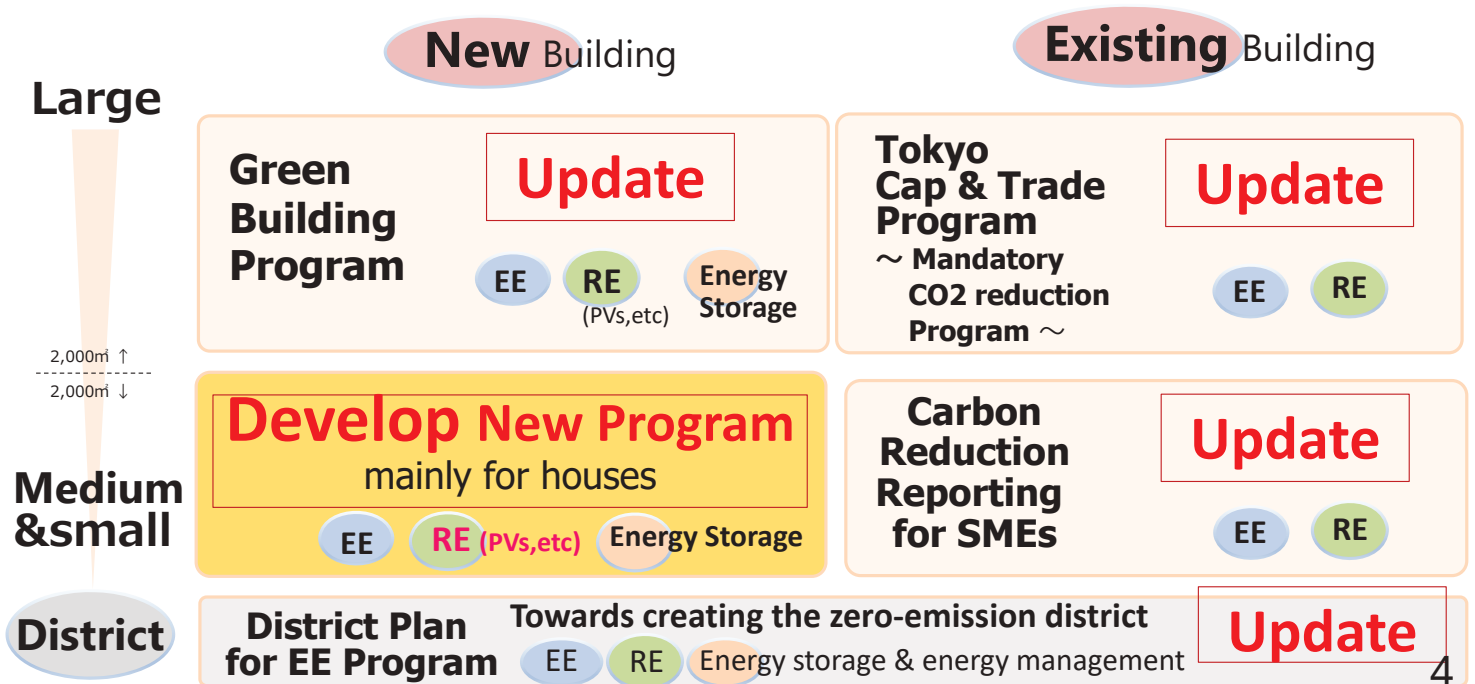
Reduce GHG emissions in Tokyo



Contribute to reducing GHG emissions in other regions



Direction of Strengthening Each Programs on Buildings by Tokyo Ordinance



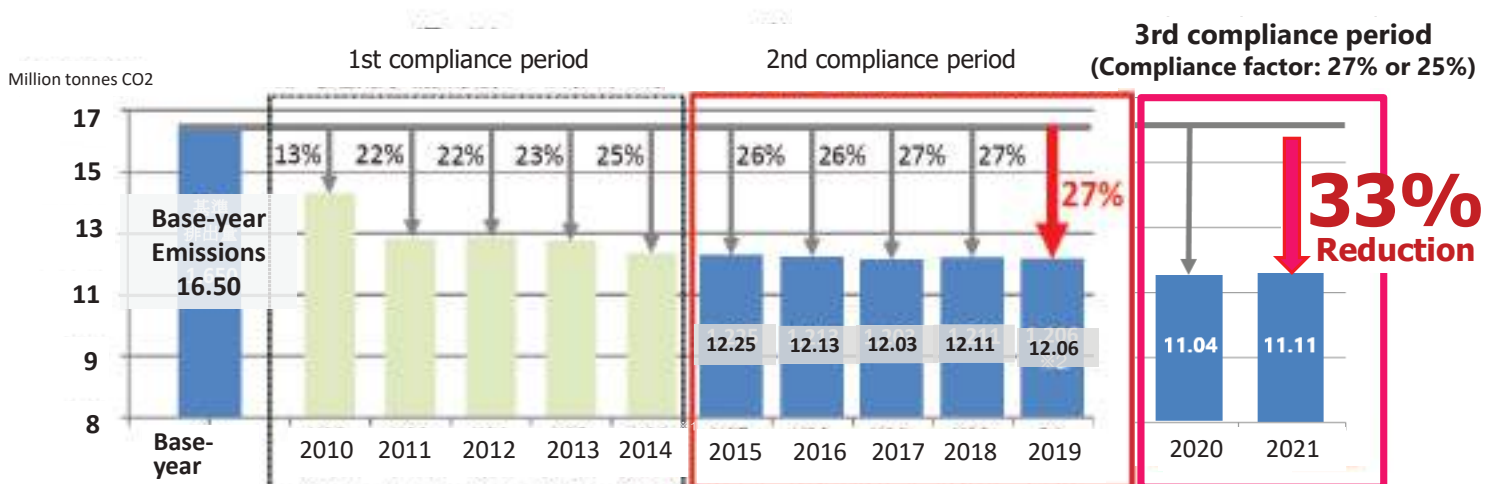
4

Tokyo Cap-and-Trade Program

Existing Building

- Mandatory CO2 reduction program for Large-sized Existing Buildings

*Launched in 2010 by Tokyo ordinance



Tokyo Cap-and-Trade Program

Existing Building

Implementation and Planning of Measures

Top 3 Planned Measures



Measures	Estimated reduction (tonnes)
Installation of high-efficiency lighting and energy saving control	177,390
Installation of high-efficiency heat source equipment	152,858
Installation of high-efficiency air conditioning equipment	38,651

TOKYO METROPOLITAN GOVERNMENT

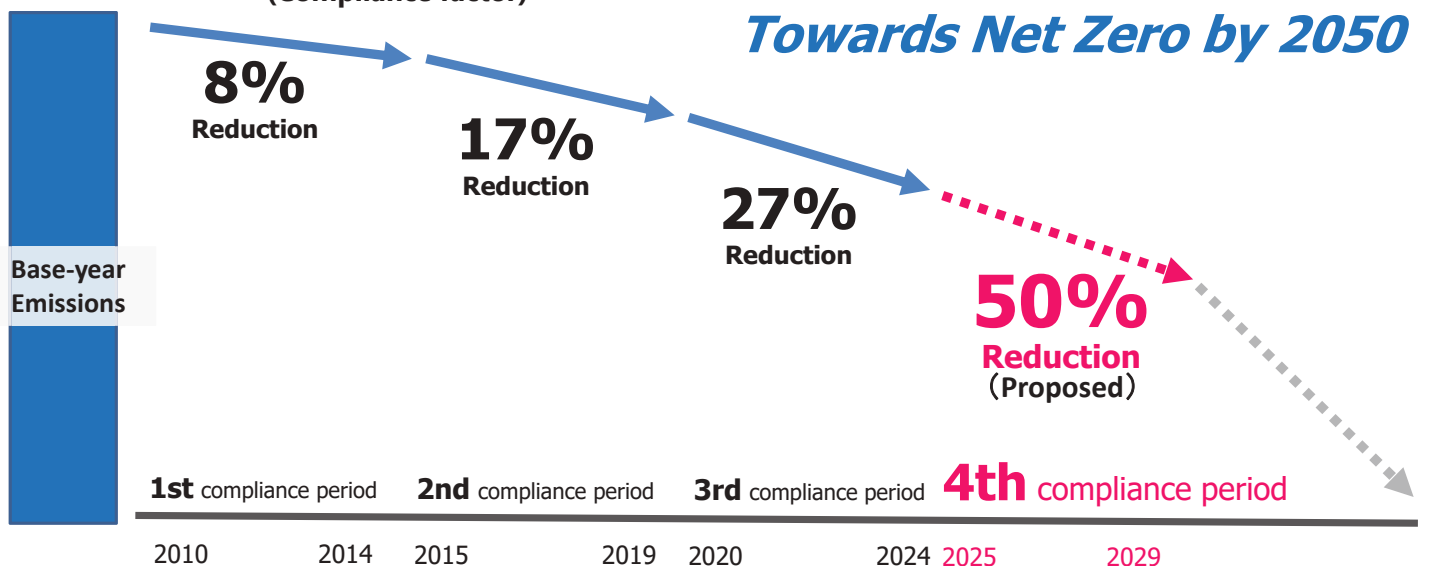
6

Tokyo Cap-and-Trade Program

Existing Building

• **Reduction Obligation Level** for Office and Commercial Building (Compliance factor)

Towards Net Zero by 2050



TOKYO METROPOLITAN GOVERNMENT

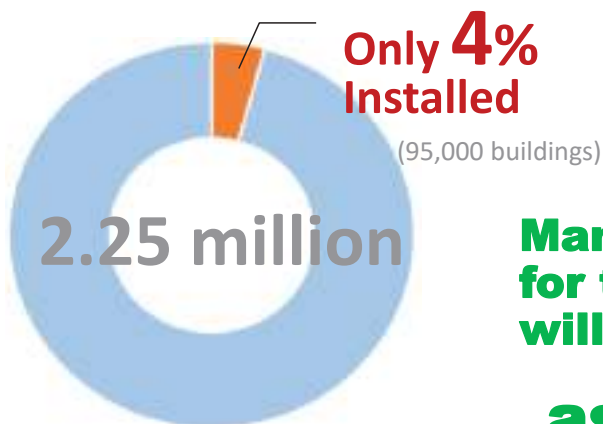
7

Develop New Program for houses

• Installation Mandate for Solar Panels

~Utilizing the Full Potential of Tokyo's Rooftops

Buildings with solar panel
installation potential



**Mandate
for the solar panel installation
will come into effect**

as of April 2025

TOKYO METROPOLITAN GOVERNMENT

8

Integrated Promotion of Decarbonization and Energy Security

Reduce energy
consumption
(Improvement
Energy Efficiency)

Generate renewable power,
Store and **use** power

Building
(incl. house)

District
(ex, creating
the zero-emission district)

Benefits of the Tokyo itself

9

C40 Cites Bloomberg Philanthropies Awards!



Building a Climate Movement

Tokyo / Kuala Lumpur

Global North and South collaboration to decarbonise the building sector



10



Smart House in JAPAN (Solar Circuit House)

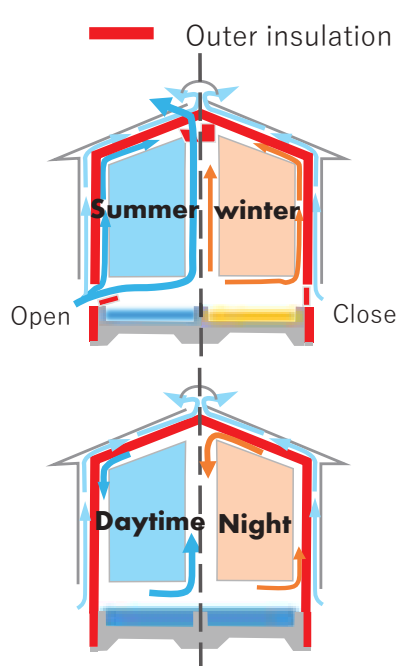
Kaneka
The Dreamology Company

高砂建設
TAKASAGO Original Housing



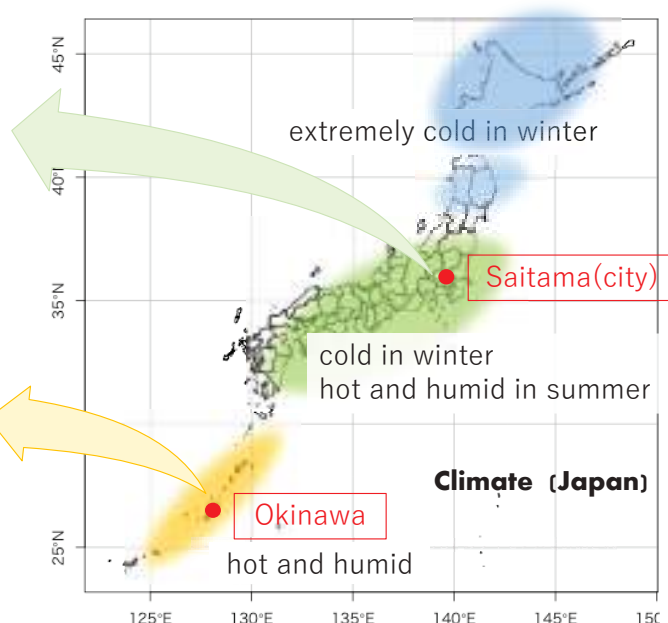
Outer insulation + double ventilation

Two types of passive systems



Type1 Designed for regions where measures against heat and cold are required.
(ground temperature)
(nighttime cold air)

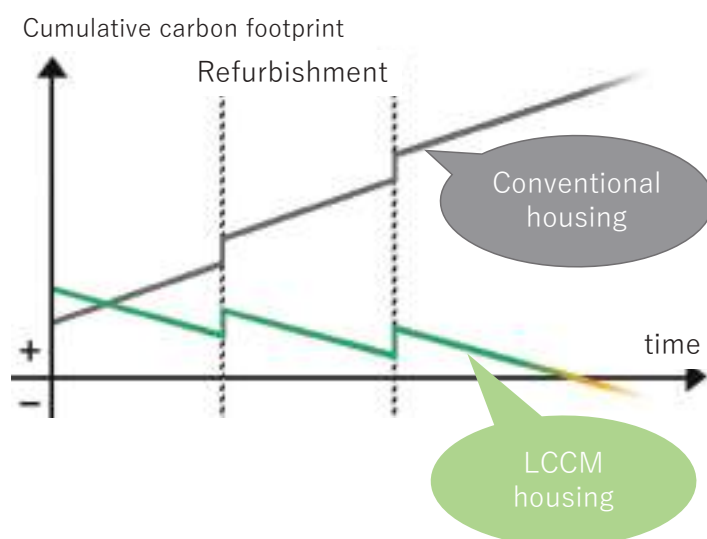
Type2 Designed for regions where measures against heat and humidity are required year round.
(ground temperature)



Wooden House/ Life Cycle Carbon Minus Housing



Wood is an excellent material for carbon neutrality.



We want to continue to enjoy a vibrant life in harmony with nature



Note: The products listed in this document are currently specific in Japan.



Tokyo Initiatives

-Mandatory PV installation Program

Bureau of Environment
Tokyo Metropolitan Government

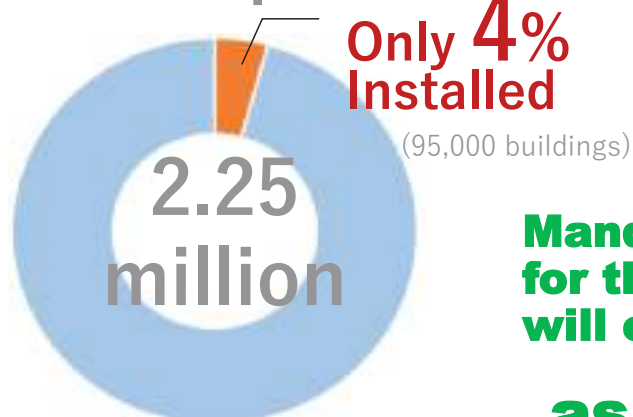
Develop New Program for Houses

For New Building

•Mandatory PV installation Program

~Utilizing the Full Potential of Tokyo's Rooftops

Buildings with solar panel
installation potential



**Mandate
for the solar panel installation
will come into effect**

as of April 2025

Schedule



Now, we are here (as of August, 2023)

3

1. Background (TMG Initiatives)

2. Reinforcing TMG Programs

3-1. Introducing "Mandatory PV installation programs" for new buildings

3-2. Thermal Insulation and Energy-Efficient Performance Standard

3-3. Renewable energy installation standards

3-4. ZEV Charging Equipment Standard

3-5. Explanation Program

4-1. Public comments

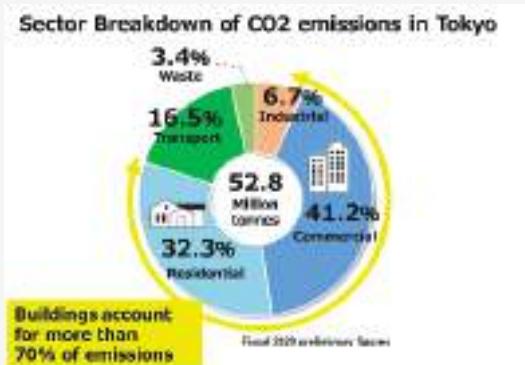
4-2. Comments and TMG's approach

4

1. Background (TMG Initiatives)

Shaping Future Tokyo through Building-related Policies and Measures

- ✓ Commercial and residential sectors constitute a large share of the CO2 emissions in Tokyo.
- ✓ By 2050, about half of the existing buildings (of which 70% is homes) will be replaced by newly-constructed buildings.

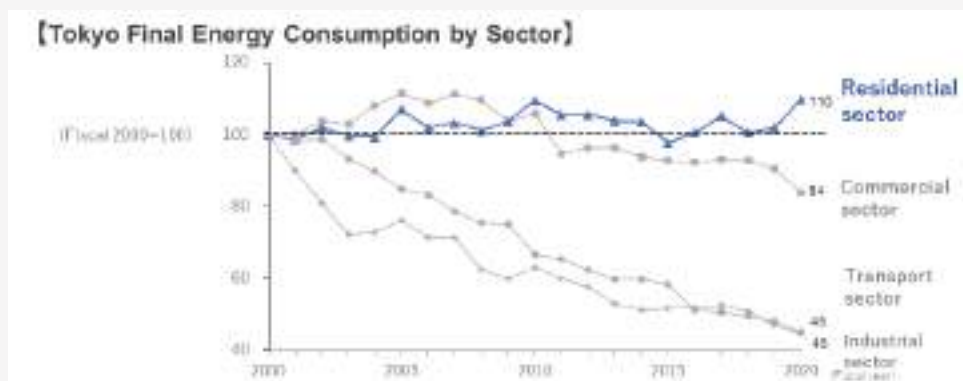


5

1. Background (TMG Initiatives)

Tokyo's Regional Characteristics: Countermeasures for the Residential Sector are Key

- ✓ The Residential sector was the only sector to record an increase in energy consumption since 2000.
- ✓ Further strengthening of measures is needed.



6

2. Reinforcing TMG Programs



Introduce new programs and initiatives targeting small- and medium-sized buildings, which account for 98% of new construction undertaken annually, and

Promote the reduction of energy consumption in the residential sector and the construction of standardized "healthy homes"

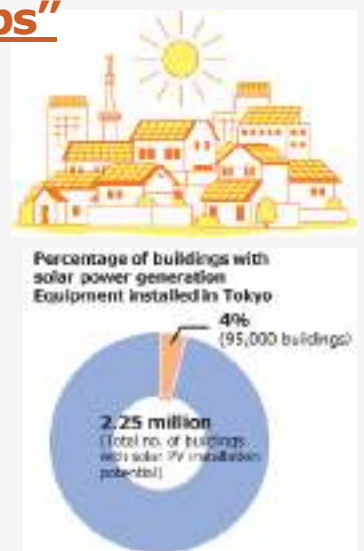
7

3-1. Introducing "Mandatory PV installation programs" for new buildings ①

Tapping the Huge Potential of Tokyo's "Rooftops"

The new ordinance program requires new residential and other buildings to be built with a **Photovoltaic Power Systems**

- ✓ Around 50,000 new buildings are built each year
- ✓ Current Installation of solar electricity system on residential roofs in Tokyo has been limited (4 % of all existing buildings in Tokyo)
- ✓ Policies and measures related to new construction standards will be vital in determining the shape of Tokyo in 2050.



8

3-1. Introducing “Mandatory PV installation programs” for new buildings ②

Program Summary (Draft)

❑ Target Buildings

Small and medium-sized new buildings and homes with total floor space of less than 2,000m².

❑ Target individuals

Major housing suppliers that supply over 20,000m² of housing etc. on a yearly basis in Tokyo will be subject to this mandate.

❑ Details of Obligations, etc.

The program implements **mandatory requirements for thermal insulation, energy-efficient-equipment, installation of Renewable energy equipment and ZEV charging equipment.**

*Another mandatory “Green Building Program” for New Buildings will also require that **large sized buildings** (floor area $\geq 2,000\text{m}^2$) install the Renewable energy equipment and ZEV charging equipment etc.



9

3-2. Thermal Insulation and Energy-Efficient Performance Standard

Standards for building insulation and energy efficiency are set to ensure healthier and more comfortable living spaces, and reduce energy consumption.

- ✓ Standards are set based on a national housing “best-in-class” system ((▲10-15% energy savings from national housing standards (min standards)).
- ✓ Highly insulated housing is very important not only for energy savings but also to protect the health of the occupants.
- ✓ Insulation performance that exceeds the standard and energy efficiency of ▲ 30% ensures that the balance of energy consumption is virtually zero for a 4 kW photovoltaic system in a detached house.



10

3-3. Renewable energy installation standards

Renewable energy installation standards(kW)

- = ① Number of buildings annually supplied
× ② Calculation standard rate(%)
× ③ Standard generation amount per building(kW) : 2 kW/building

② Calculation Standard Rate

Rates by Area*	30%
	70%
	85%
Single Uniform Rate*	85%

*Calculated based on TMG survey



11

3-3. Renewable energy installation standards

The standard is subject to each building supplier and their photovoltaic appliances, not to each building

- ✓ This is hoped to enrich the standardized housing product line offered by each company
- ✓ It is also hoped to enhance implementation that takes into account the amount of sunlight, the shape of the house unique to each site.

Method of compliance with the renewable energy installation standard(example)

If installation is possible in 500 buildings

: 500 buildings × 85% × 2kW/bldg.=850kW

Total 900kW > 850kW



12

3-4. ZEV Charging Equipment Standard

Introduce a mechanism that will make installation of EV chargers a standard condition since their existence is important when pursuing zero emissions

- ✓ As ZEVs are expected to become more widespread in the future, it will be important for houses to have the facility when they are newly built. This will improve building value.
- ✓ For each detached house with a parking space, an electric cable conduit etc. for charging equipment should be supplied, and if the parking area has space for 10 or more vehicles, a normal charging facility must be installed.



13

3-5. Explanation Program



Residents should be aware of the environmental performance of the houses they are to purchase. Once this becomes the norm, housings with high environmental performance should gain a larger market.

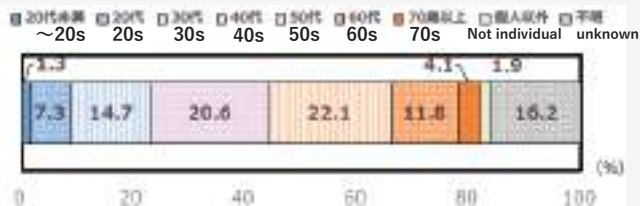
14

4-1. Public comments

Public comments

- Called for comments on the revision of the ordinance
- Total 3,779 comments (Individual 3,200 / Business 155 / unknown 424)
- Positive 56%, Against 41%. Positive comments from the young generation

Age range of comments



- Generation more likely to buy a house in the future (20s and younger): 9 %
- Generation most likely to buy a house (30s and 40s): 35%
- Generation over 50s: 38%
- Unknown: 18%

Overview of the comments (by age)



15

4-2. Comments and TMG's approach

Energy efficiency

- ✓ **The costs for installing the photovoltaic appliances, the operation and maintenance fees, disposal/recycling fees, are unclear**
 - Initial costs, operation and maintenance fees, and disposal/recycling fees can be recovered
 - For example, an initial investment of 980 thousand JPY for a 4 kW power generator can be recovered in ten years. (6 years when using existing subsidies)
 - Maximum benefit of 1.19 million yen can be gained through a 30 year period (1.59 million yen when using existing subsidies)
- ✓ **A large burden in addition to the general costs of buying a house**
 - There are several services that allow photovoltaic appliances to be installed without any upfront cost and which will not affect the total construction cost.

16

Power outage and disaster preparedness

- ✓ **Increasing the number of photovoltaic power generators is important to make Tokyo's housing resilient to disasters**
 - Smartphones, TVs, refrigerators and other home appliances play a critical role in the case of a disaster
 - Photovoltaic appliances that can operate independently in the event of a power failure, can supply electricity that will serve as a lifeline under emergencies.

Installation

- ✓ **Won't photovoltaic power generators harm the environment?**
 - The installation potential of roof-mounted photovoltaic power generators should be exploited to the fullest.
 - Installation should consider roofs at which harm on the environment is minimum.
 - Tokyo, with its many buildings, has great potential for installation of photovoltaic power generators

17

Disposal/recycling of photovoltaic power generators

- ✓ **Can photovoltaic power generators be recycled?**
 - Yes, they can. There are several recycling facilities in the metropolitan area.

Safety and security support for Tokyo's residents and businesses

- ✓ **Subsidies, other support measures should not be prioritized over regulation**
 - TMG has actively offered subsidies but only 20% of newly built homes have photovoltaic power generators installed.
 - TMG will create a market where many homes can benefit from solar power generation by making it mandatory to install photovoltaic power generators in new homes.
 - TMG's new regulation will facilitate the development of an attractive product line-up in which solar PVs are a standard component. The regulation will contribute to carbon neutrality while offering Tokyo citizens an opportunity to purchase disaster resistant, healthy and comfortable housings.

18

Dissemination of information and increasing followers

- ✓ **TMG will use various media to: increase the number of followers; set up communication opportunities; and address inquiries in a polite manner.**
- ✓ **This will create empathy, gather collaborators from both citizens and consumers, and make the system more effective**
 - TMG's PR magazines and online social media will be used strategically to address a wide range of information, focusing on questions and consultations from citizens and businesses.

Dedicated portals to disseminate information on solar PVs and the institutional system



19



Tokyo Initiatives

- Concept of Reinforcement on Use of Sustainable Low-Carbon Materials

Bureau of Environment
Tokyo Metropolitan Government

● What are sustainable low-carbon materials?

⇒ Materials that are low-carbon **from the perspective of lifecycle CO2 emissions.**

* **At the national level**, it is desirable that a calculation method for this purpose be developed and listed.

Even in Japan, a clear list based on the latest information has not been constructed
(Includes embodied carbon list and intensity)

● The Tokyo Metropolitan Government is going to start pioneering initiatives targeting materials that are used in large amounts in buildings.

⇒ **An initiative to evaluate** the use of low-carbon materials **for new buildings** (Not a ban on high-carbon materials) 2

Document 2.

Ways to strengthen and enhance TMG's Green Building Program (for large buildings)

(Excerpts)

Thursday, 3 August 2023.

Technical Study Group on Revisions to the Tokyo Metropolitan Government's New Building System and Other Related Matters (12th meeting).

- Commend the efforts of builders who pursue high standards and induce them to take further steps towards zero emissions. [Outline for strengthening and enhancing the three-stage assessment].

Rationalize energy use	Change the name to “Rationalize energy use and convert to renewable energy”. - Higher evaluation is offered to insulation, energy efficiency and renewable energy installation (linked to performance and installation standards), - An integrated method to assess energy savings and renewable energy (including procurement, etc.) that contributes to zero emissions in buildings is added. ⇒ Perspectives to encourage positive initiatives towards zero-emissions. The following are some of the indicators that can be used to assess the preparedness of buildings to enable remote management and control, and the level of assessment. ⇒ Perspectives to boost social implementation of advanced energy management.	About the three-stage assessment The builders shall be assessed for the environmental measures taken in the building and on the site in accordance with the evaluation criteria set by TMG. The ratings are defined as stage 3, stage 2 and stage 1, in descending order from the top to the bottom. *For buildings for which mandatory levels have been established
Proper use of resources	Add indicators, etc. to assess efforts to use low-carbon materials (e.g. timber), conserve water, understand CO2 emissions related to construction, and recycle and dispose of construction by-products (e.g. soil generated) appropriately, and consider evaluation standards. ⇒In addition to when buildings are in operation, it is important to promote initiatives that contribute to the reduction of Embodied-carbons in the future.	
Natural environment preservation	Change the name to “biodiversity conservation” Reformulation of current assessments into indicators to assess biodiversity-friendly greening. ⇒ Perspectives on guiding biodiversity conservation efforts.	
Heat island effect mitigation	Change the name to “climate change adaptation” Add indicators, etc. to assess measures based on disaster hazard areas, the provision of shelters and stockpiles in buildings, securing power sources for disasters, V2B and V2H facilities and charging facilities with demand control functions, etc., and examine assessment levels. ⇒It is important to promote 'adaptation measures' as a dual role together with 'mitigation measures'.	

4

- As a metropolis with a major influence on the use of energy and resources, it is Tokyo's responsibility to contribute to the reduction of CO2 emissions not only in the city but also outside the city, taking into account all stages of the supply chain.
- The Metropolitan Government aims to achieve zero emissions through energy decarbonisation and sustainable resource use.
- Buildings are constructed with a large input of materials, and the impact of material procurement on CO2 emissions in the supply chain is also significant. It is important to identify and select materials with low CO2 emissions during construction and actively promote their increased use.

Amendments to the Ordinance on the Environment to Ensure the Health and Safety of the Metropolis (Environmental Security Ordinance).

-Effective system for the realisation of the carbon half - Excerpts from the report.

Appropriate use of resources

TMG has so far evaluated the use of recycled materials in frames, etc., the use of air-conditioning refrigerants, etc., which have less impact on the ozone layer, initiatives that contribute to extending the service life of buildings, and initiatives for the use of miscellaneous water, from the perspective of appropriate use of resources in new buildings, and has guided the initiatives of builders. The system should be reviewed so that it can encourage efforts to reduce the environmental impact not only during building operation but also during building construction, as well as efforts to assess the impact of the environmental impact.

Therefore, in addition to existing initiatives, the Government should encourage initiatives that contribute to the reduction of Embodied-carbon (CO2 contained in new construction and renovation), such as the active use of low-carbon materials (e.g. timber), the identification of CO2 emissions related to construction, and the recycling of construction waste. In addition, the environmental load during building operation should be reduced. Sustainable water use is also important for reducing the environmental impact of buildings in operation, and water-saving initiatives should continue to be evaluated and guided. Furthermore, the addition of evaluation items from new perspectives, such as efforts to understand construction-related CO2 emissions, recycling of construction by-products (e.g. soil generated) and efforts for appropriate disposal, should also be considered.

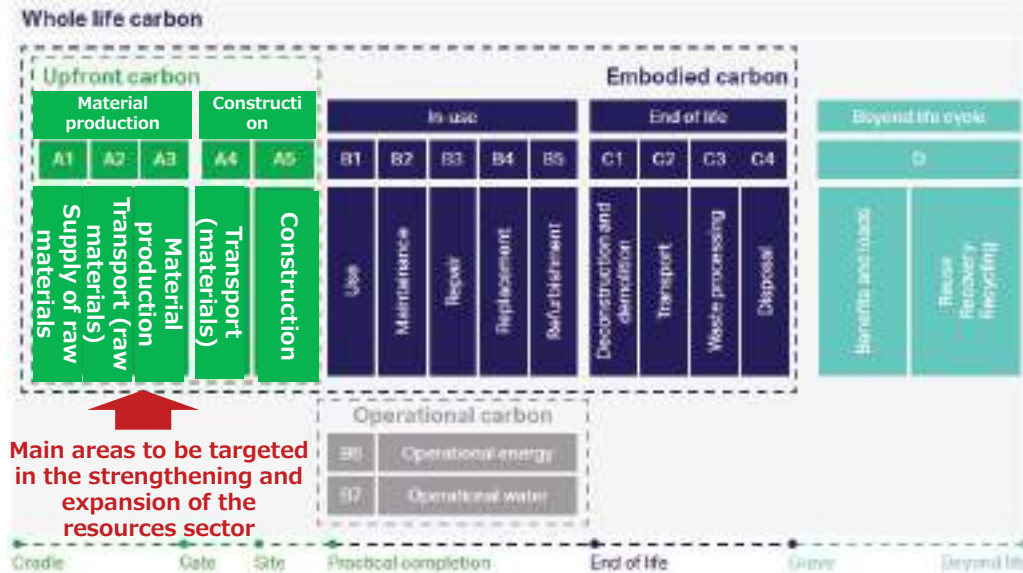
5

[Appropriate use of resources] (Reference)

Large
New
buildings

Importance of measures against Embodied carbon

CO2 emissions during operation will be reduced in the future due to energy saving and increased use of renewable energy. The importance of reducing CO2 emissions during construction (Embodied carbon) will increase as TMG implements "2030 Carbon-half" and "Zero Emission Tokyo Strategy".



Conceptual diagram of embodied carbon as presented in WBCSD documents.

The process of procuring raw materials, transport, processing and construction before the building goes into operation is positioned as 'Upfront carbon' within Embodied carbon.

Based on EN-15978 (2011) published in Net-zero buildings (World Business Council for Sustainable Development), with additions made by the TMG.

6

[Appropriate use of resources]

Ways to strengthen and enhance (summary)

[Evaluation items after the list is strengthened and enhanced]

Large
New
buildings

	Items	Status	Specific details of strengthening and expansion	CASB EE
Use of sustainable low-carbon materials, etc.	Use of low-carbon materials, etc. in building frame	continue (Expand)	Assessment of the use of low-carbon materials and recycled materials in the materials of the frame (piles, foundations, columns, beams and other major parts of the structural load-bearing capacity).	○
	Use of low-carbon materials, etc. in material other than building frame	continue (Expand))	Assessment of the use of low-carbon materials and recycled materials in non-framing materials.	○
	Use of sustainable formwork.	new	Assessment of the use of domestic, certified and recycled timber in plywood materials for concrete formwork, etc.	
	Protection of the ozone layer and climate change measures.	continue (integrate)	Assessment of the choice of materials with low global warming potential, etc. for insulation and refrigerants for air conditioning equipment. *Insulation foam and air-conditioning refrigerant assessments combined into one item.	○
Reduce environmental impact	Efforts to identify and reduce CO2 emissions during construction	new	Assessment of efforts to reduce CO2 emissions during construction at construction sites, etc., together with efforts to identify CO2 emissions during construction.	
	Effective use of construction by-products and proper disposal	new	Assessment of efforts to promote the effective use and proper disposal of construction by-products (construction soil and construction waste).	
Longer service life, etc.	Maintenance, freedom of use, measures to re-use construction materials, etc.	continue (integrate)	Matters relating to maintenance, renewal, renovation and change of use of buildings, ensuring freedom of use, and measures to reuse construction materials.	○
	Measures to prevent deterioration of the building frame	continue	Matters to be undertaken to delay the progression of deterioration of the building's frame parts in order to prolong the life of the building.	○
Sustainable water use.	Miscellaneous water use	continue	Matters relating to the effective use of water and the use of miscellaneous water to reduce the load on sewerage facilities.	○
	Rationalisation of water use	new	Assess the use of automatic taps and water-saving fixtures, monitoring water use in key management units, and water conservation management.	○

*CASBEE-Building (new construction) assessment can be used

7

[Appropriate use of resources]

Sustainable use of low-carbon materials, etc. (use of low-carbon materials, etc. in building frame materials)

Large
New
buildings

Revise the evaluation method, and encourage the conversion of building frame materials to timber, which has low carbon emissions, and promote initiatives to reduce the carbon footprint of concrete and steel, which are the main materials used in building frames and which emit high levels of CO₂ during their manufacture.

<New standards (example)> (common to both non-residential and residential buildings)

Stage 3.	The sum of the scores of items (1) and (2) must be at least 3 .	
Stage 2.	The sum of the scores of items (1) and (2) must be 2 .	
Stage 1.	The sum of the scores of items (1) and (2) must be 1 .	
(1) Use of low-carbon materials.	Building frame* ¹ One of the following initiatives (i) or (ii) shall be implemented in the materials. (i) All low carbon materials listed below must be used. -Timber* ² -Low carbon concrete* ³ -Recycled steel materials such as electric furnace steel* ⁴ (ii) At least two types of low-carbon materials, including timber, are used. In the case of timber*², all timber must be domestically produced.	3 points
	Building frame* ¹ One of the following initiatives (i) or (ii) shall be implemented in the materials. (i) Two types of low carbon materials listed in the 3 points category are used. (ii) For timber*², all timber must be domestically produced.	2 points
	Building frame* ¹ One type of low carbon material listed in the 3 points category shall be used in the materials.	1 point

1 What is determined as the "main structural components" in the Building Code.

2 Only timber that complies with the Clean Wood Act.

3 Concrete in which a portion of the cement is replaced by industrial by-products, thereby reducing CO₂ emissions by more than 50% compared to normal production.

4 Recycled steel materials such as electric furnace steel materials (steel materials that use steel scrap as raw material) as specified under the category "Special Items" in the Tokyo Metropolitan Government's procurement policy for environmental goods (public works).

8

[Appropriate use of resources]

Sustainable use of low-carbon materials, etc. (use of low-carbon materials, etc. in building frame materials)

Large
New
buildings

<New standards (example)> (common to both non-residential and residential buildings) Continued

(2) Use of recycled materials	One of the following shall be addressed as matters relating to the framework. (i) Two or more of the following materials, etc. (excluding those falling under low-carbon materials) from the "specified procurement items" of the Green Purchasing Law must be used for the building frame. Blast furnace slag aggregate, ferronickel slag aggregate, copper slag aggregate, electric arc furnace oxidised slag aggregate, blast furnace cement, fly ash cement, recycled aggregate concrete (limited to those that can be used in the frame).	2 points	Add (ii) to the existing evaluation items
	(ii) Make efforts to reduce the use of frame materials by using piles, foundations and frames of existing structures.		
	One of the materials, etc. listed in Stage 3 (i) shall be used for the frame materials.	1 point	

9

[Appropriate use of resources]

Sustainable use of low-carbon materials, etc. (use of low-carbon materials, etc. other than building frame materials)

Large
New
buildings

- Large-scale buildings use many materials other than frame materials, and low-carbon initiatives are important. Add low-carbon materials to the assessment and promote their use, as well as the use of recycled materials.

<New standards (example)> (common to both non-residential and residential buildings)

Stage 3.	The sum of the points in (1) and (2) must be at least 3.
Stage 2.	The sum of the points in (1) and (2) must be 2.
Stage 1.	The sum of the points in (1) and (2) must be 1.

(1) Use of low-carbon materials.	At least two of the following low-carbon materials, including timber, shall be used, in the material for those other than the building frame ^{*1} , All timber ^{*2} shall be domestically produced. -Timber ^{*2} -Low carbon concrete ^{*3} -Recycled steel materials such as electric furnace steel ^{*4}	3 points
	Building frame ^{*1} At least two types of low carbon materials listed in the 3 point category shall be used, other than materials.	2 points
	Building frame ^{*1} One type of low carbon material listed in the 3 point category shall be used, other than materials.	1 point

1 Main structural components in the Building Code.

2 Only timber that complies with the Clean Wood Act.

3 Concrete in which a portion of the cement is replaced by industrial by-products, thereby reducing CO2 emissions by more than 50% compared to normal production.

4 Recycled steel materials such as electric furnace steel materials (steel materials that use steel scrap as raw material) under "Special Items" in the Tokyo Metropolitan Government's procurement policy for environmental goods (public works).

10

[Appropriate use of resources]

Sustainable use of low-carbon materials, etc. (use of low-carbon materials, etc. other than building frame materials)

Large
New
buildings

<New standards (example)> (common to both non-residential and residential buildings)
Continued

(2) Use of recycled materials	For material used other than the building frame ^{*1} use two or more of the following materials (i) (ii) (except those falling under low-carbon materials): (i) "Specified procurement items" under the Green Purchasing Act. (ii) "Special Items" in the Tokyo Metropolitan Government's procurement policy for environmental goods (public works)	2 points	} existing evaluation
	One of the materials, etc. listed in the 2 point category must be used in addition to the building frame materials.	1 point	

11

- Establish a new evaluation item on sustainability, etc. of materials for concrete formwork, etc., which are used in large quantities during construction, together with materials for the frame, etc.

<New standards (example)> (common to both non-residential and residential buildings)

Stage 3.	One of the following applies. (i) The use of concrete formwork materials shall be reduced by use of precast building frame (e.g. by choosing a structure that does not use precast or formwork). However, the concrete formwork materials used shall satisfy Stage 1 or Stage 2. (ii) All plywood, etc. of concrete formwork (plywood formwork) shall be made of domestic timber (the timber should comply with the Clean Wood Act).
Stage 2.	One of the following must be used for concrete formwork. (i) "Formwork made from recycled materials" under "specified procurement items" of the Green Purchasing Act. (ii) Timber-free formwork.
Stage 1.	The concrete formwork must use 'plywood formwork', a 'specified procurement item' of the Green Purchasing Act. (except for formwork falling under Stage 3). .

(Reference) From the "Specified Procurement Items" of the Green Purchasing Act.

Formwork made from recycled materials.	Recycled materials (made from waste plastic and waste paper pulp) must account for at least 50% of the raw materials by weight (if several materials are used, the sum of these materials) and must be recycled after use.
plywood formwork	From the Green Purchasing Act 'Specified Procurement Items'. (i) The percentage by volume of thinned wood, residual timber from plywood and sawmills, forest residuals or small diameter timber shall be 10% or more, and logs other than residual timber from plywood and sawmills and forest residuals shall be harvested in accordance with the forest laws and regulations in the country or region where the logs were produced. (ii) In cases other than (i) above, the logs used as raw material shall have been properly processed in accordance with the forest laws and regulations in the country or region where the logs were produced when they were harvested.

12

- In order to reduce CO2 emissions during construction (Upfront-carbon of Embodied-carbon), it is **essential to take action in material production (procurement) and at the construction site.** In addition, it is important to understand the amount of these emissions to consider and implement effective reductions.
- **Establish new items for calculating and understanding CO2 emissions during construction and assessing reduction efforts.**

<Image of new standards> (common to both non-residential and residential buildings)

Stage 3.	The measures listed in Stage 2 shall be implemented, and the CO2 emissions during construction (CO2 emissions from manufacturing, transport and construction) of the main structure shall be calculated and ascertained, The builder shall make efforts to widely disclose the details of such emissions (calculation and ascertaining of CO2 emissions including those of non-main structure parts is also possible).
Stage 2.	The measures listed in Stage 1 shall be implemented, as well as addressing any of the following. (i) Targets and policies for the reduction of CO2 emissions during construction are set out at the design stage and reflected in the design (to be reflected by the contractor for the design work). (ii) Efforts to reduce CO2 emissions at the construction site (including reduction of CO2 emissions through the use of renewable energy based electricity as well as reduction of energy consumption at the construction site).) shall have reduced the relevant emissions by approximately 20%.
Stage 1.	CO2 emissions during construction* shall be known.

*Construction CO2 emissions in this item include CO2 emissions during material production. Efforts can be made to target part of the emissions rather than the whole construction phase.

13

- Continue to assess miscellaneous water use for sustainable water use and add the perspective of rationalisation of water use (water saving) to the assessment.

Miscellaneous water use

<New standards (example)> (common to both non-residential and residential buildings)

Stage 3.	The following (1) and (2) must apply. (1) Two or more of the following are used as miscellaneous water (miscellaneous water listed in Article 2 of the Guidelines for the Promotion of Effective Use of Water). However, the use of rainwater through infiltration and storage of rainwater is excluded. -Rainwater -Recycled water -Recycled water (2) One of the following initiatives is implemented. (i) Miscellaneous water is used on a priority basis and water-saving devices are provided where the miscellaneous water is used. (ii) In addition to normal use of miscellaneous water, a system should be available for use in times of disaster.	Item (2) is added to current evaluation item (1).
Stage 2.	Two or more of the items listed in Stage 3(1) shall be used as miscellaneous water.	Current Stage 3.
Stage 1.	Any of the items listed in Stage 3(1) shall be used as miscellaneous water.	Current Stage 2

(Reference) Miscellaneous water in these assessment criteria

rain water	Refers to rainwater collected on site that is filtered and used as miscellaneous use water without circulating use of the once-used wastewater. Where rainwater is combined with once-used wastewater for circulating use, it is treated as circulating use water.	1 Scheme where water is used for miscellaneous purposes in buildings and other facilities in the area where supply is available.
recycled water	Refers to water from highly treated sewage at sewage treatment plants that is used as miscellaneous water in a wide-area circulation system*1 .	2 A system in which circulating use water treated in a certain compartment is used as miscellaneous water.
circulating use water	Refers to water used as miscellaneous water in district circulation systems*2 and individual circulation systems*3 , where wastewater generated in buildings and rainwater collected in the building and its grounds or within a certain area is treated and recycled in a treatment facility.	3 Methods whereby circulating use water treated in the building concerned is used as miscellaneous water.

14

Rationalisation of water use

<New standards (example)> (non-housing)

Stage 3.	In addition to the measures in Stage 2, the building shall be equipped with a BEMS system etc. that allows building users (including tenants) to see the use of energy, and a system (PDCA cycle, etc.) shall be established to reduce water consumption in the building.
Stage 2.	In addition to the measures in Stage 1, all of the following initiatives shall be implemented. (i) Establish annual targets for water consumption (L/m ² /year). (ii) The water consumption in the building should be monitored on an annual basis and comparisons can be made using consumption intensity and other data.
Stage 1.	Water-saving devices such as water-saving packing on main taps, automatic taps, water-saving toilets and water-mimicking devices shall be provided.

<New standards (example)> (housing)

Stage 3.	In addition to the measures in Stage 2, one of the following measures shall be implemented (measures in common areas only are acceptable). (i) Establish annual targets for water consumption (L/m ² /year). (ii) The water consumption in the building should be monitored on an annual basis and comparisons can be made using consumption intensity and other data.
Stage 2.	In addition to the measures in Stage 1, water-saving devices such as bathroom showers with a handheld shut-off function and water-saving toilets shall be provided.
Stage 1.	Water-saving packing or similar is fitted to main taps.

15

REFERENCES

16

A comparison of regulations, rules on “Embodied carbon” in the EU

Country	Methodology	In force	Renovations	Assessment/timing	Applicable buildings	Acceptable data	EPD	Compliance	Tools
Denmark	Building code	2023	×	Single, post construction	All buildings	EN15804	○	Limit value	Open
Finland	Finnish method / RakL	2024 expected	○	Single, planning stage (permit)	All bldgs. subject to energy declaration	EN15804+A2, CO2 data	○	Limit value	Open
France	RE2020	2022	×	Multiple, (permit and post construction)	Residential/ office/schools	INES database	○	Limit value	Approved tools
Netherlands	MPG	2013	×	Single, planning stage (permit)	Residential/ office	NMD only	○	Limit value	Approved tools
Norway	NS 3720 / TEK 17	2022	○	Single, planning stage (permit)	Residential/ commercial	EN 15804	○	Declaration	Open
Sweden	Climate measures for buildings	2022	×	Single, post construction	>100m2	EN 15804, Boverket	○	Declaration	Open
UK	London Plan / Part Z 18	tbd	○	Multiple, prior/post construction	>100m2 or >10 dwellings	>EN15804 and other standards	○	Declaration	Open
EU	Level(s) via EPBD	Tbd (2027 /2030)	○	Multiple (conceptual / detailed / as-built)	All buildings	EN 15804	○	Declaration	Open

Reference: Construction Carbon Regulations in Europe (One Click LCA)
Mr. Hosoya's material at the 1st Embodied Carbon Evaluation WG

17

Life cycle assessment in the EU (under research)

○ To be assessed
- Optional
✖ Not to be assessed

	Policy	During	Start	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	D
				原材料 取得	工場 輸送	製造	仕上 輸送	旅行 使用	維持 保全	修理 交換	交換	修理 交換	修理 交換	修理 交換	修理 交換	修理 交換	修理 交換	修理 交換
Denmark	Danish Building Regulations (BR18)	50	2023	○	○	○	✖	✖	✖	✖	✖	○	✖	✖	✖	○	○	○
Sweden	Klimatdeklaration 2022	50	2022	○	○	○	○	○	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Sweden	Klimatdeklaration 2027	50	2027	○	○	○	○	○	✖	○	✖	○	✖	○	○	○	○	○
Finland	Building Act	50	2025	○	○	○	○	○	✖	✖	○	○	-	○	○	○	○	○
Netherlands	MPG	75 house 50 office	2018	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
France	RE2020	50	2022	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Source: Eurobarometer (2023), Västmanlands Byggnads Klimatavtänkning (2023), Ministry of the Environment of Finland (2021), AECF (2021), Regeringen (2023)

EV popularization measures

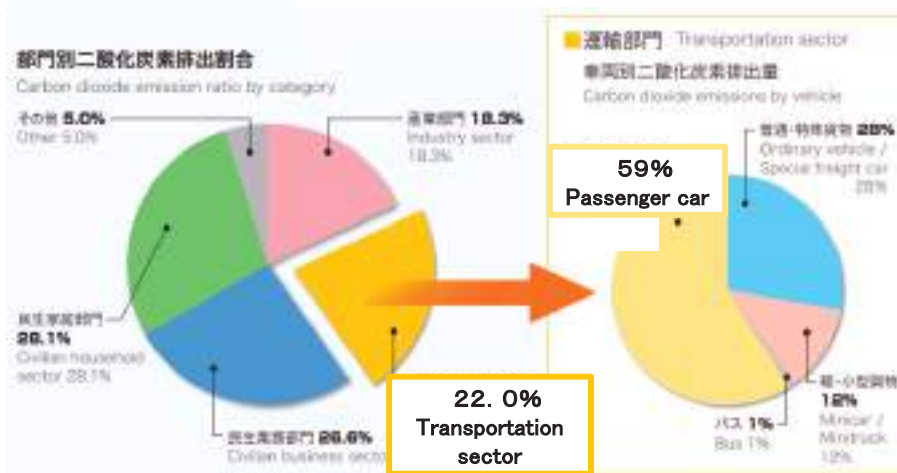
Osamu KANDA

Saitama City

Department of Futuristic City Promotion

2023.9.4

E-KIZUNA Project



2009年～
EV promotion project



- Building a charging safety net work
- Demand generation and incentives provision
- Community-based promotion activities

2

Companies that have signed the E-kizuna Agreement

Normally, official vehicles were expected to be in the reasonable price range, and expensive vehicles were considered unnecessary.

Mayor Shimizu took office and made the electrification of automobiles a symbolic decarbonization initiative, which attracted support from domestic companies.

NISSAN	2009.11	Example of agreement content • Introduction of EV/FCV vehicles • Introduction of charging facilities equipped with solar power generation and storage batteries in parking lots • Discussion on installation of hydrogen station • VtoX equipment intrallment support • Participation and cooperation in forums
SUBARU	2009.12	
Mitsubishi Motors	2010.1	
Honda	2011.5	
TOYOTA	2011.10	
AEON	2011.12	
MITSUI FUDOSAN REALTY	2016.3	
Yamaha Motor	2017.7	
TEPCO Energy Partner	2018.1	
JFE Engineering Corporation	2023.6	

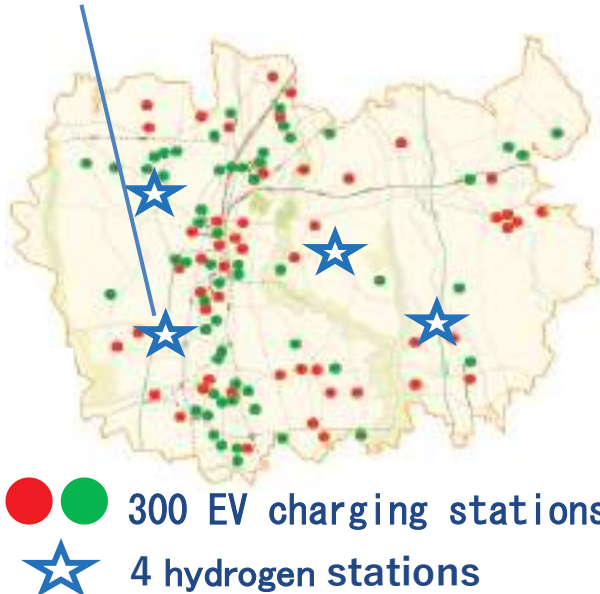
Forum held with partner companies, national and local governments (2010-2018)
Gather opinions and request the country to support the spread of EVs

Expanded this initiative to cities around the world and held the Saitama Sustainable Cities Summit ~E-kizuna Global Summit Summit~. (2022)

Charging Net Work



On-site hydrogen station



EVs at the time had problems with cruising distance, so we thought it was necessary to deploy charging facilities throughout the city.

In addition to promoting the installment of EV stations to municipal facilities, subsidies were used to induce installation in private companies.

Currently, it is becoming common to charge at home, and we are preparing subsidies for advanced equipment such as VtoX. On the other hand, unlike the operation of gas stations, the charging service is not structured to generate revenue. Therefore, in some cases, charging facilities that were originally installed in private commercial facilities have been removed without equipment renewal.

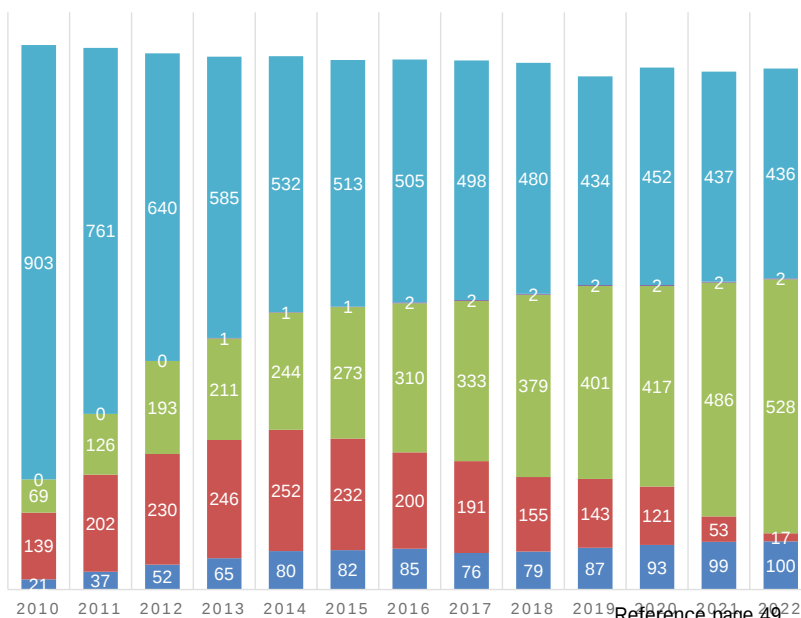
4

Demand generation and incentives provision

- ◆ Proactive introduction of EVs, hybrids, and FCVs to official vehicles
- ◆ Subsidies for citizens who purchase EVs or fuel cell vehicles

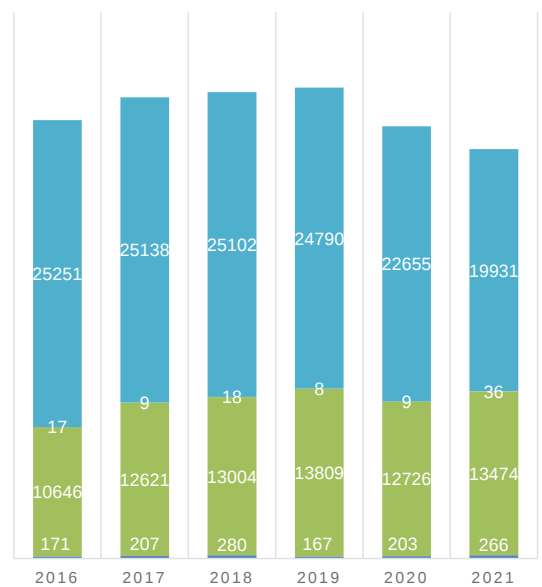
OFFICIAL VEHICLES

■ EV ■ CNG ■ hybrid ■ FCV ■ others



NEW CAR PURCHASE VEHICLE

■ EV ■ hybrid ■ FCV ■ others



Reference page 49

5

Measures to increase official vehicle EVs

We have built a system in which we cannot request a budget unless we confirm that the vehicle is environmentally friendly when procuring it.

1. When renewing vehicles, next-generation vehicles (electric vehicles, fuel cell vehicles, hybrid vehicles) will be introduced.
2. The conditions for replacing a purchased vehicle are “more than 10 years have passed since the first registration” or “the total mileage has been more than 100,000 km.”
3. Regarding the introduction of ZEVs, priority will be given to electric vehicles, fuel cell vehicles, and plug-in hybrid vehicles, and if ZEVs cannot be introduced, natural gas vehicles and hybrid vehicles will be given priority.
4. If it is not possible to introduce next-generation vehicles, a consultation document must be submitted.
5. In principle, the installation will be based on a lease contract.

6

Demand generation and incentive provision

Saitama City has been conducting various demonstrations with companies in order to popularize mobility that citizens will accept.

Ultra-compact mobility promotion

- ◆ One-way car sharing using ultra-compact mobility (–2016)



Demonstration experiment of E-bike

- ◆ E-bike rental and battery exchange service at bicycle parking lots (–2019)



Demonstration experiment of sharing multi-mobility

- ◆ As a new urban transportation system, we are developing a sharing service for various forms of mobility such as E-bike, scooters, and ultra-compact EVs.



Multi Mobility Sharing



Utilize public space to install stations

Saitama City has a lot of land acquired through land expropriation. However, there is still a lot of small spaces that remains unused, and we decided to utilize this unused spaces as mobility stations.

Users must return the rented bicycle to the dedicated stations. If they do not, they will continue to be charged until they return it.



From the "Open Street" App
HELLO CYCLING (screenshot)

8

How to proceed with the demonstration

Social implementation of the multi-mobility sharing business as a new urban transportation system that simultaneously improves the convenience of movement, improves the ease of getting around the city, and reduces the environmental burden.

(1) Division of roles

Saitama City

- Securing public property for mobility ports
- Coordination with related businesses
- Verification of demonstration test results

ENEOS・OpenStreet

Implementation and operation of multi-mobility sharing business (facility development, maintenance management, etc.) - Provision of usage data

(2) Lending of public property for mobility port

Public land owned by the city will be lent free of charge based on a loan agreement.

(3) Cost burden

The operator will bear the costs required for facility development, equipment procurement, maintenance and management, project operation, and restoration of the project to its original condition after the implementation period of the multi-mobility sharing project.

(4) Operating standards

Create a system that allows users to rent items at any mobility port and return them to a different mobility port from where they borrowed them.

(5) Joint planning

Jointly plan, consider, and implement measures that contribute to the promotion of the multi-mobility sharing business and the Saitama City Smart City Promotion Project.

Community-based Promotion

- ◆EV/FCV study session at elementary schools
- ◆Demonstration events
- ◆Test-ride event

Cooperation with private businesses



FCV(fuel cell car) reference image quoted from Toyota's website



10

Green space conservation

Osamu KANDA

Saitama City

Department of Futuristic City Promotion

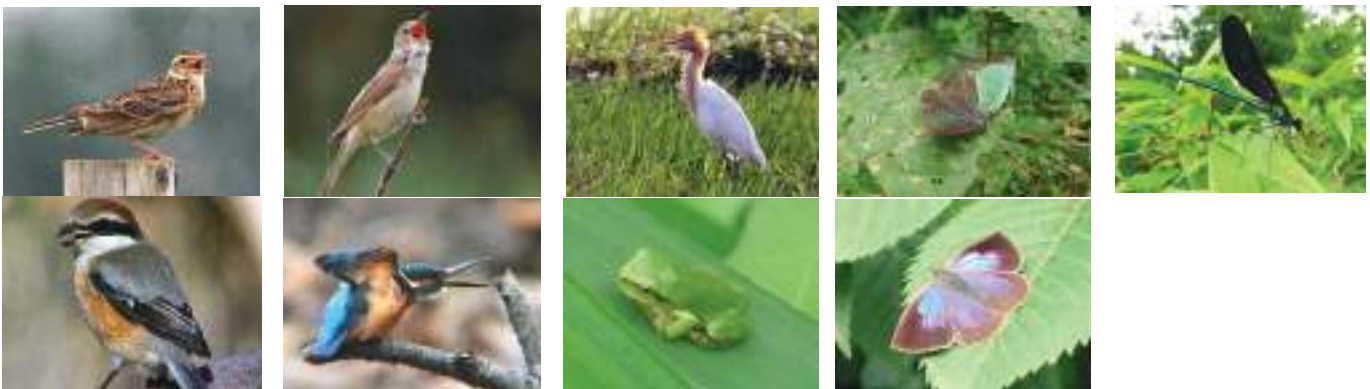
2023.9.4

Nature Positive Minuma-Tambo (Green Space)



Minuma Tambo is located within 20 to 30 km from central Tokyo and is a valuable large-scale green space in the suburbs of the capital, with a vast area of approximately 1,260 ha.

Although it is located only 2 to 3 km from the main station, the rural landscape created by rice fields, farmlands, thickets, rivers, and Minuma substitute water, as well as the rich natural environment that nurtures living things, still remains.



Flood prevention Flood volume 10,000,000m³

In the wake of the typhoon in September 1958, attention was focused on the water retarding function of the Minuma-Tambo, and in March 1965, a policy was formulated to protect the Minuma-Tambo rather than develop them, and a wide-area effort was made to do so.

Most of the Minuma-Tambo are agricultural land, and land use was regulated due to flood control requirements. Thanks to the efforts of farmers, the area has been preserved as a green space as it is today, but the burden on farmers has increased.

Therefore, Minuma-Tambo was developed as an area where human activities and nature can be harmonized, and as a green space adjacent to the city area, where agricultural management can be carried out efficiently and stably. The government has also decided to make efforts to use the land as farmland, parks, green spaces, etc. while maintaining its flood control functions, such as developing it as a place to interact with nature.



regulation of development

Development control within the area

The Role of Government in the Basic Policy for Conservation, Utilization and Creation of Minuma-Tambo

1. Actively promote projects to conserve, utilize, and create Minuma paddy fields.
2. In order to improve the flood control safety of the Shiba River basin, improve the river channel efficiently and actively promote the Shiba River improvement project.
3. In order to promote the comprehensive development of agriculture in the Minuma area, the improvement of agricultural management will be promoted through the improvement of irrigation canals and the consolidation of farmland utilization among leading farmers.
4. The sloped forest remaining at the boundary between the Minuma rice paddies and the plateau is an excellent landscape and fulfills many functions such as windbreaks for agricultural production, provision of organic fertilizers, and retention of rainwater. We will actively work to preserve it.
5. In cases where land use is significantly restricted by this basic policy, or where there is a risk that land use that is inconsistent with this basic policy may occur due to the start of inheritance, etc., the owner of the land, etc. Saitama Prefecture, Saitama City and Kawaguchi City cooperate to purchase or rent all or part of the property.

When using land based on this policy, it is necessary to submit a land use notification to the prefecture and undergo a review.

Our efforts to preserve green spaces



- Maintaining green spaces
- Maintenance of view spots
- Improvement of agricultural environment
- Purchase and maintenance of unused farmland (Prefectural business)



Reference page 54

Citizen collaboration

Green Infrastructure Promotion Project

Sakura Corridor Project
(Cherry Blossom Corridor with a total length of 20 km)

Biodiversity project

Inspection by KL Mayor (October 21st)

Greetings from the mayor



Minuma Tambo



Omiya Bonsai Museum



Misono Smart Home Community / local grid



Sharing mobility



TAKASAGO construction
Highly airtight and highly insulated house



Photo courtesy of the company website

✂TBD

6

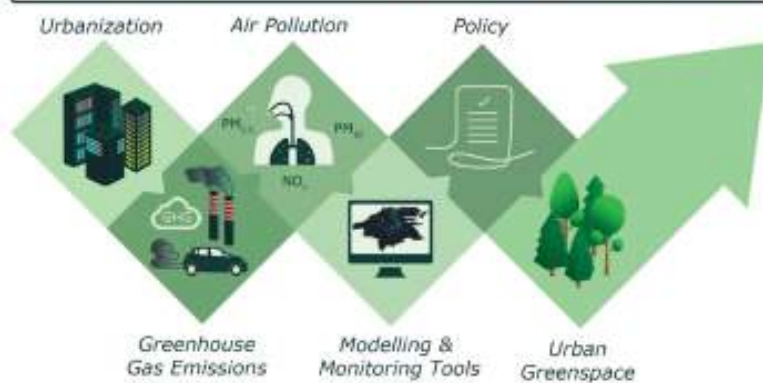
IGES HIGH-LEVEL TALKS : TOWARDS SMART, ZERO CARBON & CLIMATE- RESILIENT CITIES IN KUALA LUMPUR

Datuk Sr. Hj. Kamarulzaman Bin Mat Salleh
Mayor of Kuala Lumpur,
Kuala Lumpur City Hall



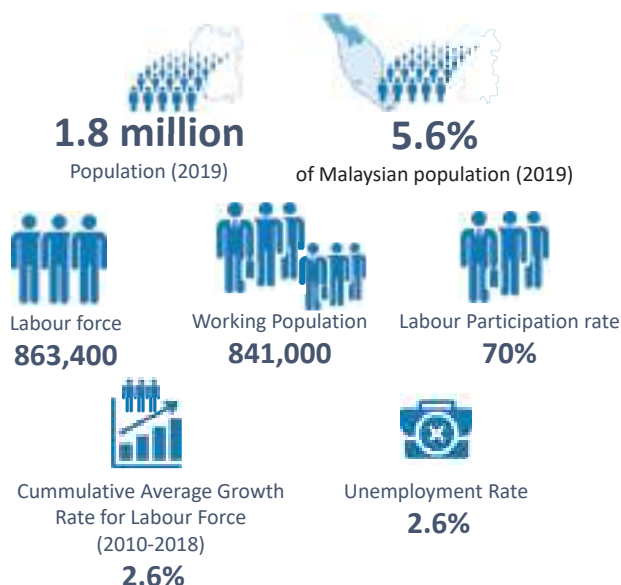
SMART, ZERO CARBON, CLIMATE – RESILIENT CITIES

Towards Sustainable and Net-Zero Cities



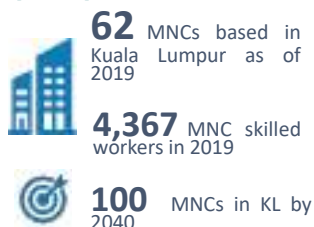
Smart, Zero-carbon, climate-resilient cities are ones where people live in communities where all necessities are within a short walk, bike ride, or public transport trip. They are filled with green spaces that are accessible to all and provide cool spaces for residents to escape the heat.

KUALA LUMPUR TODAY



*Source: Draft of PSKL 2040

Multinational Companies (MNCs)



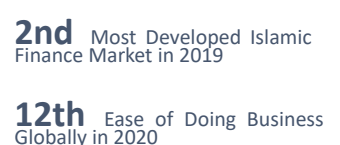
Tourist Destination



Global Employment Hub



Global Positioning



*Source: Draft of PSKL 2040



MASTER PLANS



THE AREAS WE WORK IN ARE EXTREMELY DIVERSE

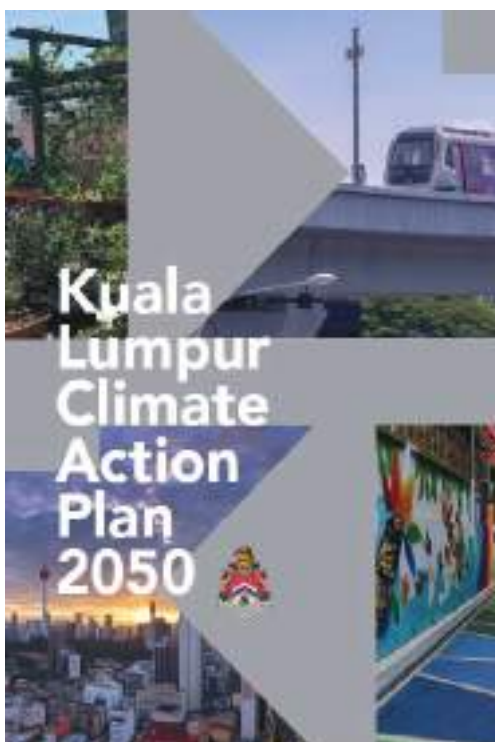


TOWARDS SMART, ZERO CARBON AND CLIMATE – 6
RESILIENT CITIES IN MALAYSIA AND APAN

KUALA LUMPUR LOW CARBON SOCIETY BLUEPRINT 2030



Global Vision UNEP 2000 Doha LDC Vision	WORLD CLASS CITY 2009		
LED Vision for Europe Lampiris	WORLD CLASS CITY 2009 LAMPIRIS 20 by 30 - 20 years Sustainable Lampiris		
Trade Sustainability of sustainability	Planning	Policy	Environment
Theme	Theme 1 Programme, Environment Strategy, Change Strategy	Theme 2 Strategy, Environment Environment and Environment	Theme 3 Environment, Environment Environment and Environment
Sustainable Development Goals 2030	Goal 1 1.1, 1.2, 1.3, 1.4, 1.5	Goal 2 2.1, 2.2, 2.3, 2.4, 2.5	Goal 3 3.1, 3.2, 3.3, 3.4
from 15 Main Agenda Transformative Commitment	Sustainable and Inclusive urban growth and sustainable growth	Sustainable urban growth and sustainable growth	Environmentally sustainable growth and sustainable growth
Key Principles Doha, City Plan 2020	World class Business Environment	World class Working Environment	World class Living Environment
World class 2020 vision			
ELLAW Capital Sustainability	Green Growth Strategy 2020-2030 2020-2030 2020-2030	Environment, Equilibrium and Growth Strategy	Low Carbon Green Growth
	Green Growth Strategy 2020-2030 2020-2030 2020-2030	Environment, Equilibrium and Growth Strategy	Low Carbon Green Growth



DBKL has identified that strong partnerships and collaborations with stakeholders are crucial across all key sectors to ensure that these ambitious targets will be achieved.

IMPLEMENTATION

- Develop Low Carbon GHG Building Roadmap & outline targets
- Roadmap targets applicable to all new residential and commercial buildings
- LCB Roadmap Subsidies available for 3–5 Pilot Projects
- Near-zero performance standards implemented across 10% of new buildings
- Expand LCB Roadmap subsidies by KLCH to 10–15 pilot projects
- >30% of Total Buildings meet minimum Energy Consumption Targets
- All commercial buildings meet target Building Energy Intensity (BEI)



SUPPORTING KUALA LUMPUR'S CLIMATE ACTION PLANS

Energy Efficient Retrofitting: Reducing greenhouse gases by improving the energy performance of 27 public buildings in Kuala Lumpur

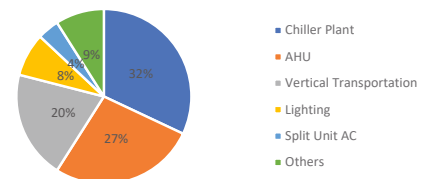
District Cooling System: Improving the energy efficiency of DBKL Tower 1 and Tower 2 through a river water-based District Cooling System.

Low Carbon Buildings:

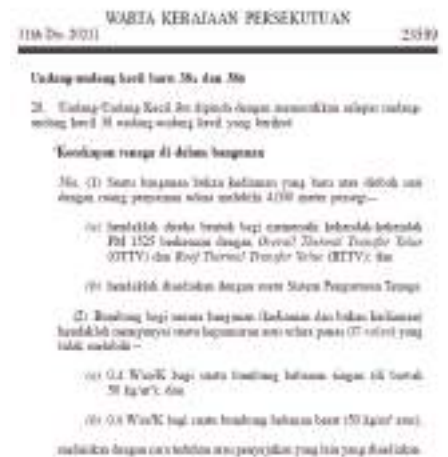
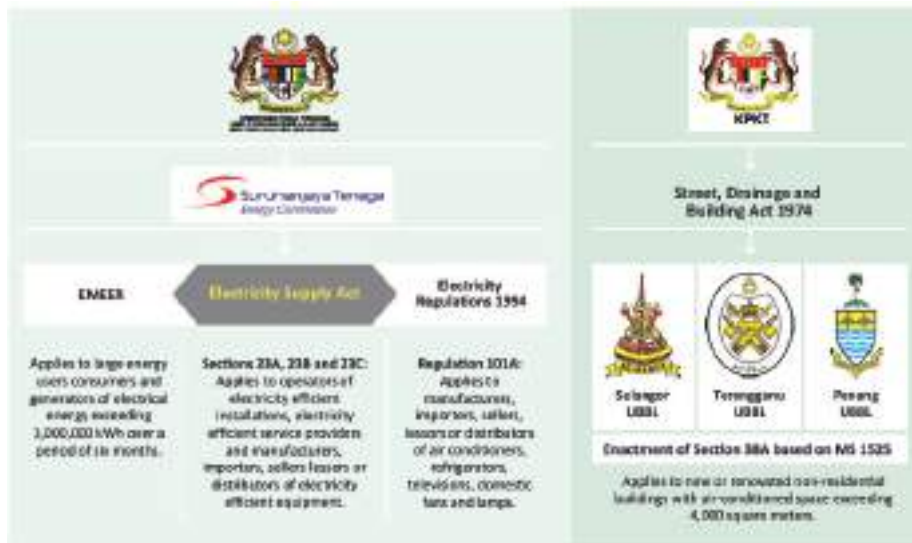
- 1) Implementing a Low Carbon Building Checklist
- 2) Energy Efficiency and Renewable Energy Plan and Actions towards Net Zero Emission Buildings



Load Apportioning for DBKL (Tower 1)

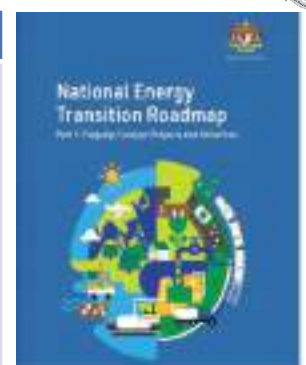


UBBL 2021 and MS 1525 : 2019 Energy Efficiency and Use of Renewable Energy for Non-Residential Buildings - Code of Practice (Third Revision)



TIME TO ACT FORUM 2023

	LOW CARBON 2030 AND NEUTRAL CARBON 2050	
Policies & Regulatory	1. Energy Commission Act 2001 2. Electricity Supply Act 1990 3. Electricity Regulations 1994 4. Renewable Energy Regulations 2011 5. Distribution Code 2017 6. Guideline on Solar PV, Act A1501	1. Electricity Supply Act 1990 2. Electricity Regulations 1994 3. Distribution Code 4. TNB Electricity Supply Application Handbook 5. IEC & ISO 50001:2011 6. MS 1525:2019 7. National EE Action Plan & Green Tech Master Plan 8. UBBL 2021
National Energy Policy, DTN 2022-2040	A7 – Solar Recourse (VPPA) A9 – New Energy Resources (Solar Thermal & Hybrid Battery) C4 – Business Platform To Access RE In Line With ESG (VPPA) E1 – Contribute Toward National Energy Council E2 – National Level Priorities	A10 – Demand Side Management In Industry (ESCO) A11 – Demand Side Management In Residential & Commercial (EPC) A12 – Scaled Up Demand Size (EEC & EACG) C2 – Carbon Reporting B6 – Power System (VRE & EV)





TOWARDS SMART, ZERO CARBON AND CLIMATE – RESILIENT CITIES IN MALAYSIA AND JAPAN

PARTNERS & COLLABORATORS

NATIONAL



INTERNATIONAL



KL'S Call For Action - RECOGNITION



A Film Showcasing the City-to-City Collaboration with Kuala Lumpur City Hall



Tokyo- Kuala Lumpur Collaboration Wins 2022 C40 Cities Bloomberg Philanthropies Award!



KL'S Call For Action - COLLABORATION



Saitama City Visit Kuala Lumpur August 2023



Saitama Courtesy Call with KL Mayor Aug, 2023



KL Ambassador Tour 2023

Embassies from the 13 countries involved are Sweden, Norway, Argentina, Belgium, Turkey, Italy, France, Australia, British, Brazil, New Zealand and Mexico.



Kuala Lumpur City Hall (DBKL) in collaboration with Pacific Northwest National Laboratory (PNNL) and Universiti Teknologi Malaysia (UTM) for Exploring Pathways To A Carbon Neutral Kuala Lumpur 2050



Austria



Partnership For Healthy Cities Summit London 2023



Urban Planning and Waste Management in Kuala Lumpur and Liberia.



TOWARDS SMART, ZERO CARBON AND CLIMATE – RESILIENT CITIES IN MALAYSIA AND JAPAN

EE & SOLAR PV DBKL



WANGSA MAJU CARBON NEUTRAL GROWTH CENTRE

– SOLAR PANEL (RE) INITIATIVES



PRIVATE SECTOR



DUKE-Plaza Toll



IKEA Cheras



KLCC



AEON-Wangsa Maju



KEN Tower-TDI



UTM-Semarak

CITIES FINANCE FACILITY (CFF) - INITIATIVES



27 Public building in Kuala Lumpur



- > Renewable energy and energy efficiency measures on **27 public buildings**
- > Proofing **viability of national policy** for PV installation (30% of rooftop size)
- > Developing a **cost-competitive business model** for RE/EE with significant scale-up and replication potential in Kuala Lumpur and Malaysia



Expected investment volume:
exceeding at EUR 7.5 million



CO₂ emissions reductions:
8,700t annually (RE) + (EE)



Financing source:
Private sector (city budget,
guarantees, etc.)



Financing instrument:
Public-Private-Partnership

	TG 1 Energy Efficiency	TG 2 Renewable Energy	TG 3 District Cooling System
Output 1 (Capacity Development)	✓	✓	✓
Output 2 (Institutional & Legal Assessment)	According to existing guideline & bylaw		✓
Output 3 (Techno-economic assessment of project)	✓	✓	✓
Output 4 (Finance Investment)	✓ (EPC-ESCO)	✓ (Leasing)	DBKL internal financing
Output 5 (Project Roll-out, Monitoring and O&M)	✓	✓	Building plant: construction require longer approval stage

Expected investment volume:
exceeding at EUR 7.5 million

CO₂ emissions reductions:
8,700t annually

Financing source:
Private sector (city budget,
guarantees, etc.)

Financing instrument:
Public-Private-Partnership

Improving energy efficiency of two public buildings by implementing a District Cooling System (DCS) using the nearby Gombak River, thereby reducing air conditioning usage and electricity consumption.

Prove financial viability of DCS by retrofitting older buildings (pilot project for Malaysia)

Potential for upscaling and public sector replication

District cooling system, schematic representation

PRIVATE SECTOR-TRX City LOW CARBON EFFORTS

TRX Aligns with the following UN Sustainable Development Goals:

GOAL 5 GENDER EQUALITY Achieve gender equality and empower all women and girls	GOAL 6 CLEAN WATER AND SANITATION Provide accessible and equitable sanitation and clean water for all	GOAL 7 AFFORDABLE AND CLEAN ENERGY Ensure access to affordable, reliable, sustainable and modern energy for all	GOAL 8 DECENT WORK AND ECONOMIC GROWTH Promote inclusive and sustainable economic growth, full and productive employment and decent work for all
GOAL 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	GOAL 11 SUSTAINABLE CITIES AND COMMUNITIES Make cities and human settlements inclusive, safe, resilient and sustainable	GOAL 12 RESPONSIBLE CONSUMPTION AND PRODUCTION Ensure sustainable consumption and production patterns	GOAL 13 CLIMATE ACTION Take urgent action to combat climate change and its impacts



TRX City is excited to be part of the C40 Cities Climate Leadership Group visit and will continue to work with DBKL in shaping a sustainable and resilient Kuala Lumpur.

At TRX, we are conscious of the impact of our operations on the environment, our employees, and the communities we serve. The TRX EESD framework outlines our approach in managing our impact:

ECONOMY	Building value for the economy through TRX City Group's real estate value chain
ENVIRONMENTAL	Reduce environmental impact of operations and be proactive in the transition for a better carbon economy
SOCIAL	Ensure a productive and inclusive workforce and civil social impact
GOVERNANCE	Promote good governance and effective engagement with stakeholders



World Green Building Council Asia Pacific Leadership in Green Building Awards 2022

Award Winner

Leadership in Sustainable Design and Performance Award for Commercial Category for Menara RQ by TRX, Malaysia

ASEAN Federation of Engineering Organisations (AFEO) 2022

Award Winner

ASEAN Outstanding Engineering Achievement Award for Sewerage Treatment and Plant Design by TRX City Sdn Bhd



Green Building Index Association Panel

Platinum Provisional Certificate

First district in Malaysia to achieve GBI Platinum Provisional Certificate

LEED (US) Green Building Council

Gold Pre-certified Plan

LEED Neighbourhood Development Gold Pre-certified Plan

MASTER PLANS – LOW CARBON CHECKLIST



CG000041-P0-KUH01
BORANG SEMAK PENGEMUKAAN BORANG SERAGAM BANGUNAN RENDAH KARBON

BORANG SEMAK PENGEMUKAAN BORANG SERAGAM BANGUNAN RENDAH KARBON

Petikan:

Salah satu Penerimaan Pengemukaan Penilaian Kebajikan Perumahan untuk menjadikan dokumen dan plan mengikut format semak ini. Penilaian dokumen dan plan yang diperlukan adalah lengkap dan tepat.

Nota:

1. Borang ini terpakai untuk semua skala pembangunan.
2. Perunding Bersebelah adalah di kalangan perunding yang berdaftar, membuat pengiraan dan laporan serta melaksanakan data-data Bangunan Rendah Karbon yang dilaksanakan.
3. Pentaksiran kepada Bangunan Bersebelah besar pada borang ini adalah semua bangunan di Wilayah Persekutuan Kuala Lumpur yang berkeluasan 5 tingkat dan ke atas dan berkeluasan melebihi 1000 meter persegi dan bukannya skala besar seperti pejabat, Jaminan Perumahan (Pusat Secepat OSC).

KOD 1.1 BERKAITAN PASIF:

1.1 Prestasi 'Building Envelope' Yang Canggih

PENERANGAN	KATEGORI BANGUNAN	DATASAS (BASELINE)	DATA SESEKAR DAN PEMBUATAN	SEKALAH (UNIT)	BERKAITAN (TUNJUKAN: F)
1.1.1. Koperium minimum 'building envelope'	Bangunan baharu bersebelah besar (komersial) ruang	OITTV < 50 W/m ² (OITTV: Overall Thermal Transfer Value)	____ W/m ² (Pengiraan, pengiraan, pengiraan, pengiraan)	JKK	

PLANTING MORE TREES



From 2010 until 2022, Kuala Lumpur has planted a total of 170,351 mature trees and it can absorb carbon in the city as much as 2,810,792 tonne CO₂.



Pocket Park



1 COMMUNITY 1 RECYCLE PROGRAMME

In 2021, Kuala Lumpur has reduced carbon emissions by 47.29 kilo tonnes of CO₂, the difference with 2014. The difference is equivalent to the planting of 2866 trees



KUALA LUMPUR URBAN FARMING



Community Farm at PPR Intan Baiduri



Community Farm at Flat Sri Perlis 2



Transportation & Mobility

EV BUS : FIRST-MILE LAST-MILE CONNECTIVITY



GoKL City Bus free bus service to go fully electric by early 2023, using 60 Malaysian-made SKS EV buses

Hyundai, EVs and Alternative Fuel, Local News, Public Transport / By Anthony Din / 18 October 2021 8:42 pm

Since the use of EV GOKL Buses in 2022, Kuala Lumpur has reduced as much as 593 tonnes CO2 which is equivalent to 36 matured trees.



ELECTRIC TRAIN : FIRST-MILE LAST-MILE CONNECTIVITY



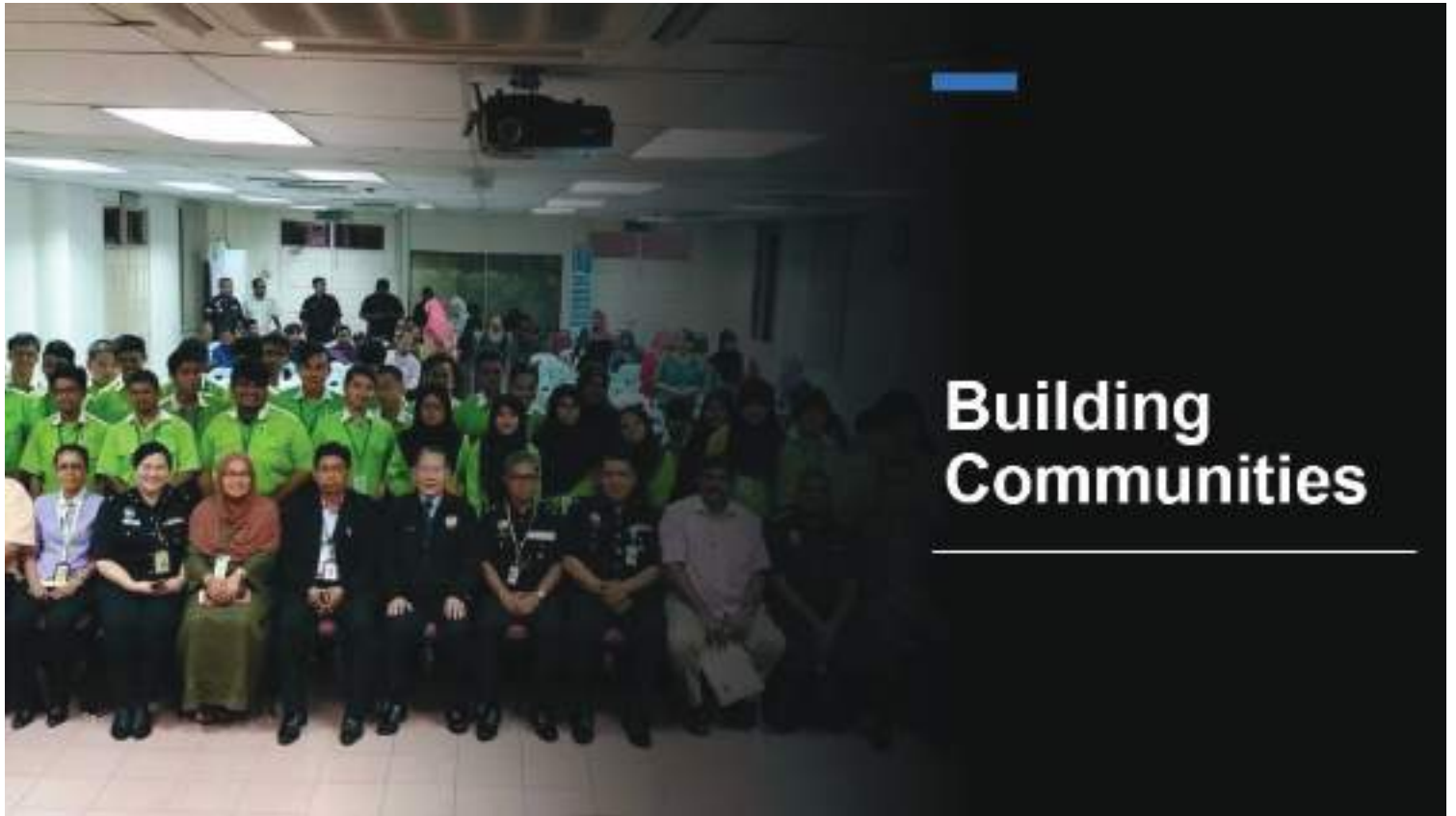
KL SENTRAL



The Electric Train Transportation System has successfully enabled the transportation sector to contribute to the reduction of Kuala Lumpur City's carbon emissions by 47,341 tonne Co₂ in 2022. This value is equivalent to carbon absorption by 2869 trees.

MASTER PLANS – ELECTRIC VEHICLES CHARGING STATIONS





TOWARDS SMART, ZERO CARBON AND CLIMATE – RESILIENT CITIES IN MALAYSIA AND JAPAN

URBAN CLIMATE RESILIENCE PROGRAMME (UCRP)

Period : 3 Years, July 2023 to March 2026

Location : 2 selected communities facing heat and flooding risks

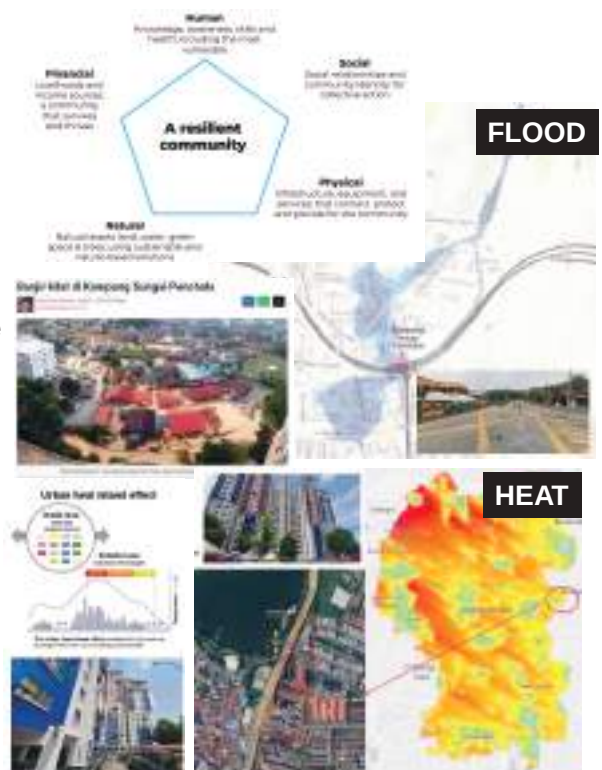
Key Activities

- Prepare and Baseline existing resilience capacity using Climate Resilience Measurement for Communities (CRMC) tool
- Vision & Action Planning to enhance community resilience
- Supporting implementation of community resilience actions
- Learning, Advocacy & Monitoring to share knowledge and sustain the programme in the long term

Impact : Observable and measurable changes in people's lives; overall resilience capacity of the city; and other programme benefits.

Collaboration with C40 Cities

Stakeholders : Related agencies, Local Communities dan NGOs



KUALA LUMPUR SUSTAINABLE SCHOOL PROGRAM



VISION : School communities embrace and practice sustainability culture towards achieving Kuala Lumpur Sustainable Community.

MISSION :

- To create knowledgeable, innovative and pro-active School Communities.
- To develop school communities in the process to establish the Kuala Lumpur Sustainable Community.
- To establish Sustainability Practice Icon among the School Communities .

GOALS : Strive to make school in Kuala Lumpur a Sustainable School

PILOT project : 15 Schools (9 primary, 6 secondary)



Children International Exchange Seminar On Climate Change Action And SDGs Initiatives: **Energy Efficiency And Renewable Energy** – Tokyo- KL 18 Nov 2023



SCHOOL PROGRAM INITIATIVES

Engagement with teachers



Smart Water Consumption and Management Programme.



Schools Urban Farming



SDG Camps



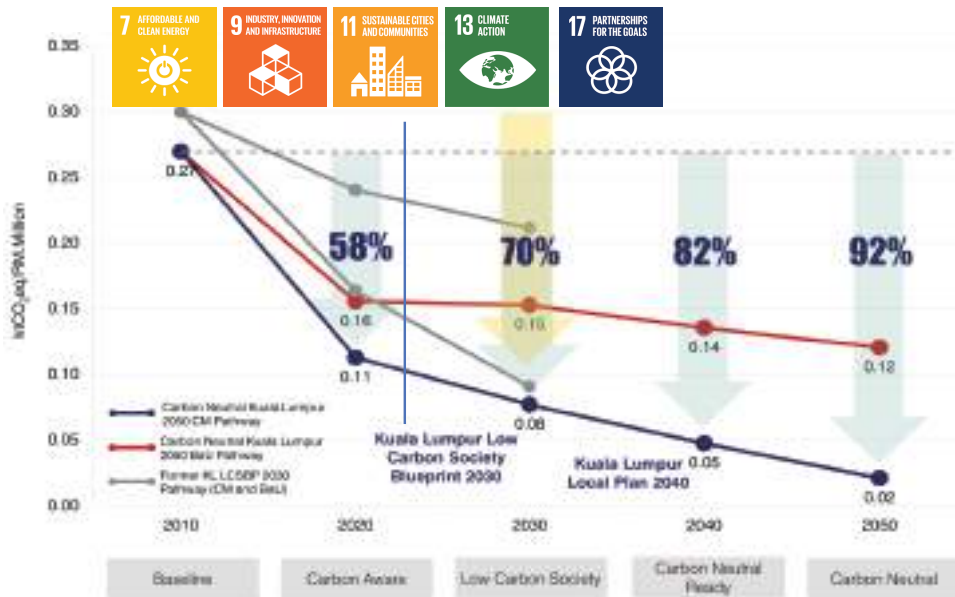
Students Placemaking – Low Carbon Cities





CARBON NEUTRAL KUALA LUMPUR BY 2050

Carbon Neutral Kuala Lumpur 2050 Scenario Pathway



Kuala Lumpur City Hall (KLCH)

Kuala Lumpur aims to become
Carbon Neutral Kuala Lumpur
by
2050

Source: UTM-LCARC Projections



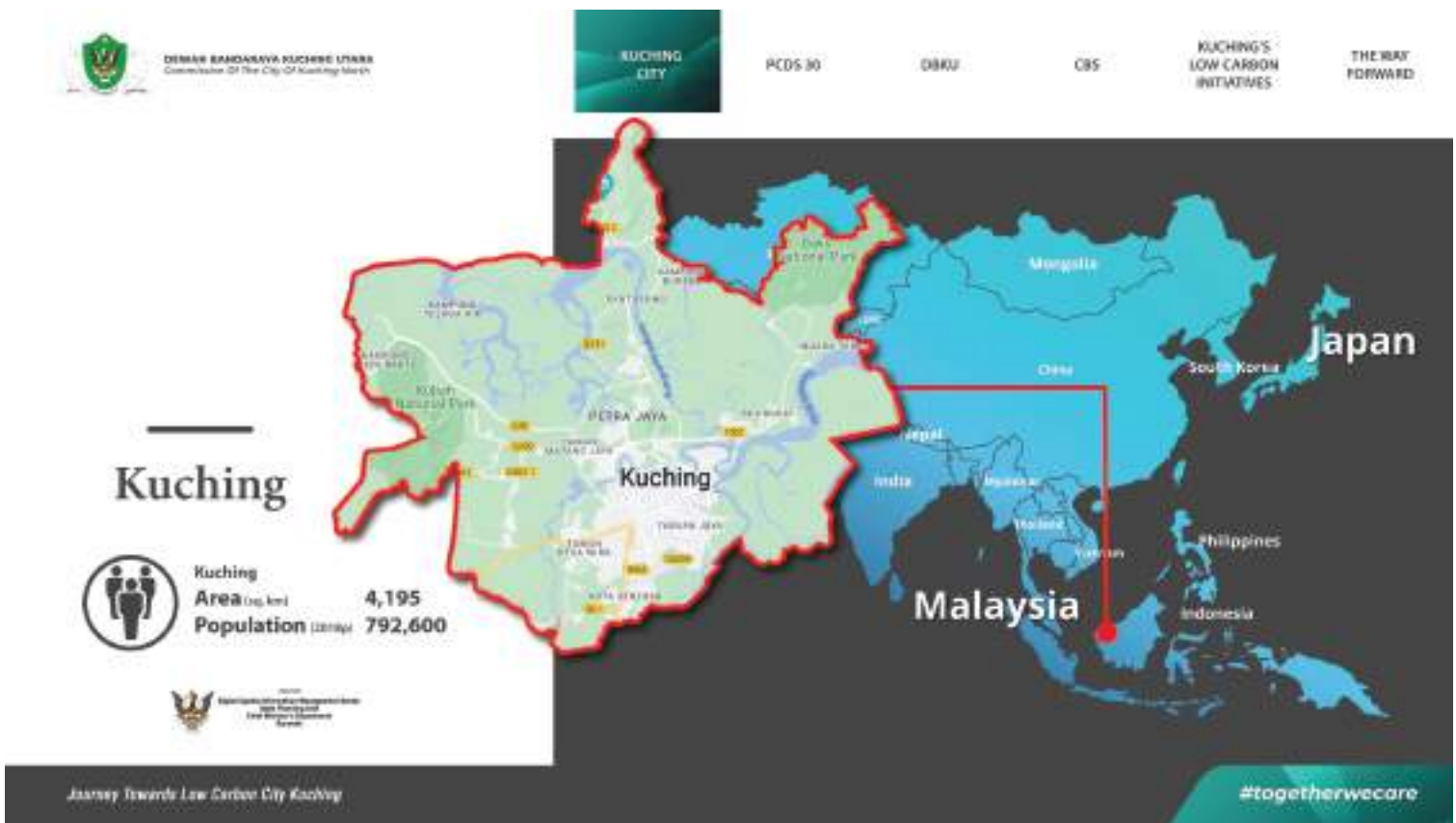
THANKYOU ◆ TERIMA KASIH



KUALA LUMPUR
CITY FOR ALL

VISIBILITY IS KEY







DEWAN BANDARAYA KUCHING UTARA
Commission Of The City Of Kuching North



PCDS 30

DBKU

CBS

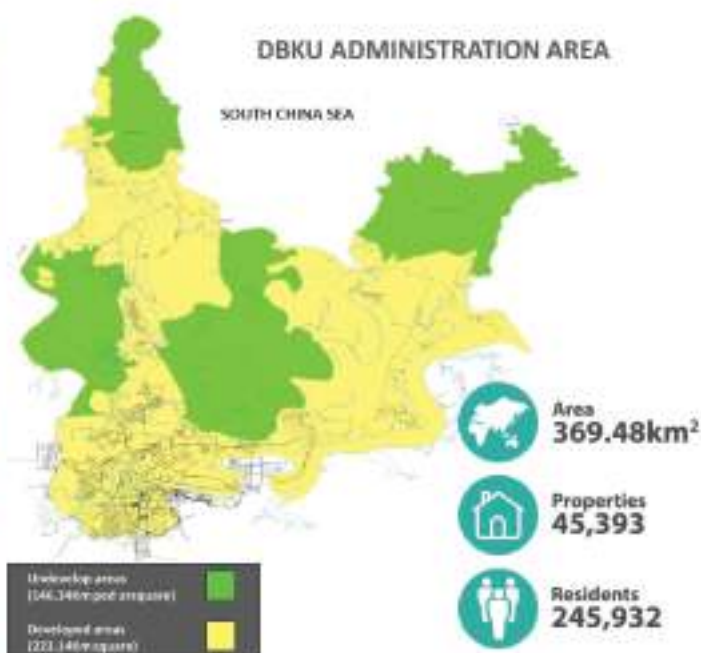
KUCHING'S
LOW CARBON
INITIATIVES

THE WAY
FORWARD



DBKU ADMINISTRATION AREA

SOUTH CHINA SEA



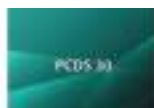
Journey Towards Low Carbon City Kuching

#togetherwecare



DEWAN BANDARAYA KUCHING UTARA
Commission Of The City Of Kuching North

KUCHING
CITY



DBKU

CBS

KUCHING'S
LOW CARBON
INITIATIVES

THE WAY
FORWARD



Post Covid-19 Development Strategy 2030 (PCDS30)

“By 2030, Sarawak will be a thriving society driven by data and innovation where everyone enjoys economic prosperity, social inclusivity and sustainable environment”

Datuk Patinggi Tan Sri (Dr) Abang Haji Abdul Rahman Zohari Bin Tan Datuk Abang Haji Openg
Premier of Sarawak

Journey Towards Low Carbon City Kuching

#togetherwecare





DEWAN BANDARAYA KUCHING UTARA
Commissioner Of The City Of Kuching North

KUCHING CITY

PCDS 30

DBKU

CBS

KUCHING'S LOW CARBON INITIATIVES

THE WAY FORWARD

Core Function



- Collect assessment tax
- Issuing business licenses
- Administer and enforce by-laws relating to licenses, health, parks, buildings, sanitation, drains and road permits
- To plan and implement road development programs, drainage, sidewalks, parks, landscaping, public facilities and street lighting
- As an agent to implement other government agency projects
- Coordinate development programs of other government agencies involving the city
- Maintain the public environment of the city including roads, drainage, sidewalks, parks, recreation areas and rivers
- Administer and manage the parking system
- Administer and manage public facilities such as toilets, libraries, markets and hawker centers
- Inculcate civic awareness among citizens

Journey Towards Low Carbon City Kuching

#togetherwecare



DEWAN BANDARAYA KUCHING UTARA
Commissioner Of The City Of Kuching North

KUCHING
CITY

PCDS 90

DBKU

CBS

KUCHING'S
LOW CARBON
INITIATIVES

THE WAY
FORWARD



Clean • Beautiful • Safe • Smart • Sustainable
Dewan Bandaraya Kuching Utara

Journey Towards Low Carbon City Kuching

#togetherwecare



DEWAN BANDARAYA KUCHING UTARA
Commissioner Of The City Of Kuching North

KUCHING
CITY

PCDS 90

DBKU

CBS

KUCHING'S
LOW CARBON
INITIATIVES

THE WAY
FORWARD

KUCHING'S LOW CARBON INITIATIVES



KUCHING URBAN
TRANSPORTATION
SYSTEM (KUTS)



CAR FREE
MORNING



SMART
STREETLIGHTING



SMART TRAFFIC
LIGHT



WASTE
SEGREGATION



COMPLIANCE TO
INTERNATIONAL
STANDARD

Journey Towards Low Carbon City Kuching

#togetherwecare



DEWAN BANDARAYA KUCHING UTARA
Commissioner of The City of Kuching North

KUCHING
CITY

PCDS 30

DBKU

CBS

KUCHING'S
LOW CARBON
INITIATIVES

THE WAY
FORWARD



KUTS - Kuching Urban Transportation System

Hydrogen Powered ART



Journey Towards Low Carbon City Kuching

#togetherwecare



DEWAN BANDARAYA KUCHING UTARA
Commissioner of The City of Kuching North

KUCHING
CITY

PCDS 30

DBKU

CBS

KUCHING'S
LOW CARBON
INITIATIVES

THE WAY
FORWARD

Car Free Morning



Journey Towards Low Carbon City Kuching

#togetherwecare



Smart Streetlighting

More efficient and environmental friendly by Controlling energy efficient LED Streetlights Lantern remotely to turn on only when needed and to remain in a dim state otherwise.



PHASE I IMPLEMENTATION

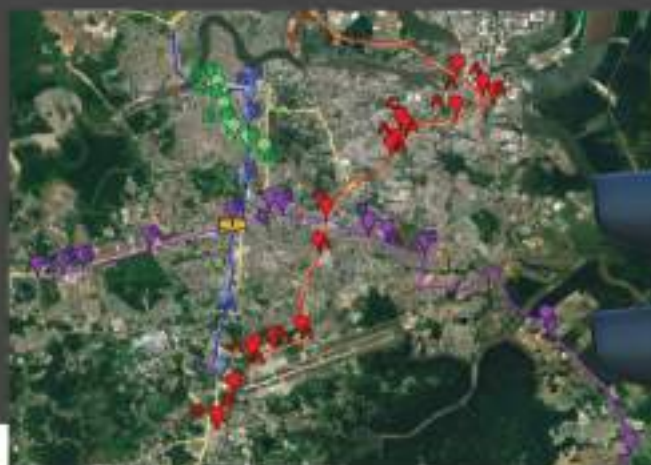
- 1 Jalan Poringen
- 2 Jalan Muhibbati
- 3 Jalan Datuk Ajah Abot
- 4 Jalan Haj Hassan
- 5 Jalan Mada Hashim
- 6 Jalan Bakhari
- 7 Jalan Poringi Al
- 8 Jalan Haj Hassan

210 SMART LED
STREETLIGHTS



Smart Traffic Light

Sydney Coordinated Adaptive
Traffic System (SCATS)
Integrated Traffic Light System



Authorities Involved



42 Traffic Light
Junctions



DEWAN RAKYAT NAYAG KUCHING UTARA
Commissioner Of The City Of Kuching North

KUCHING
CITY

PCDS 30

DBKU

CBS

KUCHING'S
LOW CARBON
INITIATIVES

THE WAY
FORWARD

Waste Segregation



Journey Towards Low Carbon City Kuching

#togetherwecare



DEWAN RAKYAT NAYAG KUCHING UTARA
Commissioner Of The City Of Kuching North

KUCHING
CITY

PCDS 30

DBKU

CBS

KUCHING'S
LOW CARBON
INITIATIVES

THE WAY
FORWARD



"DBKU receiving the Premier of Sarawak Environmental Award 2021/2022"

Compliance to International Standard ISO EMS14001:2015 ISO ENMS50001:2018



Journey Towards Low Carbon City Kuching

#togetherwecare



DEWAN BANDARAYA KUCHING UTARA
Commissioner Of The City Of Kuching North

KUCHING
CITY

PCDS 30

DBKU

CBS

KUCHING'S
LOW CARBON
INITIATIVES

THE WAY
FORWARD



"Sarawak Government is steadfast in its commitment to a Net Zero Carbon Future. I am pleased that Sarawak has taken the lead in many clean energy initiatives that will form the foundation of a sustainable and vibrant economy and at the same time, position ourselves as the clean energy hub for the region."

Premier of Sarawak, 5th International Energy Week
13th June 2023
Kuching, Sarawak



Journey Towards Low Carbon City Kuching

#togetherwecare

IGES High Level Talks

Towards Smart Zero Carbon and Climate Resilient Cities in Malaysia and Japan

PENANG 2030

**A FAMILY-FOCUSED GREEN AND SMART STATE
THAT INSPIRES THE NATION**

Location of Penang



PENANG BASIC PROFILE

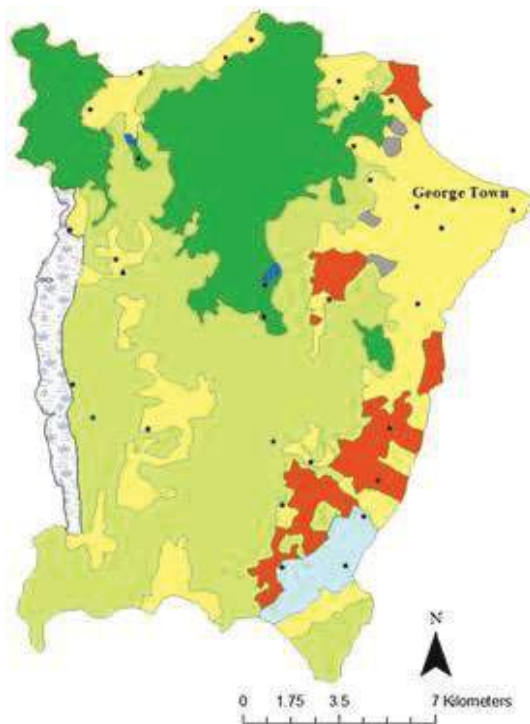


	Area (Hectare)
Northeast Penang Island	12,761.89
Southwest Penang Island	18,006.37
North Seberang Perai	27,467.59
Central Seberang Perai	23,885.23
South Seberang Perai	24,637.11
Total	106,758.18

Source : PLANMalaysia@Pulau Pinang, 2019

Source : www.visitselangor.com

PENANG ISLAND



303 square kilometers

792,000 population

61.84% of Penang Island covered with natural/ green areas

Land above 75 meters (250 feet) from sea level is maintained as natural/ green area -restricted development

No development is allowed on slopes above 25 degrees

GEORGE TOWN UNESCO WORLD HERITAGE SITE

The inscription of George Town as a **UNESCO World Heritage Site on 7 July 2008** was based on the Outstanding Universal Value of cultural diversity embodied and embedded in the living heritage and built heritage





Intelligent
City



Liveable
City



Happy
City



Penang Green Council (established in 2011)

VISION

PGC as a central hub harnessing green technology and supporting holistic Green initiatives to achieve sustainable and resilient Penang

MISSION

To enable, empower and enrich all stakeholders to practice sustainable development that protects the environment and quality of life

- AIMS of PGA
- Provide a framework for sustainable future growth in Penang
- **Help prioritisation** of policy options that will catalyse real changes on the ground
- Provide a **roadmap for Penang** to achieve its Sustainable Development Goals (SDGs)
- Establish a **forward-looking approach** to development and planning in Penang

Penang Green Agenda 2030



Engages all stakeholders and Penangites to identify and combat the current and future environmental challenges of the state, proposing feasible solutions.

10 Working Group

The working groups:

1. Land Use and Planning,
2. Disaster Risk Reduction and Management,
3. Green Economy,
4. Agriculture,
5. Marine and Coastal Management, Sustainable Mobility and Connectivity
6. Green Building and Township,
7. Water and Sanitation,
8. Governance and Institutions
9. Biodiversity; and
10. Natural Ecosystem

GREEN INDUSTRY

Manufacturing Sector in Penang:

- **E&E Hub**
- **More than 300 MNCs and is home to 3000 SMEs supporting the semiconductor supply chain.**
- **Contributes to approximately 8% of the global back-end semiconductor output.**
- **Mid to lower end of value chain**

Circular Economy and Industry: Platform for Partnerships and Capacity Development

Objectives

- Reduce environmental impacts of production and consumption
- Improve productivity, environmental performance and competitiveness (incl. ESG)
- Transform Penang into a Green Industrial Hub.

Strategies

- Platform Establishment
- Partnership Programme
- Supporting Programme



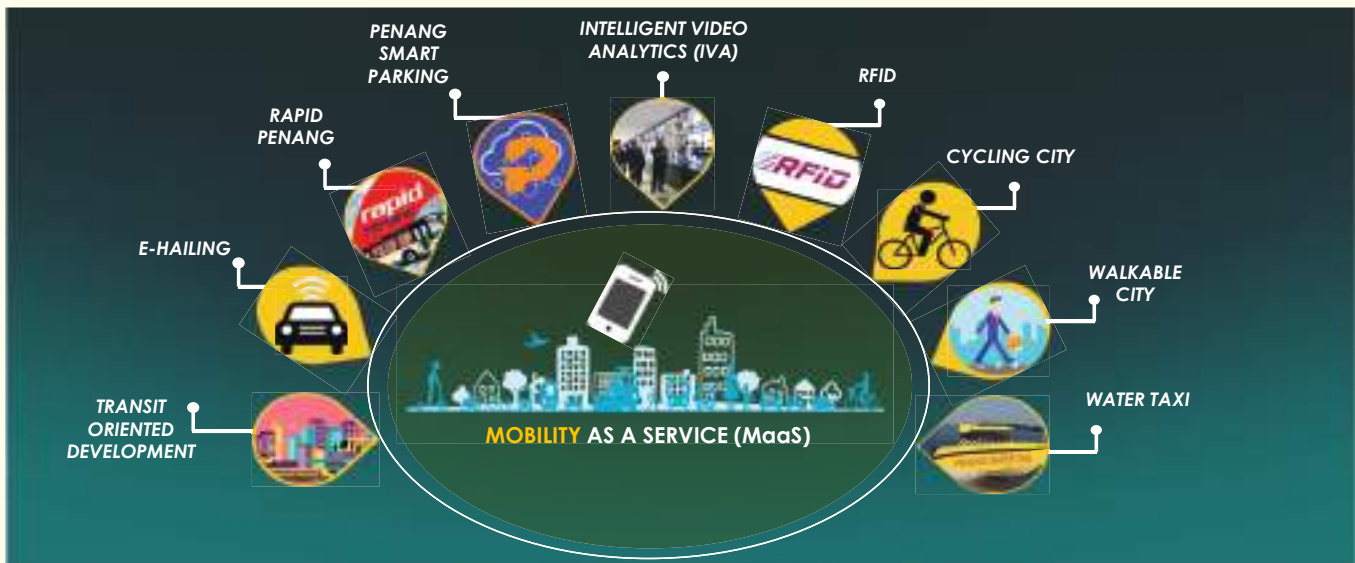


PUBLIC BUS AND FERRY SERVICES PROVIDED **FREE TO CITIZENS**
Funded by the State Government and City Council of Penang Island



RM11.4 million (USD3 million)
allocated in 2023

Mobility as a Service



This is an integrated public and private transport system that focuses on smart mobility and reduces the use of private motorised vehicles



Spiral bridge
Opening May 2018

Harnessing solar power



The spiral bridge along with two other bridges across Sungai Nibong Kecil and Sungai Ara including 1.5 km of cycle lanes were built at a cost of RM8.9 million.



BIKE ON FRIDAY (BOF)

Introduced in March 2015

Aiming to promote and encourage the **usage of the dedicated bicycle lanes** and to promote the idea of **cycling to work on Friday**, which is usually a heavy-traffic day.



BICYCLE SHARING SYSTEM

The Bike Sharing System was launched in 2016 by MBPP to encourage cycling for work and leisure/recreation, to serve as a short distance transit vehicle and to reduce the usage of motor vehicles; for the general public and tourists.

Currently, there are 250 LinkBike bicycles and 29 stations throughout Penang Island, which includes George Town World Heritage Site.

Penang's GREEN Initiatives

PLASTIC USAGE CONTROL

Photo credit: unsplash.com/aaronlee1

2009

No Free Plastic Bag Day Every Monday

2011

Everyday is No Free Plastic Bag Day

2012

Ban on polystyrene food containers (Educational phase started from 2009)

2016

Waste Segregation at Source Policy

2018

- 'No Single Use Plastic' campaign
- Launching of Penang 2030

2019

- 'No Plastic Straw' campaign
- 'No Plastic Bag Day Every Monday'

2020

- No Plastic Bag Day Every Mon - Wed
- Seberang Perai Circular Economy Roadmap

2021

- No Plastic Bag Day Every Mon - Wed and RM1 charge on Thurs - Sun
- Launching of Penang Green Agenda
- Penang Waste Management Roadmap 2030





GREENHOUSE GAS

CARBON SINK

We can't stop **Urbanisation**, but we can go for



Green Buildings



Low Carbon City



Net Zero Buildings

Reference page 90



PENANG CARBON NEUTRAL 2050

CITY COUNCIL OF PENANG ISLAND ROAD MAP

CLIMATE ACTION PATHWAYS

IN COLLABORATION WITH UNIVERSITY SCIENCE MALAYSIA
GUIDED BY PROF. HO CHIN SIONG



Photo credit : behance.net



EVERYONE'S RESPONSIBILITY

1. INSTIL/ INCULCATE ENVIRONMENTAL RESPONSIBILITY (PRE-SCHOOL/ SCHOOL/ INSTITUTIONS)
2. PUBLIC ENGAGEMENT/ PARTICIPATION/ EMPOWERMENT
3. ENFORCEMENT



PROGRAMS AND CAMPAIGNS

– 5R (Refuse, reduce, reuse, repurpose and recycle)



1

"SAY NO TO PLASTIC STRAWS & SINGLE-USE PLASTICS" CAMPAIGN

Shopping Complexes, F and B outlets, hawker centres and commercial premises along the coast



2

EDUCATION AND RECYCLING PROGRAMS

Started in 2011, involving pre-school, primary schools and secondary schools



3

BRING YOUR OWN BAG/CONTAINER CAMPAIGNS (BYOB/BYOC) '



WATER SAVING DEVICES

Penang also adopts 'water demand management'- through mandatory installation of water saving devices in new development projects, **the first state in Malaysia to require water saving devices (tap fittings, shower fittings, toilet cisterns and urinals), to be installed in all new projects.**



RAINWATER HARVESTING

Penang has implemented the Requirements of Rainwater Collection And Utilisation System (SPAH) pursuant to By-Laws 115

RETROFIT ENERGY MANAGEMENT SCHEME (REMS) FOR STREET LIGHTING IN PENANG ISLAND



1. City Council of Penang Island has changed all 33,000 units of street lighting within Penang Island.
2. The project cost is mostly funded by the cost savings from monthly electricity bills charges.
3. Target Outcome:
 - I. Save RM6.0 million per year.
 - II. Reduction of Carbon Footprint (9 kilo tons Co2 per year).

Retrofit Energy Management Scheme (REMS) of Solar Installation for City Council of Penang Island

Retrofit Energy Management Scheme (REMS) of Solar Installation for City Council of Penang Island

City Council of Penang Island is in the progress of installing solar system on the selected premises rooftop.

The project is using zero Capex whereby City Council of Penang Island will pay directly the electricity bill to the solar energy provider. Save RM220,000.00 per year.

Reduction of Carbon Footprint is expected to be around 758,642 kg CO₂ per year.



TREE PLANTING AND MAINTENANCE

100,00 trees planted in the last 5 years

In managing and maintaining trees effectively landscaping, landscape managers need to have accurate and current information about trees or groups of trees to be managed. Information such as tree species, number of trees, the location and position of trees, tree size, tree current health status and maintenance requirements for each tree are constantly



HOME MALAYSIA

Dramatic warming projected in world's major cities, including KL, by 2050

Published 1 year ago on 11 July 2018



Scientists have predicted the likes of Kuala Lumpur, Jakarta, and Singapore will experience unprecedented climate conditions by 2050. — AFP pic

“Climate change is the biggest threat the world faces and we must act now”.

UN Secretary general Antonio Guterres
2018

MITIGATION AND ADAPTATION PROJECTS

Southeast Asia is one of three regions in the world which will be hardest hit by climate change in the near future.

Special Report on Global Warming of 1.5 ° C, IPCC, October 8th, 2018

Malaysia's urban areas were not at risk from heat stress in 2000 but will be in 2050.

Impact 2050 – The Future of Cities, Technical report, UCCRN, 2018

More extreme weather events



Flooding



Heat waves

Damage to infrastructure and private property

Negative impact in human and ecosystem health

Agriculture production losses

Rise of temperatures



Impact on health



Increased costs

Less livability conditions

Increased costs of food

Increased energetic costs

INTELLIGENT OPERATIONS CENTER (IOC)



1045 cameras installed to date
with analytical features

Traffic monitoring, flood
monitoring, slope monitoring,
illegal dumping, covert operation

Enforcement and public warning
system





Virtual Island of Penang (ViP)



KEY DELIVERABLES

- Phase 1 – Building The Infrastructure, Workflows and Framework Foundation
- Phase 2 – Driving Digital Transformation of City Operations
- Phase 3 – Driving Digital Innovation with Smart Initiatives and Services
- Phase 4 – Interconnecting Local Government and Citizens with Public Engagement Hub



IMPACT / BENEFIT

- Mapping and Visualization
- Data Management
- Field Mobility
- Monitoring and Assessment
- Data Analytic
- Decision Support
- Sharing and Collaboration
- Data monetization



PROJECT MILESTONE

- **Current Status :**
- **Phase 1 : 95%**
- **Phase 2 : Tender Process**



OBSERVATION AND MONITORING WITH DRONES



SLOPE FAILURE Sungai Kelian, Jalan Lembah Permai, Tanjung Bunga, Pulau Pinang. (18 May 2018)

DRONES



Slope failure Lebuhraya Berkembar, Jalan Paya Terubong, Pulau Pinang (18 October 2018)



WATER/ FLOOD LEVEL MONITORING- WATER LEVEL SENSORS

SENSOR MENGEKSA PARAS AIR DI LOKASI HOT SPOT



NO	WATER SENSOR LOCATION
1.	Lebuhraya M100 / Lebuhraya Kuching
2.	Lebuhraya P. Banting / Jalan P. Banting
3.	Jalan Langkat / Jalan Banting (Majlis Daerah Banting)
4.	Jalan Banting (Majlis Daerah Banting)
5.	Jalan Ayer Hitam (Jalan Banting) Pulau Pinang
6.	Jalan Banting Banting
7.	Lebuhraya Kuching / Jalan Banting (M100)
8.	Jalan Tan Sri Ariffin (Majlis Daerah Banting)
9.	Jalan Banting Panti 2 (Jalan Banting) Banting
10.	Jalan Banting Banting (Majlis Daerah Banting)

AMARAN DIHANTAR



TELEFON BIMBIT



LANAMAN WEB MBPP



EMAIL PEGAWAI MBPP

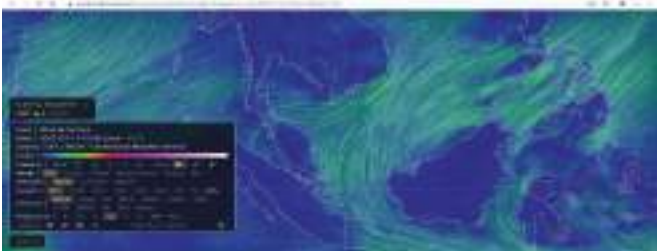
CLIMATE CRISIS MANAGEMENT - OPEN SOURCE DATA



RAIN ALARM



WEATHERLINK



EARTH NULLSCHOOL



AMBIENT WEATHER

PENGUNAAN OPEN SOURCE DATA SELAIN DARIPADA DATA MET MALAYSIA DAN JPS UNTUK TUJUAN PEMANTAUAN, PERSEDIAAN DAN PELAPORAN BENCANA

FLOODING AND SLOPE FAILURE HOTSPOTS

FLOOD HOT SPOTS



59 Locations

SLOPE FAILURE HOT SPOTS



33 Locations

FLOOD HAZARD MAP

50 ARI FLOOD HAZARD MAP

100 ARI FLOOD HAZARD MAP

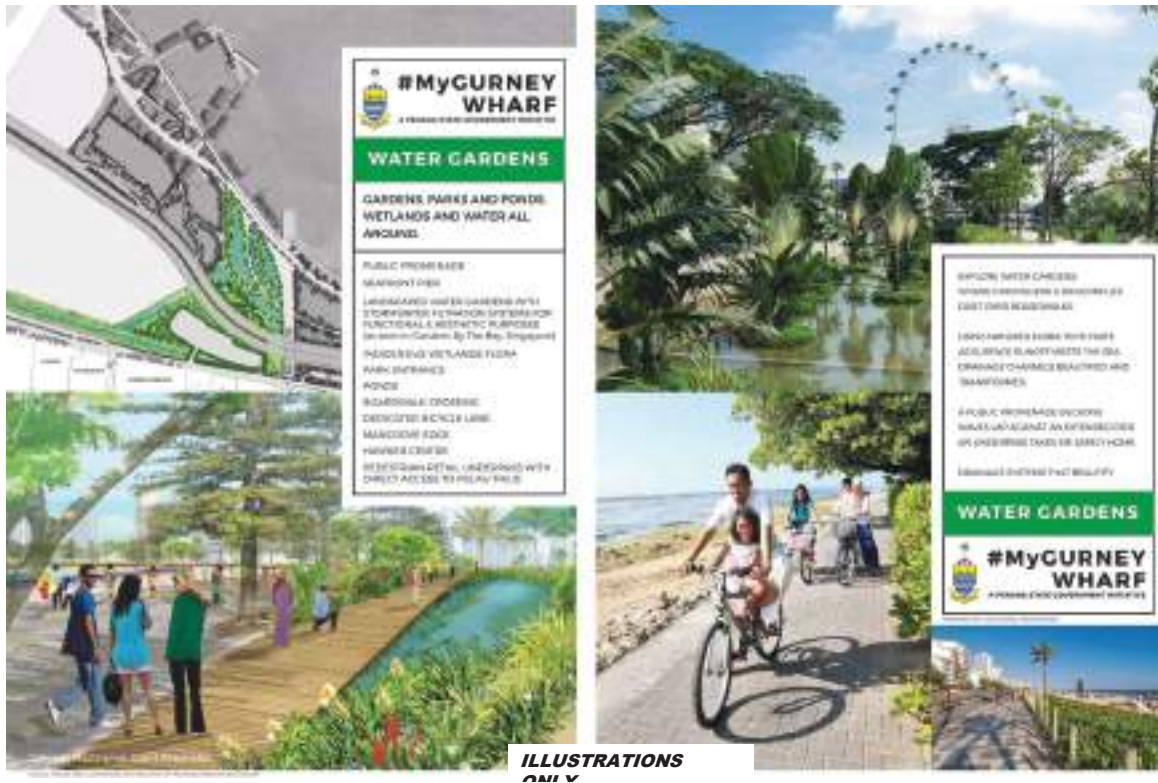


Sumber: Kajian Pelan Induk Saliran Mesra Alam Bagi Daerah Timur Laut Pulau Pinang oleh JPS (November 2018)

GURNEY BAY PROJECT



GURNEY BAY PROJECT

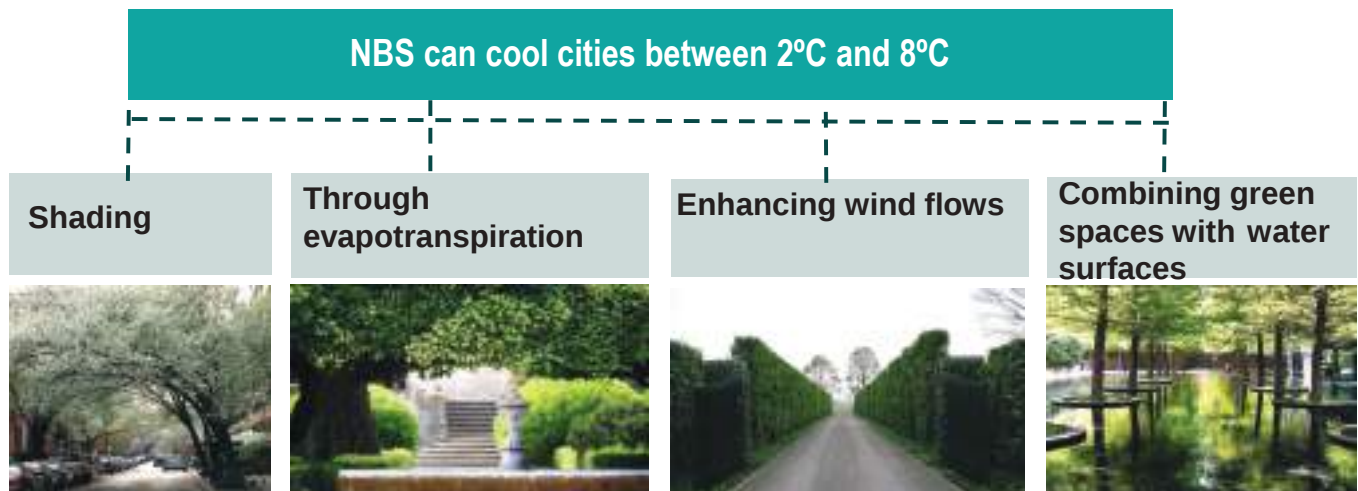


• PENANG

NATURE-BASED CLIMATE ADAPTATION PROGRAMME FOR THE URBAN AREAS OF PENANG ISLAND

CO-ORGANISERS : City Council of Penang island - Think City

NATURE BASED SOLUTIONS (NBS) HAVE PROVEN TO BE THE MOST EFFECTIVE STRATEGY TO REDUCE TEMPERATURES IN THE CITY



Surface cooling can be achieved through increased wind speed, coverage with surface water and shading. The first and last of these, of course can be provided by suitably placed vegetation.

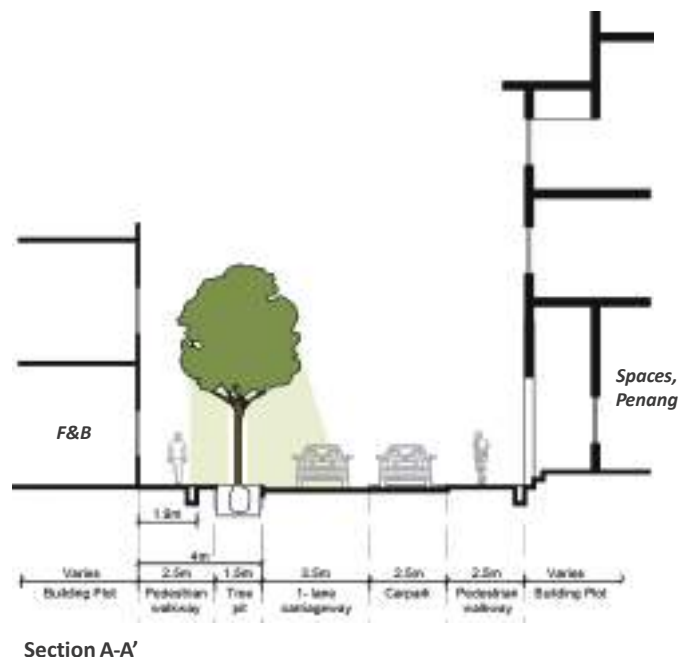
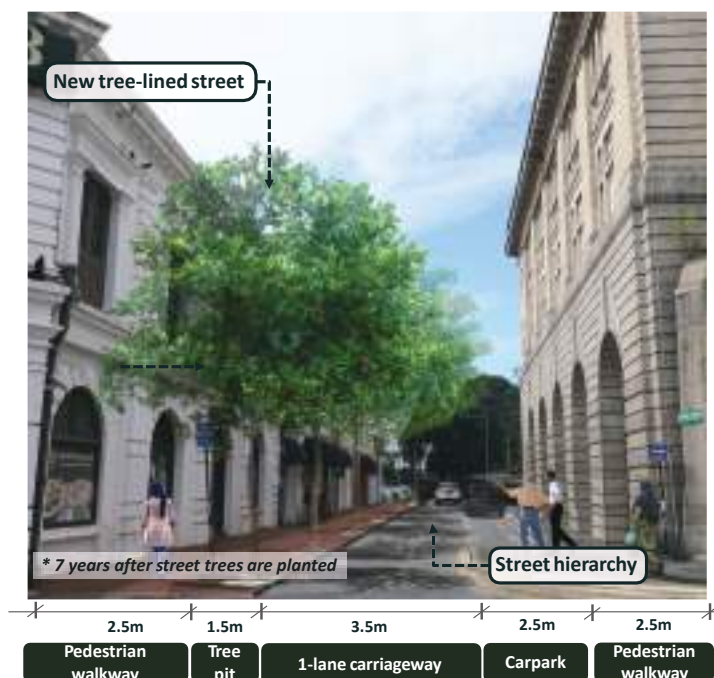
(Guide to Urban Cooling Strategies, 2017, p.11)



PROGRAMME COMPONENTS

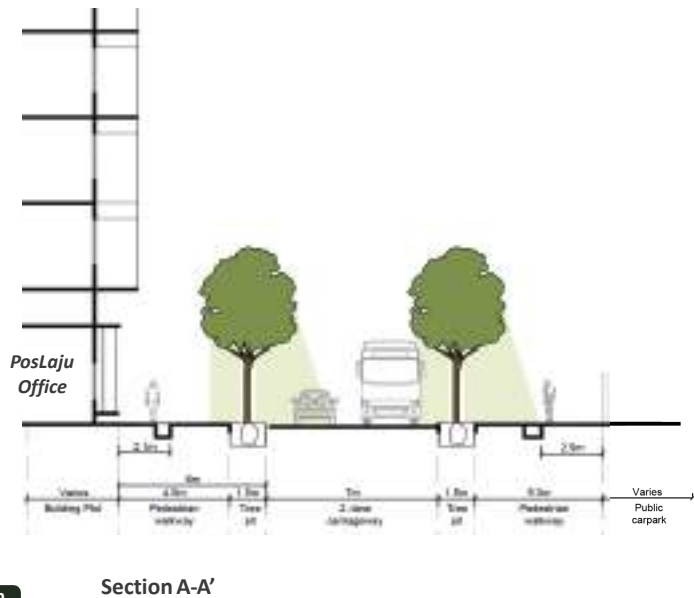
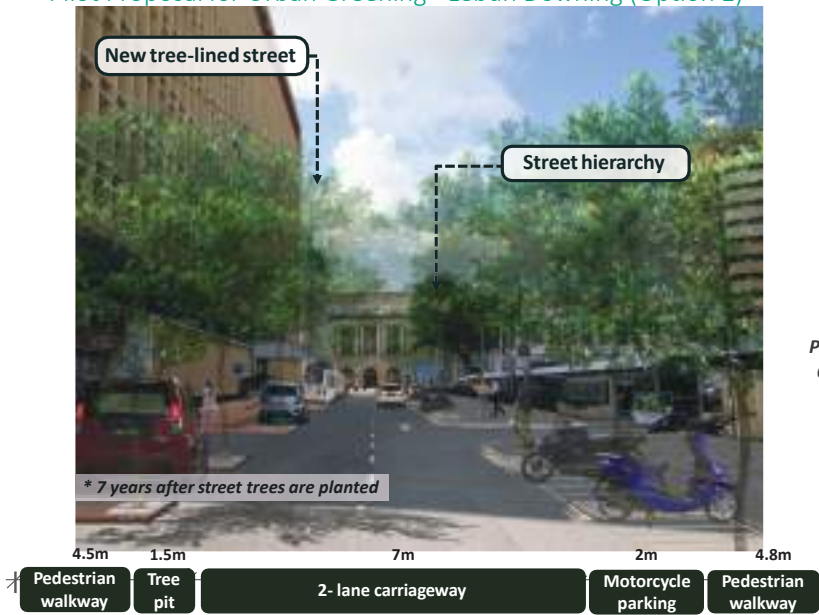


PENANG NATURE-BASED CLIMATE ADAPTATION PROGRAMME Pilot Proposal for Urban Greening - Lebuhr Union



PENANG NATURE-BASED CLIMATE ADAPTATION PROGRAMME

Pilot Proposal for Urban Greening - Lebuhr Downing (Option 1)



SUCCESSFUL URBAN GREENING PROJECTS IN GEORGE TOWN

Upgrade streetscape projects



Armenian Park
Completed year 2016



China Street Ghaut
Completed year 2018



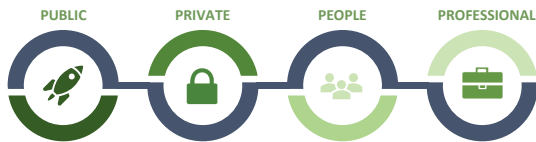
Lebuhr Light
Completed year 2019



Business Improvement District Scheme



4P



UNIVERSAL DESIGN



Implemented Universal Design in our public amenities to ensure accessibility and mobility.



Leading by Example

State Government & MBPP strives to obtain GBI certificate for new MBPP public buildings. Among buildings which had obtained GBI certification are:-

- sPICE
- Relau Sport Complex
- Chowrasta Market
- Homeless Shelter, Jalan C. Y. Choy

These buildings can a guide or benchmark for developers, consultants and all stakeholders to learn, appreciate and implement.





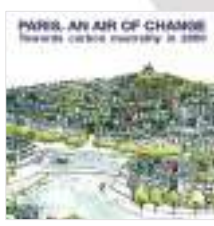
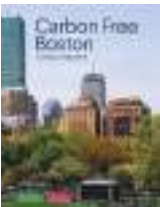
Back Lane Transformation

9km of rejuvenated backlane and 10 acres of safe green spaces for the public to use, either by walking or cycling In GT-WHS



GLOBAL CITIES TOWARDS CARBON NEUTRALITY

THANK YOU





PETALING JAYA INITIATIVES ON DECARBONISATION IN THE CITY

IGES High Level Talks : Towards Smart, Zero Carbon and Climate-Resilient Cities
in Malaysia and Japan

19th October 2023



PETALING JAYA CITY PROFILE



PJ as A Smart, Sustainable & Resilient City by 2030

Mission

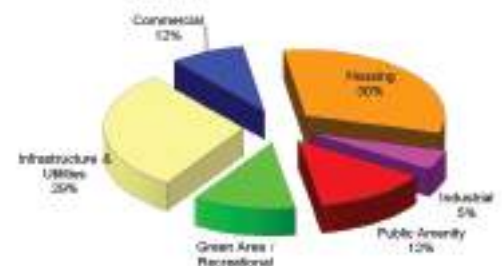
- To provide quality facilities and services for the prosperity of Petaling Jaya.

Vision

- Petaling Jaya leading towards a dynamic and sustainable City

Total area	97.2 kilometers
City centre	22 include 2 sub-regional centres
Administrative zone	4
Population	772,763 (2019)
Household income	1996 (USD 740) 2000 (USD 1270) 2010 (USD 1900) 2019 (USD 2,500)
Total Properties	254,174
Neighbouring city	Kuala Lumpur (East), Shah Alam (West), Selayang (North), Subang Jaya (South)

Landuse



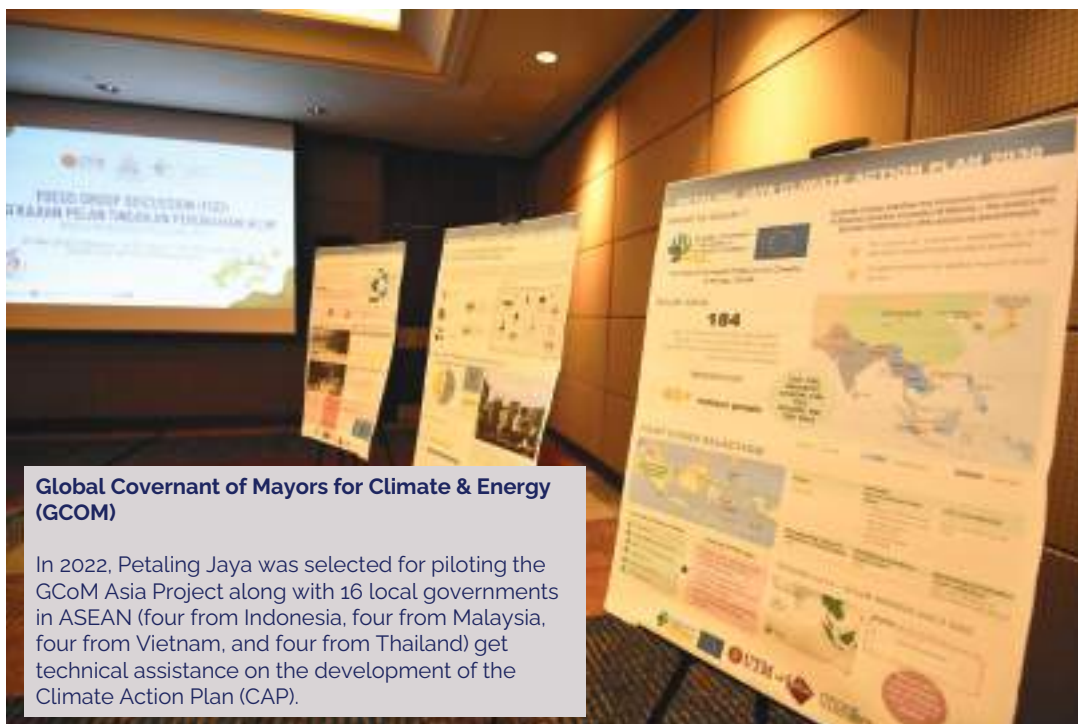
LOW CARBON INITIATIVES IN PETALING JAYA



SNAPSHOT OF PJ CLIMATE ACTION PLAN



Partnering with GCoM and Universiti Teknologi Malaysia for formulation of the new climate actions plan.



Global Covenant of Mayors for Climate & Energy (GCoM)

In 2022, Petaling Jaya was selected for piloting the GCoM Asia Project along with 16 local governments in ASEAN (four from Indonesia, four from Malaysia, four from Vietnam, and four from Thailand) get technical assistance on the development of the Climate Action Plan (CAP).



PJSSR 2030 as guiding strategic documents



PETALING JAYA
SMART, SUSTAINABLE & RESILIENT 2030

#sustainablePJ2030

#PJCityOne

#PJKita



10 'THEMATIC PROJECT PJSSR 2030



Green Buildings for New Development

Eco-friendly development manual (MASMA) specifications.

Green building index (GBI) compliance.

A landscape area of about 10% to 15% out of total development area.

A rainwater harvesting system.

Use of light emitting diode (LED) lamps.



PJ Sentral Garden City

Energy efficiency programs with Sustainable Energy Development Authority (SEDA Malaysia)



Free Bus Services





A One Stop recycling centre



A food waste composting centre using anaerobic digester





Renewable Energy (rooftop solar panels) – PJ Innovation Centre



ACHIVEMENTS



Winner of ASEAN Energy Awards 2022 and National Energy Awards 2022 for energy-efficiency building category.



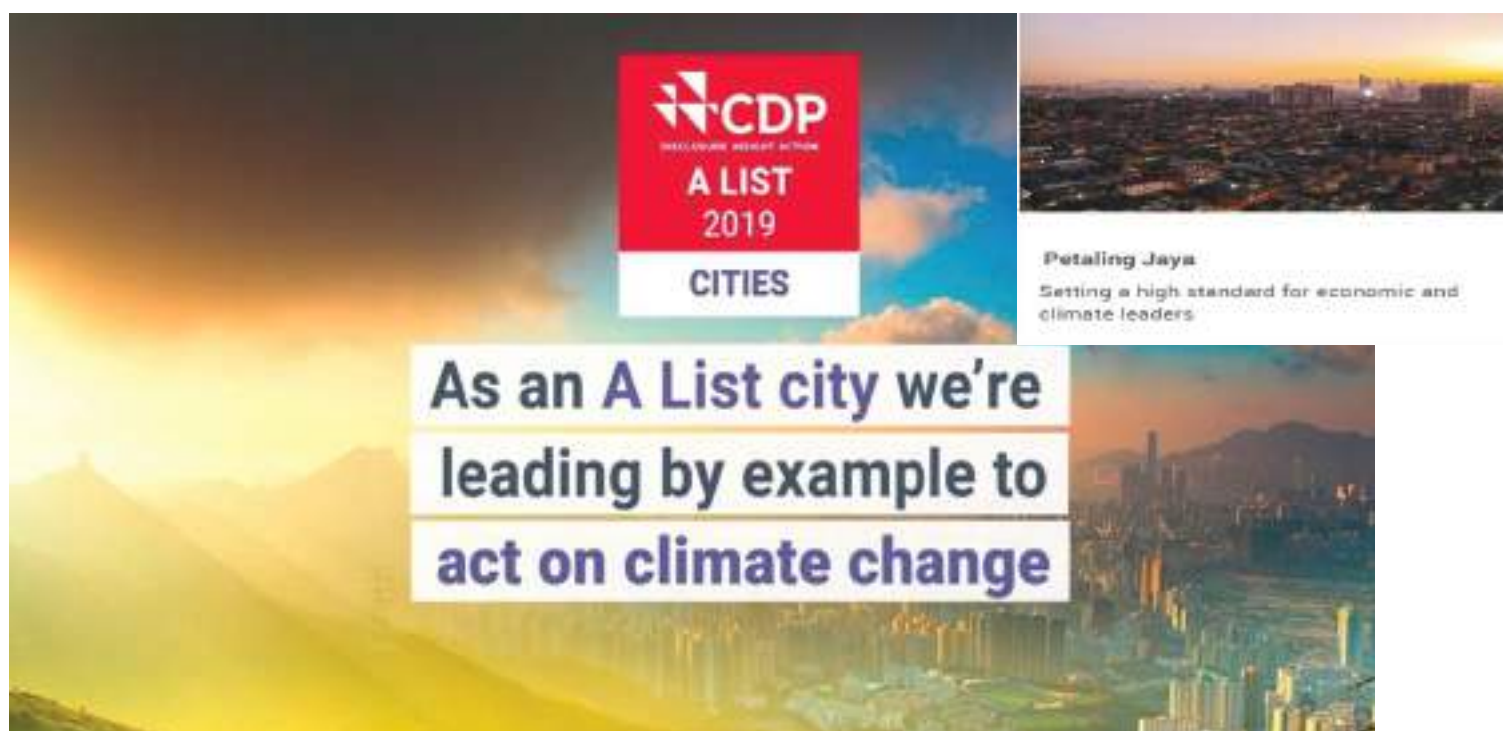
National Scroll of Honour for Human Settlement 2021

1. Ministry of Housing and Local Government of Malaysia was hosting the National Scroll Of Honor Award For Human Settlements Competition with theme Accelerating Urban Action For A Carbon-Free World.
2. Project on Assessment Tax Rebate For Eco-Friendly House Owners was selected as a Winner for 2021

Winners of the 2019 Unesco Learning City Award for exemplary progress and commitment to promote education and lifelong learning at the local level



Petaling Jaya is a CDP A List City 2019



Petaling Jaya is First UNICEF Child Friendly City in Malaysia.



UNICEF recognizes Petaling Jaya commitment to child rights for sustainable development.

56 PLANNED ACTIONS



THEME 1: RENEWABLE SOURCES AND ENERGY EFFICIENCY 01 Create new developments are integrated with rainwater harvesting systems and grey water recycling for non-potable usage 02 Promote installation of photovoltaic (PV) and solar thermal systems on institutional, commercial, industrial and residential buildings 03 Promote solar water heaters in new developments 04 Install energy efficiency (EE) equipment and smart meters for MPP assets (Government office, community halls, market, stadium etc.) 05 Install energy efficiency (EE) equipment and smart meters on commercial buildings as an energy saving initiative 06 Install energy efficiency (EE) equipment and smart meters on industry operations especially boilers and furnaces 07 Install solar powered street lights in urban center and all new developments 08 Promote biogas plant from food waste of commercial and residential units (Waste to Energy)	THEME 2: SUSTAINABLE URBAN PLANNING AND BUILDING REGULATIONS 09 Promote adoption of passive architecture in new buildings (natural ventilation, shading, and lighting) 10 Promote the use of sustainable materials in construction 11 Promote 25/50 or N25/50 in all new developments with minimum 5% rooftop existing buildings and amenities to improve energy and resources efficiency 12 Adoptively reuse existing buildings and amenities to reduce construction waste 13 Redesign Petaling Jaya to be more compact in line with the 15 min city concept especially in the CBD and transit station 14 Carry out feasibility study and implementation for industrial symbiosis (including Waste-to-Wealth) for existing industrial area 15 Encourage sustainable low carbon urban renewal 16 Promote smart and digital technology for community sustainability real time information display	THEME 3: PEDESTRIAN FIRST AND GREEN TRANSPORTATION 17 Introduce the "Cycle to Work" and "Cycle to School" initiatives involving the MPP workers, schools' students and community within neighbourhood 18 Improve modal interchange between taxis and public transport 19 Improve and connect pedestrian pathways and bicycle lanes to promote active mobility 20 Convert MPP's vehicle fleet to low carbon vehicles (90% fuel, hybrid or electric) 21 Increase the number of EV lanes, routes and bus stops of PJ City Bus 22 Improve real-time online information application about public bus and locations and arrivals 23 Organise monthly or weekly Car Free Day 24 Establish Low Emission Zone (LEZ) in CBD and major centre in MPP area 25 Promote hybrid freight transport to the freight operators 26 Provide sufficient EV charging infrastructure to promote EV cars usage in Petaling Jaya
THEME 4: GREEN SPACE PLANNING AND MANAGEMENT 27 Protect all existing forests and green spaces through gazette 28 Establish and manage new multi-function green spaces in Petaling Jaya 29 Promote vertical green spaces or rooftop garden in commercial buildings, schools and government buildings 30 Adopt "Sponge City" concept in the new development project 31 Improve green linkages that connect pedestrian and bicycle network 32 Set target on planting number of trees in Petaling Jaya (1 resident 1 tree) 33 Promote Nature Based Solution (NBS) as sustainable management and the use of nature features to tackle social environmental challenges	THEME 5: SOCIAL SUSTAINABILITY AND EMPOWERED COMMUNITIES 34 Set up Low Carbon Residential Association involving MPP's councilors 35 Implement "No Single-Use Plastic Bag" in commercial areas and vendors 36 Organise "One Neighbourhood, One Urban Farm" program 37 Promote urban farming in schools and involve the school children 38 Enforce implementation of Petaling Jaya's Assessment Tax Rebate Scheme for green initiative 39 Enhance the Learning Cities Award 2019 by the UNESCO Institute for Lifelong Learning (UIL) 40 uplift and alleviate living standards for Petaling Jaya poor through green economy 41 Encourage Petaling Jaya City Council Food Bank Scheme 42 Promote compact form factor of commercial and residential units (Waste to Wealth) for reduction of waste to landfill site 43 Collaborate with private companies on recycling vending machines 44 Establish Smart PJ Waste Solution Lab in Petaling Jaya 45 Deploy Petaling Jaya City Council's Carbon Management Plan	THEME 6: DISASTER RISK REDUCTION MANAGEMENT 46 Provide smart flood control water level response mechanisms that will trigger a warning signal to alert PJ officers 47 Improve flood mapping of Petaling Jaya 48 Improve real-time monitoring and development control at flood prone areas 49 Improve building facilities of schools and community halls designated as disaster temporary evacuation centres by providing generator, toilets, double, paper partition and beds 50 Promote the use of permeable pavements materials for new developments in Petaling Jaya 51 Reduce waste littering in the drainage system to reduce blockages and sewerage collapse 52 Implement drought management and response plan to reduce the impact of drought 53 Enforce program or initiatives to reduce water consumption in commercial and residential area 54 Improve community awareness and participation on prevention of dengue 55 Improve enforcement by MPP to inspect potential mosquito breeding sites (construction sites, industry buildings, waste management facilities and residential neighbourhood)

WAY FORWARD



❑ Estimated cost to implement 56 planned actions – RM 200 millions. Financing mechanism required.

Public-Private
Partnership
(25% - 75%)

Private Sector
Contribution

Grants from
External
Agencies and
Government

Internal
Fundings

❑ Training and capacity buildings for the officers.

❑ High impact CEPA programmes (communication, education and public awareness).

❑ To leverage on technologies advancement and data availability to accelerate actions holistically.



Thank you.

TPr. Lee Lih Shyan

Director Development Planning Department, Petaling Jaya City Council

Email: lee@mbpj.gov.my





19 October 2023, 15:30-17:30 (JST) ,14:30-16:30(MYT)

High Level Talks: Towards Smart, Zero Carbon and Climate-Resilient Cities in Malaysia and Japan
at the IGES Tokyo Sustainability Forum

Tokyo Initiatives for Building Decarbonization



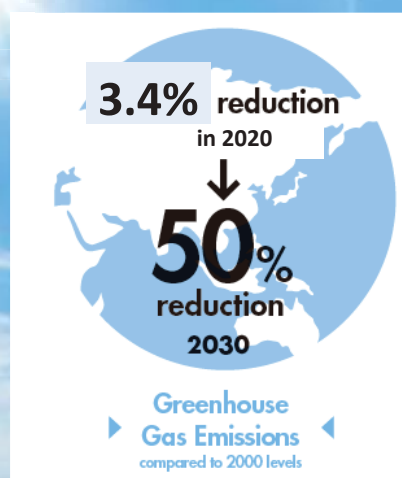
Toshiko CHIBA
Bureau of Environment
Tokyo Metropolitan Government



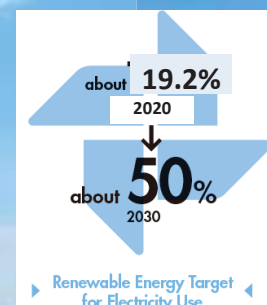
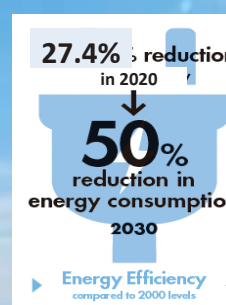
Tokyo



Yuriko Koike,
Governor of Tokyo

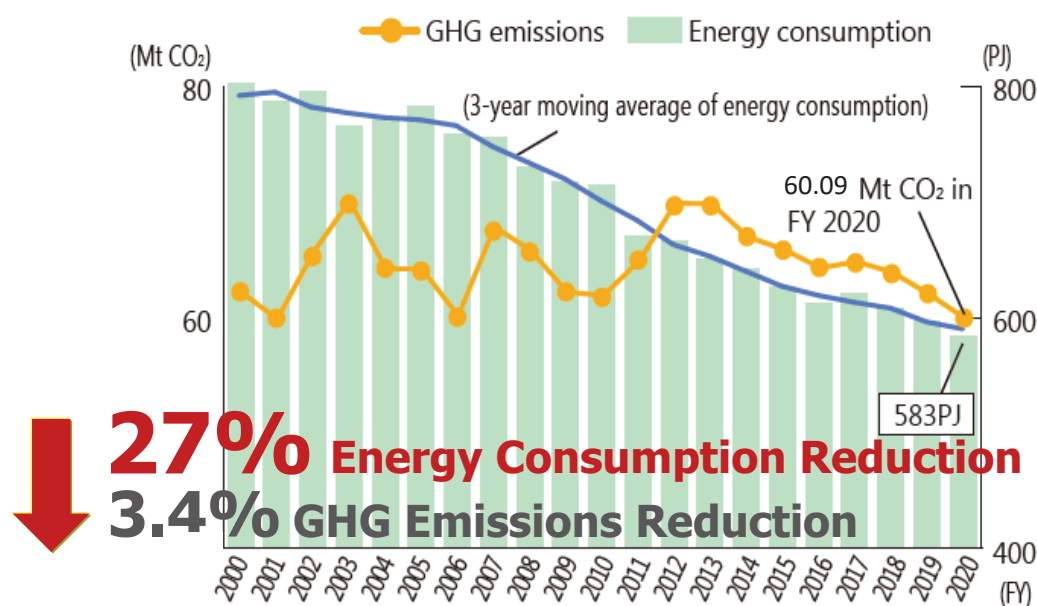


2030 GOALS



Characteristics of Tokyo ; Energy Consumption and GHG Emissions in 2020

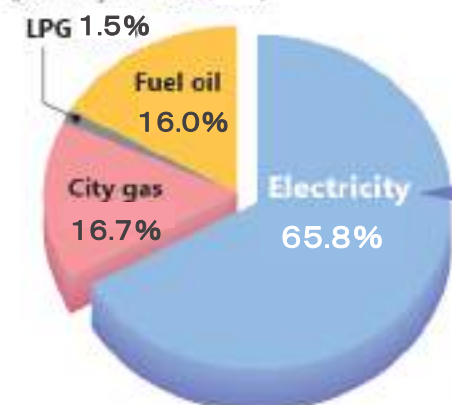
Changes in GHG emissions and energy consumption



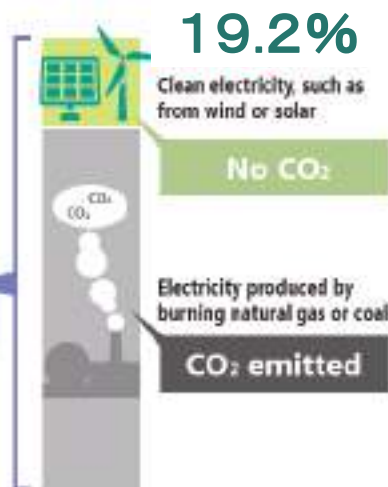
3

Characteristics of Tokyo ; Energy-Related CO₂ Emissions in 2020

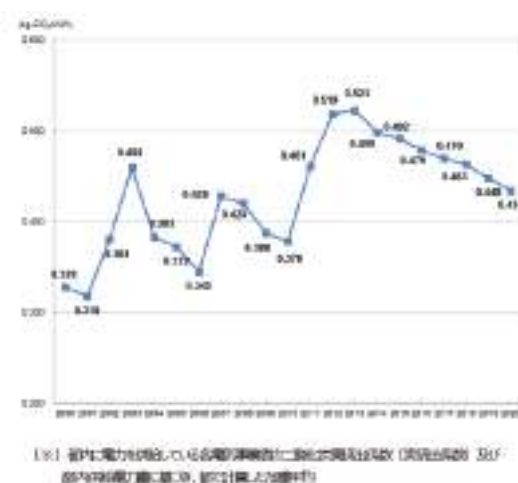
Breakdown of energy-related CO₂ emissions in Tokyo
(preliminary results for FY 2020)



51.05 MT-CO₂ in FY 2020



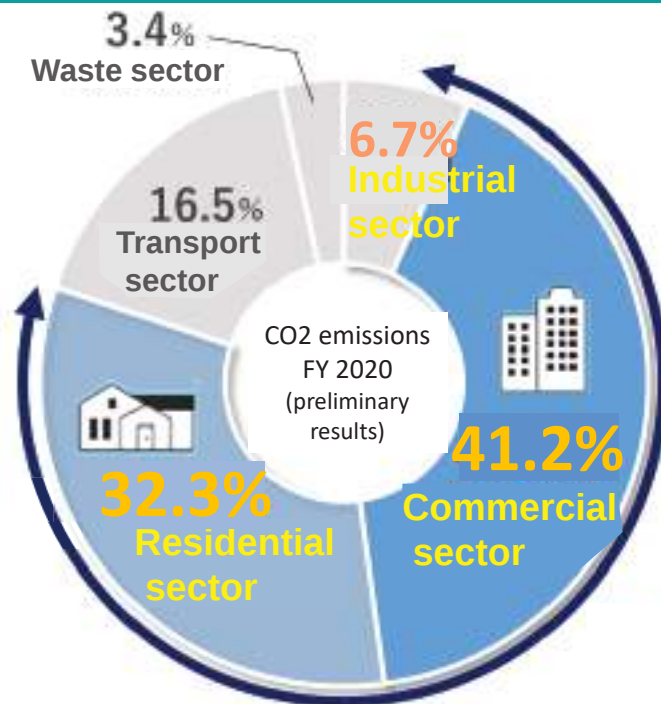
CO₂ emission factor of power



4

Characteristics of Tokyo

; Energy-Related CO2 Emissions by Sector in Tokyo

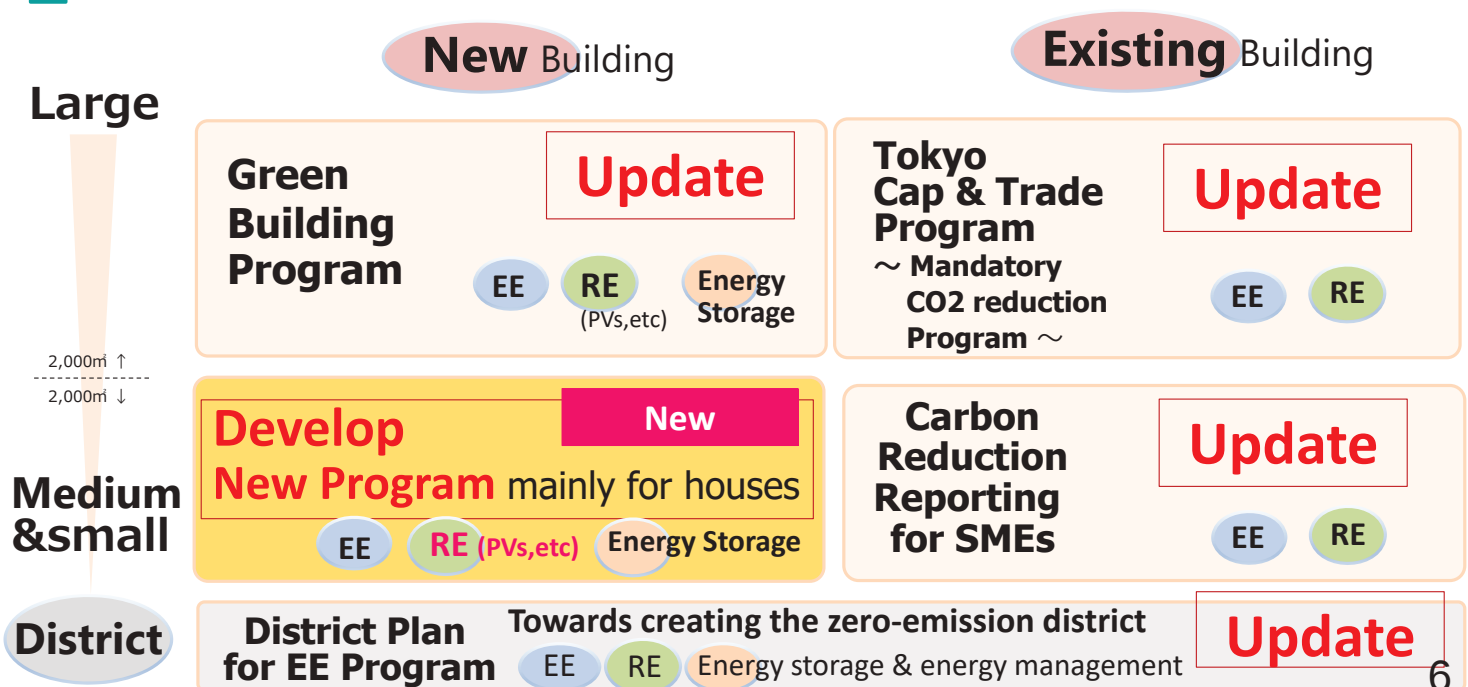


Buildings account for over **70%**

✓ Expanding zero emission buildings is essential to attract investment and business

5

Climate Change Policy Framework for Buildings by Tokyo Ordinance



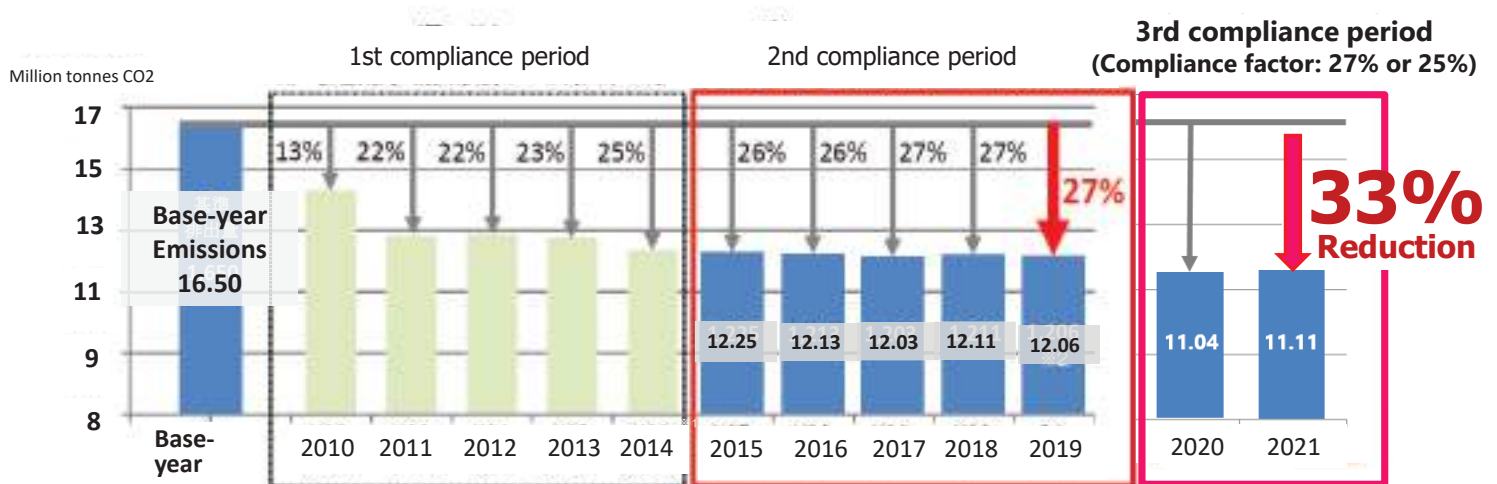
6

Tokyo Cap-and-Trade Program

Existing Building

•Mandatory CO2 reduction program for Large-sized Existing Buildings

*Launched in 2010 by Tokyo ordinance



TOKYO METROPOLITAN GOVERNMENT

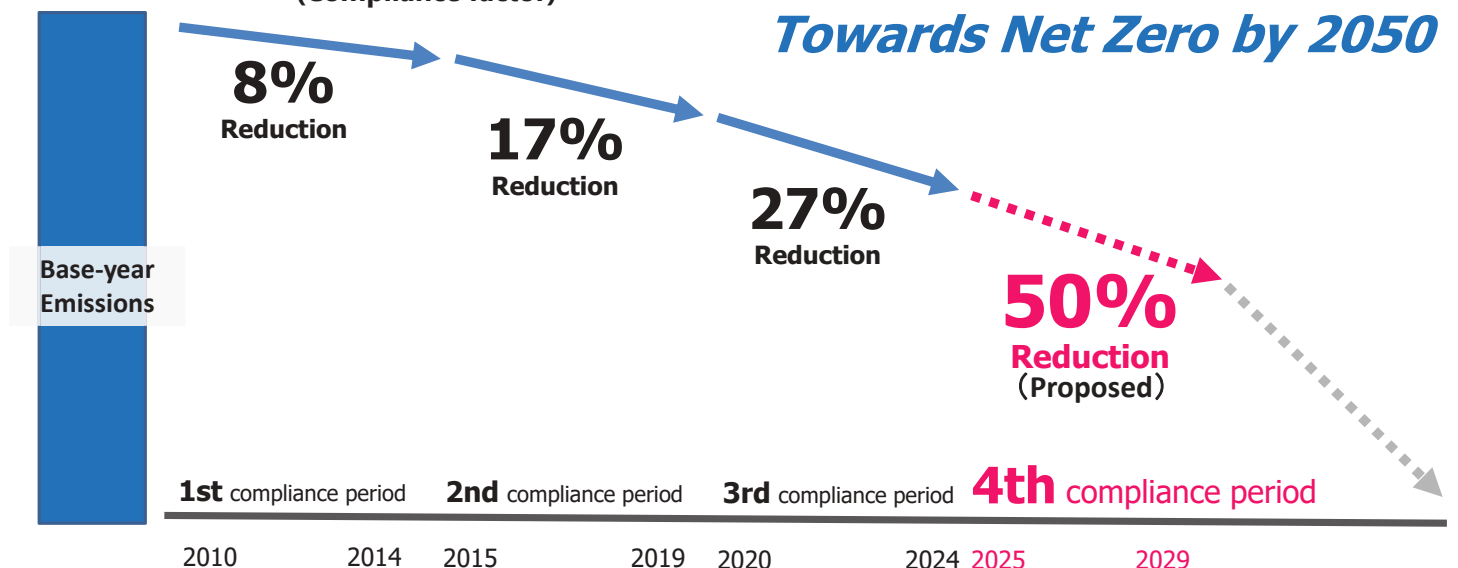
7

Tokyo Cap-and-Trade Program

Existing Building

•Reduction Obligation Level for Office and Commercial Building (Compliance factor)

Towards Net Zero by 2050



TOKYO METROPOLITAN GOVERNMENT

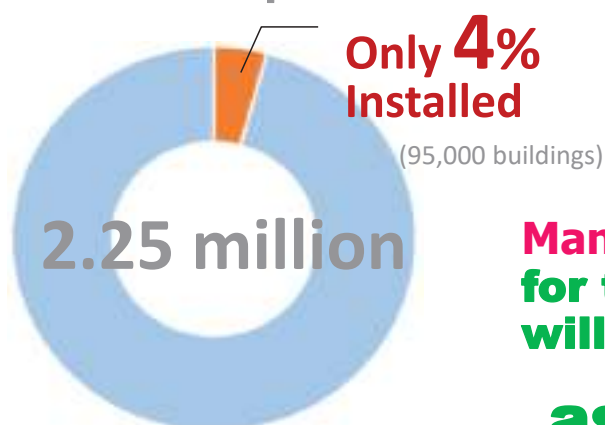
8

Develop New Program for houses

• Installation Mandate for Solar Panels

~Utilizing the Full Potential of Tokyo's Rooftops

Buildings with solar panel
installation potential



Mandate
for the solar panel installation
will come into effect

as of April 2025

TOKYO METROPOLITAN GOVERNMENT

9

Integrated Promotion of Decarbonization and Energy Security

Reduce energy
consumption
(Improvement
Energy Efficiency)

Generate renewable power,
Store and **use** power

Building
(incl. house)

District
(ex, creating
the zero-emission district)

Benefits of the Tokyo itself

10

Children's International Exchange in 2023

*Online dialogue between primary school students
in Kuala Lumpur and Tokyo
toward EE & RE
in house and school*



11



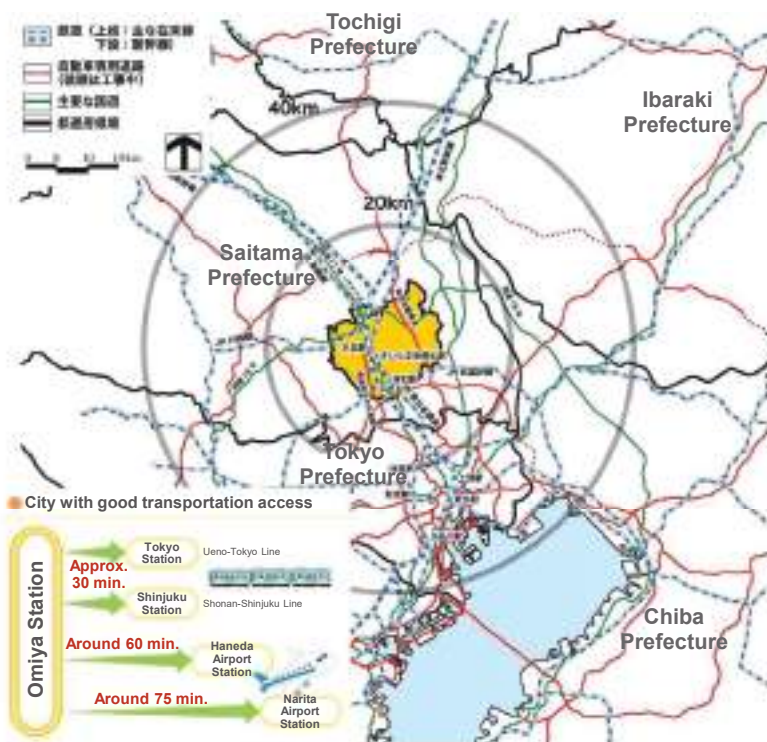
Smart City Saitama Model

Misono District Smart Home Community Initiative

October 19 (Thu), 2023

Department of Futuristic City Promotion
City Strategy Headquarters
Saitama City

Overview - Saitama City



- 20-40km away from central Tokyo
Located in southeastern Saitama Prefecture
- Ordinance-designated city / Prefectural capital
- Transport hub with six Shinkansen lines

- May 2001: Saitama City is established
First city in Saitama Prefecture to hit a population of 1 million
- April 2003: Became an ordinance-designated city
13th such city in Japan
- April 2005: Merged with Iwatsuki City



■ Population:	1,343,296
■ Number of households:	638,042 households
■ Area:	217,43 km ²
■ Population density:	6,178 persons per km ²
As of August 1, 2023	

City-to-City Collaboration



Saitama City hosted the Saitama Sustainable Cities Summit ~E-KIZUNA Global Summit~ to work with other cities throughout Japan and the world. Participating cities exchanged ideas and information on effective policies to achieve sustainable cities through a positive cycle of economy, society, and environment, while strengthening partnerships and contributing to the realization of a decarbonized society

DBKL and the Saitama City Hall have agreed to collaborate in sharing information and knowledge concerning the following areas for the promotion of friendly relations.

- 1) Sustainable Energy Management
- 2) Sustainable Mobility Management
- 3) Decarbonization Policy



1

Smart Home Community

Initial Concept of Smart Home Community

- City that guarantees energy security and is low-carbon
- Fostering a face-to-face close-knit local community and a city that is comfortable to live in

○ Ensuring de-carbonization and energy security

- Visualization of power usage (Home Energy Management System)
- Installation of solar panels
- Undergrounding of power lines improves the landscape and protects the town from collapsed utility poles during disasters

○ Highly insulated highly airtight performance housing (HEAT20 Grade 2)

- Prevents heat shock and hypothermia
- Enhances energy conservation
- Improves level of health as room temperature fluctuations are small year round

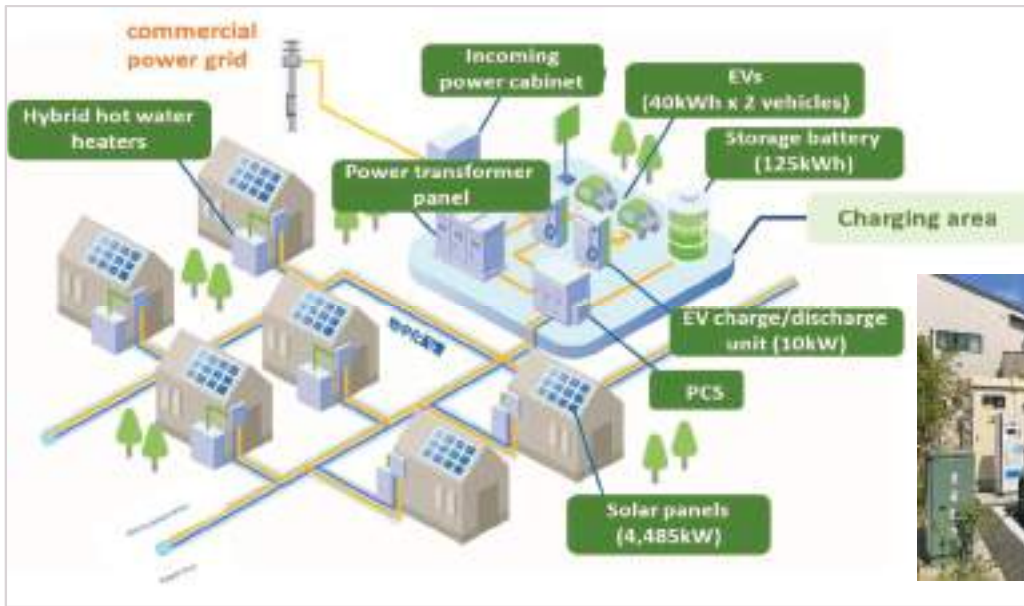
○ Community Spaces (Common Spaces)

- Layout that facilitates neighborly relationships between residents
- Formation of management associations, mini-events for residents (home gardening etc.)



Phase 3: Realization of local grid

Photo courtesy of Loop Inc.



Electrical equipment is owned by Loop (solar panels, etc., are not included in home prices)
Residents will sign an energy contract with Loop

Phase 3: Independent Operation Through Local Grid

Self-supported operation possible even during power outages
Can be sustained for longer by adjusting power supply to each unit

Electricity demand: Low / Solar power generation: Active
=> Uninterrupted operation for 48+ hours
Electricity demand: High / Solar power generation: Inactive
=> Uninterrupted operation for 6.5 hours

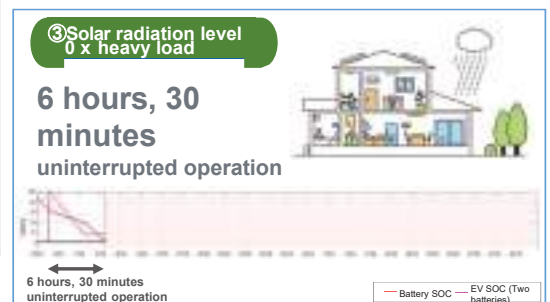
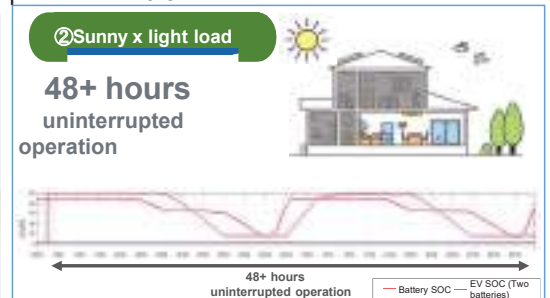
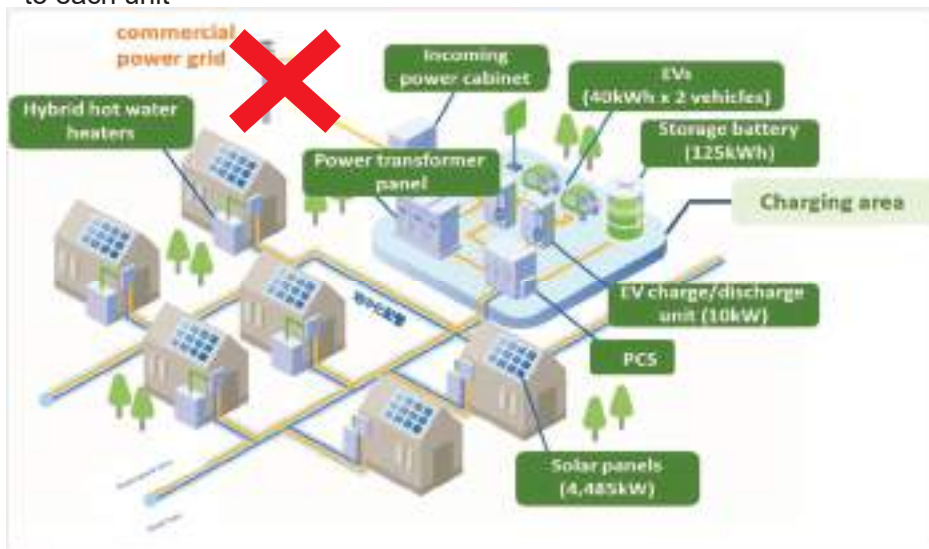


Photo courtesy of Loop Inc.

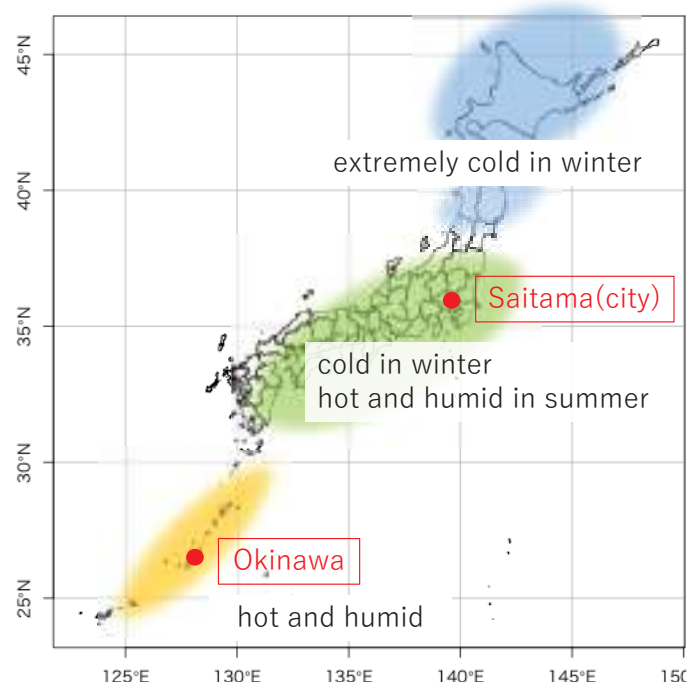
Smart house in Japan
(wooden house)



Climate (Japan)

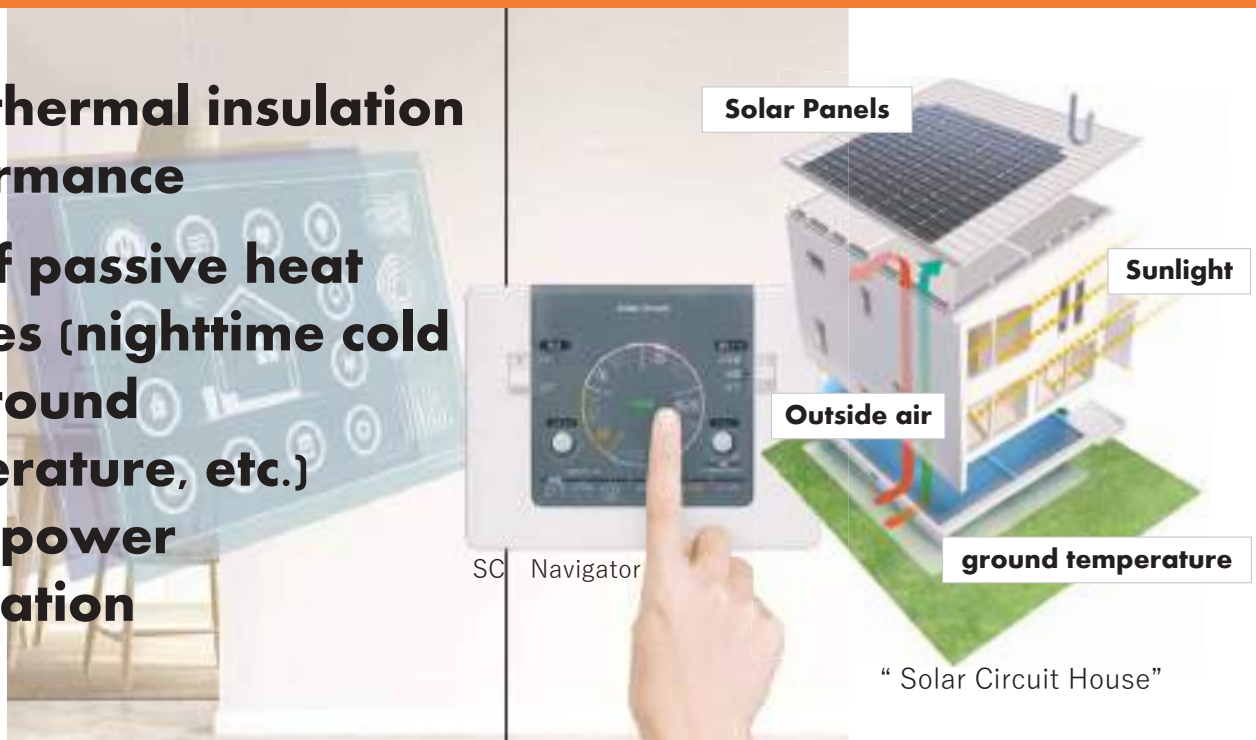
Houses in Japan need to be prepared for the cold of winter, the heat of summer, or both.

In addition, it is surrounded by the sea, so it is uncomfortable humidity in summer.



Climate-friendly house design

- **High thermal insulation performance**
- **Use of passive heat sources (nighttime cold air, ground temperature, etc.)**
- **Solar power generation**



SC House

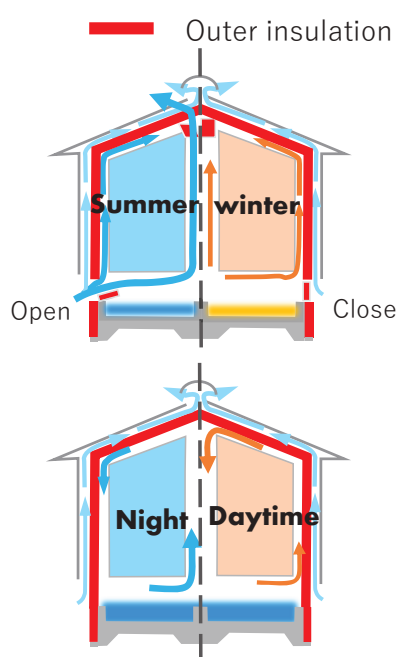
Synergistic smart house for energy saving and comfort living.

**RENEWABLE HOME ENERGY
AND A BATTERY BACKUP**



Outer insulation + double ventilation

—Two types of passive systems—

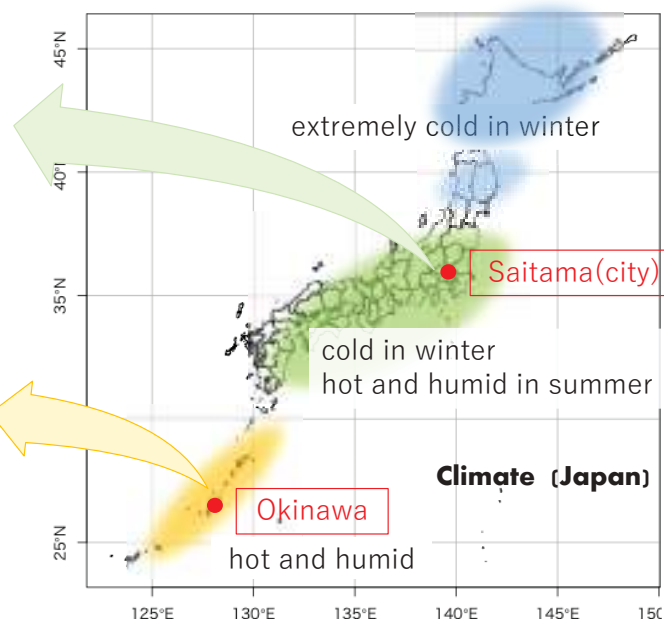


Type1 Designed for regions that require both heat and cold measures.

(ground temperature)
(nighttime cold air)

Type2 Designed for regions that require heat and humid measures throughout the year.

(ground temperature)



Outer insulation + Non-pesticide termite control

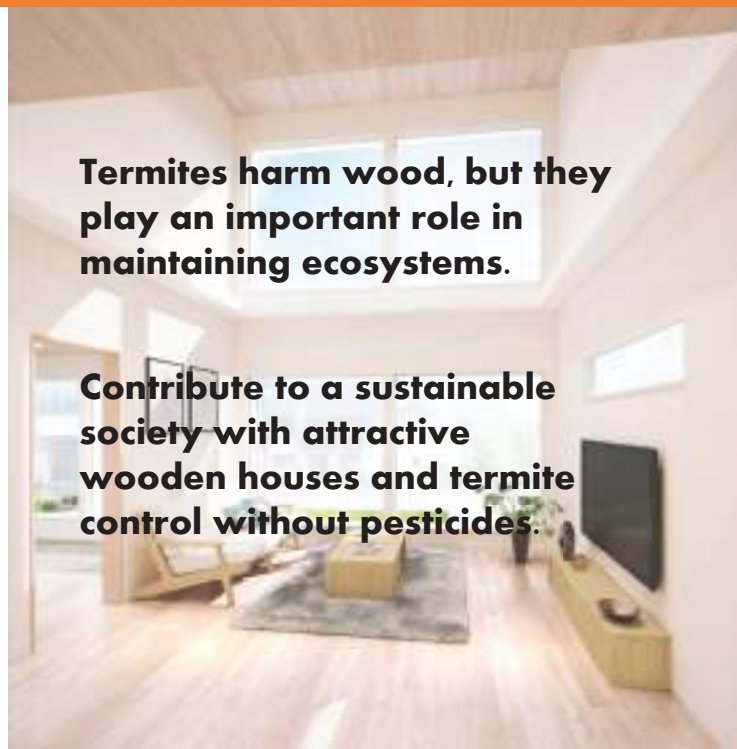


A mesh smaller than the size of a termite head physically blocks termite invasion.

No need to worry about the impact on indoor air quality.

Termites harm wood, but they play an important role in maintaining ecosystems.

Contribute to a sustainable society with attractive wooden houses and termite control without pesticides.



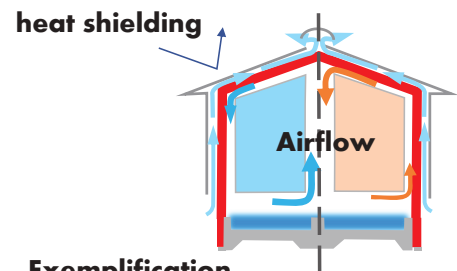
Reference information for the idea of a smart house in Malaysia

Priority measures.

- Insulate the perimeter of the house to improve heat shielding.

caution

- Since the cooling temperature is close to the dew point, there is a risk of condensation and mold formation inside the highly moisture-permeable insulating material.
- Plastic foam insulation is recommended.



Exemplification
Outer insulation + double ventilation

What to expect.

- Outer insulation → reduce cooling energy.
- The ventilation layer → promoting drying in the unlikely event of condensation inside the wall.

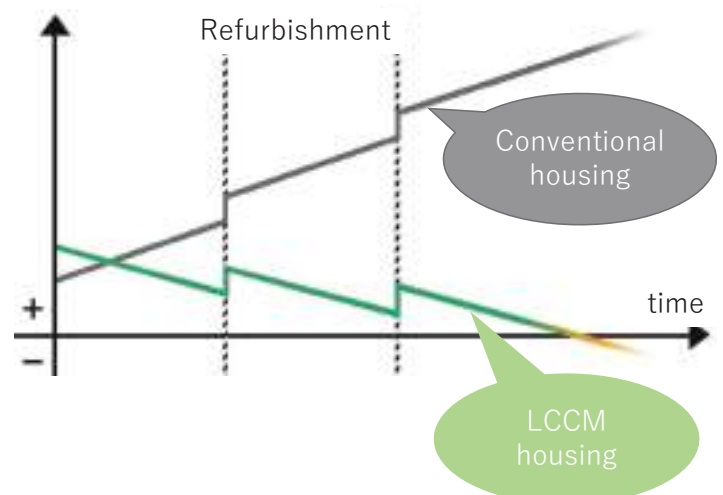
Wooden House/ Life Cycle Carbon Minus Housing

Protect and use the nearby forest trees for locals and the global environment.



Wood is an excellent material for carbon neutrality.

Cumulative carbon footprint





Toward realization of the goal of
carbon neutral society by 2050
Creating homes that are friendly to people and the earth



Takasago's ECO PROJECT

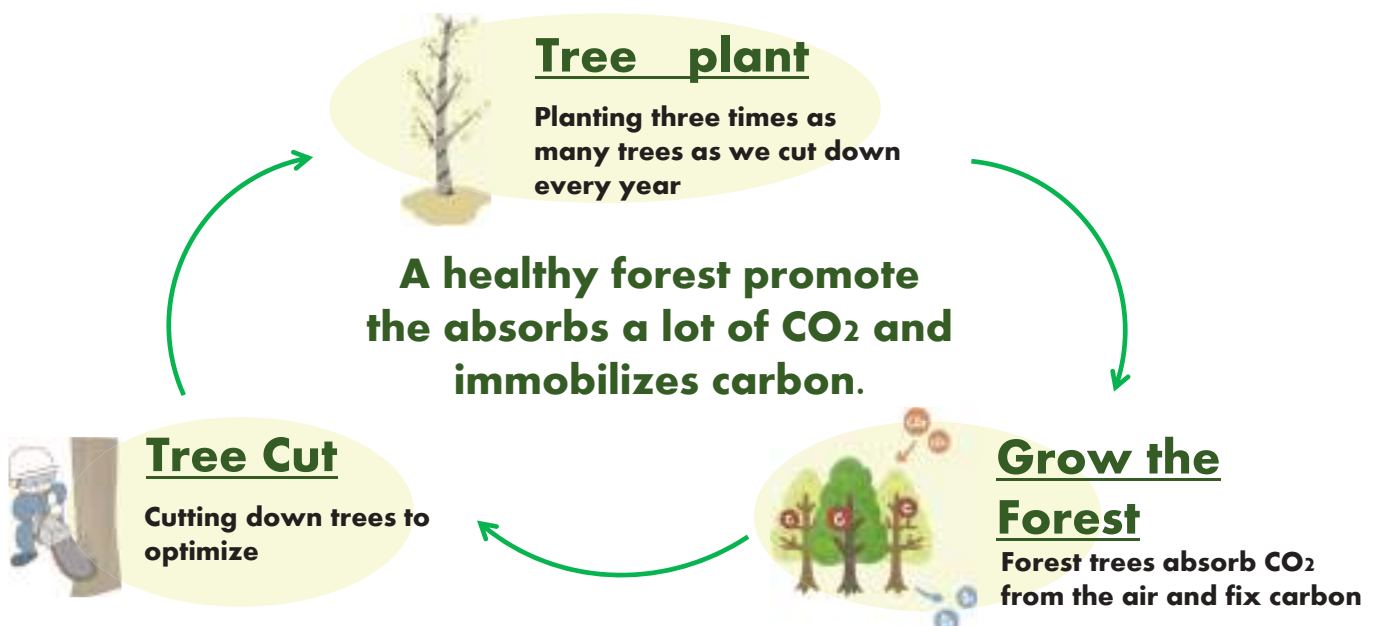


Growing the forest

Stop CO₂ emissions

Protecting the environment
& Building homes
with locally-sourced lumber.

Working against climate change is a priority by
protecting and supporting the forests around us.



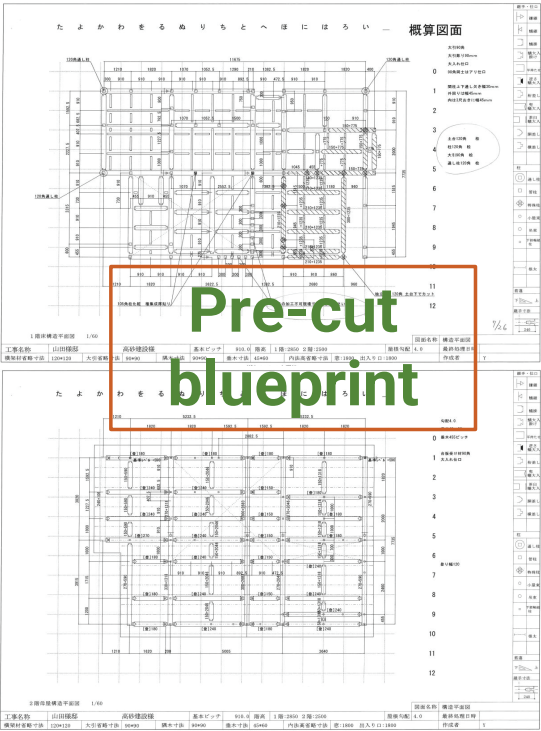


Guidelines for visualization of forest creation and wood use by companies

Forestry Agency

平成28年2月
林野庁
(委託先：一般財団法人林業経済研究所)

Fixed and visualized CO₂ using wooden houses



構造躯体	部位	樹種	W	H	長さ	本数	材積
西川材	土台	桧	0.105	0.105	4	19	0.8379
	大引	桧	0.09	0.09	4	9	0.2916
	大引	桧	0.09	0.09	3	1	0.0243
	柱	桧	0.105	0.105	3	96	3.1752
	特殊柱	桧	0.18	0.18	3	1	0.0972
	梁桁	杉(KD)	0.105	0.105	3	1	0.033075
	梁桁	杉(KD)	0.105	0.105	4	10	0.441
	梁桁	杉(KD)	0.105	0.15	3	5	0.23625
	梁桁	杉(KD)	0.105	0.15	4	4	0.252
	梁桁	杉	0.105	0.105	3	7	0.231525
	梁桁	杉	0.105	0.105	4	12	0.5292
	小梁	杉	0.105	0.105	3	1	0.033075
	小梁	杉	0.105	0.105	4	16	0.7056
	火打	杉(KD)	0.09	0.09	12	18	0.17496
							200 7.062885
							53.22%
その他	梁桁	赤松集成	0.09	0.09	4	96	0.36864
	梁桁	赤松集成	0.09	0.09	3	1	0.0243
	梁桁	赤松集成	0.105	0.12	4	1	0.0504
	梁桁	赤松集成	0.105	0.15	5	3	0.23625
	梁桁	赤松集成	0.105	0.15	5	2	0.118125
	梁桁	赤松集成	0.105	0.21	4	1	0.0882
	梁桁	赤松集成	0.105	0.21	5	2	0.21525
	梁桁	赤松集成	0.105	0.21	6	1	0.1278
	梁桁	赤松集成	0.105	0.24	4	1	0.1008
	梁桁	赤松集成	0.105	0.24	5	1	0.126
	梁桁	赤松集成	0.105	0.27	5	1	0.14175
	梁桁	赤松集成	0.105	0.3	4	1	0.126
	梁桁	赤松集成	0.105	0.3	5	1	0.1575
	梁桁	赤松集成	0.105	0.33	3	1	0.10395
その他	梁桁	赤松集成	0.105	0.15	5	1	0.2079
	梁桁	赤松集成	0.105	0.15	4	1	0.1662
	梁桁	赤松集成	0.105	0.21	4	1	0.0882
	梁桁	赤松集成	0.105	0.21	5	1	0.11025
	梁桁	赤松集成	0.105	0.24	4	1	0.1008
	梁桁	赤松集成	0.105	0.24	3	2	0.1512
	梁桁	赤松集成	0.105	0.24	4	1	0.1008
	梁桁	赤松集成	0.105	0.24	4	1	0.1008
	梁桁	赤松集成	0.105	0.24	4	1	0.1008
	梁桁	赤松集成	0.105	0.24	4	1	0.1008
	梁桁	赤松集成	0.105	0.24	4	1	0.1008
	梁桁	赤松集成	0.105	0.24	4	1	0.1008
	梁桁	赤松集成	0.105	0.24	4	1	0.1008
	梁桁	赤松集成	0.105	0.24	4	1	0.1008
							74 6.208425
							46.78%

Wood picking
calculation
table

産地	部位	樹種	W	H	長さ	本数	材積
西川材	根太	桧	0.06	0.06	4	13	0.1872
	間柱	杉(KD)	0.03	0.105	3	37	0.34965
	間柱	杉(KD)	0.045	0.105	3	25	0.354375
	間柱	杉(KD)	0.03	0.087	3	3	0.02349
	間柱	杉(KD)	0.03	0.096	3	2	0.01728
	間柱	杉(KD)	0.045	0.096	3	1	0.01296
	土台受け材	桧	0.058	0.058	3	13	0.131196
	仮筋交い	杉(KD)	0.03	0.105	4	40	0.504
						134	1.580151
					羽柄材の割合 15.12%		
その他	筋交い	桧集成	0.045	0.09	3	53	0.64395
	筋交い	桧集成	0.045	0.09	4	15	0.243
	間柱	桧集成	0.045	0.105	3	47	0.666225
	間柱	桧集成	0.045	0.09	3	5	0.06075
	間柱	桧集成	0.045	0.105	3	80	1.134
	間柱	桧集成	0.03	0.105	3	50	0.4725
	間柱	桧集成	0.045	0.09	3	10	0.1215
	間柱	米松(KD)	0.045	0.054	3	15	0.10935
	間柱	米松(KD)	0.045	0.054	4	28	0.27216
	間柱	米松(KD)	0.055	0.105	4	8	0.1848
	間柱	米松(KD)	0.055	0.105	3	2	0.03465
	間柱	米松(KD)	0.045	0.09	4	1	0.0162
						4	0.0162
合計							
部位	樹種	W	H	厚み	本数	材積	
屋根	ラーチ	0.91	1.82	0.009	40	0.596232	
屋根	ラーチ	0.91	1.82	0.012	54	1.073216	
床(1F)	ラーチ	0.91	1.82	0.012	30	0.596232	
床(2F)	ラーチ	0.91	1.82	0.024	47	1.868196	
バルコニー	ラーチ	0.91	1.82	0.009	22	0.327972	
バルコニー	ラーチ	0.91	1.82	0.012	10	0.198744	
通気バラン	ラーチ	0.91	3	0.009	12	0.29484	
						4.955368	
						17.28%	
構造躯体	西川材	7.062885	246.3%		西川材	8.643036	
	その他	6.208425	21.6%			30.14%	
屋根材	西川材	1.580151	5.5%		その他	15.07623	
	その他	8.867805	30.93%			62.58%	
含板	その他	4.955368	17.28%				
総合計		28.6746878			構造+羽柄	28.6746878	

Fixed and visualized CO₂ using wooden houses

針葉樹とは

Coniferous wood

広葉樹とは

Hard wood

Carbon dioxide fixation amount/total calculation table by using wood

御 社 名	株式会社 高砂建設
プロジェクト名称	脱炭素プロジェクト
担 当 者 名	小川 尚信
連 絡 先	
作 成 年 月 日	2021年4月8日

1	2	3	4	5	6	内訳 トレーサビリティ											
						都道府県産材			合法性証明材			森林認証材			その他木材		
						利用量	t-CO ₂	m ³ 当り CO ₂ 固定	利用量	t-CO ₂	m ³ 当り CO ₂ 固定	利用量	t-CO ₂	m ³ 当り CO ₂ 固定	利用量	t-CO ₂	m ³ 当り CO ₂ 固定
構造材(西川材) Structural materials	針葉樹	2	7.0629	4.92	0.70	7.06	4.92	0.70									
	広葉樹																
	計	2	7.0629	4.92	0.70	7.06	4.92	0.70									
構造材(その他) Structural materials	針葉樹	2	6.2084	4.45	0.72				3.22	1.93	0.60	2.99	2.52	0.84			
	広葉樹																
	計	2	6.2084	4.45	0.72				3.22	1.93	0.60	2.99	2.52	0.84			
羽柄材(西川材) Underlayment material	針葉樹	2	1.5802	0.98	0.62	1.58	0.98	0.62									
	広葉樹																
	計	2	1.5802	0.98	0.62	1.58	0.98	0.62									
羽柄材(その他) Underlayment material	針葉樹	4	8.8678	6.34	0.71				3.10	1.85	0.60	5.57	4.37	0.78			
	広葉樹																
	計	4	8.8678	6.34	0.71				3.10	1.85	0.60	5.57	4.37	0.78			
合板等 Plywood	針葉樹	1	4.9554	2.97	0.60				4.96	2.97	0.60						
	広葉樹																
	計	1	4.9554	2.97	0.60				4.96	2.97	0.60						
その他登録外	針葉樹																
	広葉樹																
	計																
合 計	針葉樹	11	28.6747	19.65	0.69	8.64	5.90	0.68	11.27	6.74	0.60	8.57	6.89	0.80			
Total	広葉樹																
	計	11	28.6747	19.65	0.69	8.64	5.90	0.68	11.27	6.74	0.60	8.57	6.89	0.80			

Fixed and visualized CO₂ using wooden houses



◆柱や梁には針葉樹が最適

Coniferous wood is best for pillars and beams.

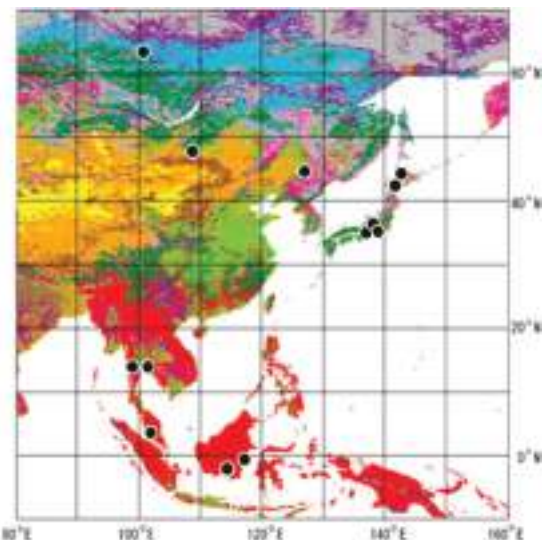
◆東南アジアでは広葉樹しか取れない

In Southeast Asia, only hard woods can be harvested.

◆針葉樹と広葉樹の分布

Distribution of Coniferous wood and Hard wood

樹種	特徴	葉の形状	木の性質	木材の用途
針葉樹	幹が上にまっすぐのびている	針のように細くとがった形状が特徴	比較的軽くて強い	建物の柱や梁などに最適
広葉樹	幹が枝分かれして横に広がっている	広くて平べったい葉の形状が特徴	重くて強い	家具や内装材が最適



Building materials made from Malaysian trees

フタバガキ科（広葉樹）



ユアサ木材株式会社

Dipterocarpaceae (Hard wood)

The dipterocarp family (broad-leaved trees) is collectively called lauan.

Lauan plywood is made by laminating lauan wood veneers together alternately.

In addition, it can also be used as a raw material for particle board and MDF, which are made by mixing small pieces with adhesive and molding them under heat.

65% of the total export volume in 2020 was

Lauan plywood and party products for Japan (680,000m3)

Japan was the largest export destination for Kurbord.

Information on legally harvested timber, etc.: Malaysia (Sarawak Island): Forestry Agency (maff.go.jp)

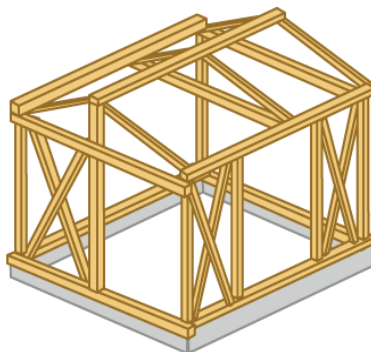


Two methods of building a wooden house

◆Wooden framework method

This is a traditional construction method that has been used in Japan since ancient times. This is a construction method in which columns, beams, and braces are combined to form a frame (frame) and the building is supported by "lines."

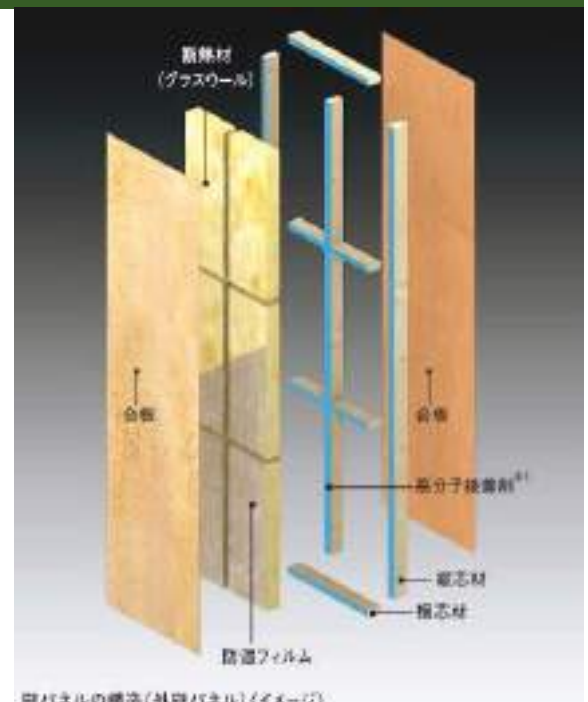
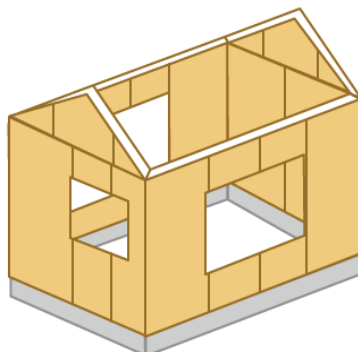
(針葉樹: Coniferous wood)



◆Wood panel construction method

A wall construction method in which the structural frame is made of wood panels produced in a factory. A construction method in which walls, floors, ceilings, etc., which are the core of a building's structure, are made in a factory as standardized panels and assembled on site.

(広葉樹: Hard wood)



壁パネルの構造(外壁パネル)イメージ

wall panel structure

Development of wood-based panels



Performance test of hard floor panels

A shear test of the floor structure was conducted at the Tsukuba Architectural Testing Center, proving that Nishikawa lumber (local wood) has earthquake resistance 1.5 times higher than the Building Standards Act.

Developed earthquake-resistant rigid floor panels



2023 Established a local corporation in Makati, Philippines



Technical training in Japan

We have been building houses in Japan until now, and will soon be celebrating 50 years since our founding.



In order for overseas engineers to learn the technology we have cultivated up to now, we are establishing overseas bases and are working to train designers.

Possible Next Steps

マレーシア工科大学と弊社で木質パネルの開発

Development of wood-based panels with Universiti Teknologi Malaysia and our company

マレーシア産の木材で脱炭素な高気密高断熱住宅の実証事業

Demonstration project for a carbon-free, highly airtight, highly insulated house made from wood sourced in Malaysia



JICA's Cooperation on Climate Change

Koji MITOMORI

Director, Office for Sustainability Management
(Climate Change, Nature),
Japan International Cooperation Agency
(JICA)

Japan International Cooperation Agency

1. Introduction of JICA
2. JICA's cooperation strategy on climate change
 - a. JICA Global Agenda
 - b. Approach1 Paris Agreement Implementation
 - c. Approach2 Co-Benefit Approach
 - d. Good practices

2

Who we are?



3

JICA contributes to...

Human Security: Aiming for a society where all people can protect themselves from various threats and live their daily lives in security and with dignity.

Quality Growth: Promoting sustainable growth with less disparity and without harming the environment.



People

A society where all can live healthy, safe lives

- Education
- Health
- Social Security



Prosperity

A prosperous, sustainable economy at harmony with nature and prepared for promoting social development

- Agricultural and Rural Development
- Private Sector Development
- Urban and Regional Development
- Ensure Access to Affordable and Clean Energy
- Development of Transport Infrastructure



Peace

A peaceful, just society without fear or violence

- State-Building to Prevent the Outbreak and Recurrence of Conflicts
- Governance Support
- Gender Equality and the Empowerment of Women and Girls



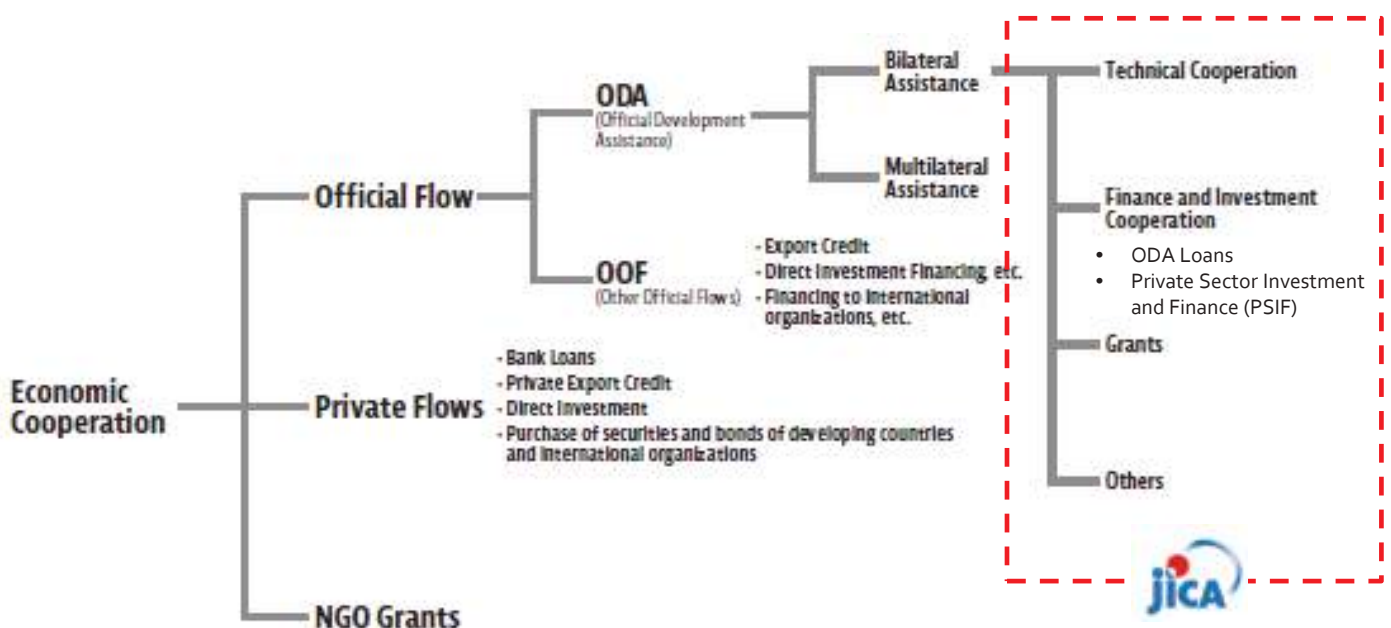
Planet

Care for the Planet

- Environmental Conservation and Management
- Water Resources Management
- Disaster Risk Reduction
- Climate Change

4

Types of Cooperation



5



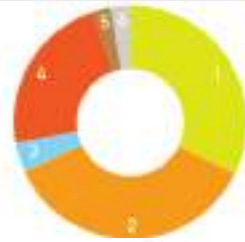
Overview of operations

Finance and Investment Cooperation (ODA Loans)-1-

Lending or investing of funds under concessional terms to developing countries for their development.

Scale of Operations

¥1,523.2 billion



1. Electric power and gas	22.3%
2. Transportation	26.6%
3. Agriculture, forestry and fisheries	3.1%
4. Social services	22.5%
5. Program loans	2.2%
6. Others	2.3%

Grants-1-

Financial assistance without repayment obligation, it mainly targets developing countries with low levels of income.

Scale of Operations

¥85.6 billion



1. Planning and administration	2.4%
2. Public works and utilities	51.0%
3. Agriculture, forestry and fisheries	6.1%
4. Energy	5.1%
5. Business and tourism	0.8%
6. Human resources	14.9%
7. Health and medical care	17.5%
8. Others	1.0%

(in fiscal year 2018/2019)

Technical Cooperation-1-

Dispatch of Japanese experts to developing countries and acceptance of training participants and students to disseminate Japanese technologies and knowledge.

Scale of Operations

¥175.1 billion



1. Planning and administration	8.1%
2. Public works and utilities	22.8%
3. Agriculture, forestry and fisheries	10.8%
4. Mining and industry	1.4%
5. Energy	3.9%
6. Business and tourism	3.0%
7. Human resources	11.2%
8. Health and medical care	6.8%
9. Social welfare	1.3%
10. Others	22.9%

JICA's climate change cooperation in numbers

JICA integrates climate action in various regions and sectors.

Number of projects (2019)

By sector



By region



Number of projects

Number of countries

99 projects

111 countries

Total aid amount (2019)

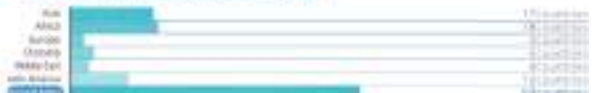
By amount sector

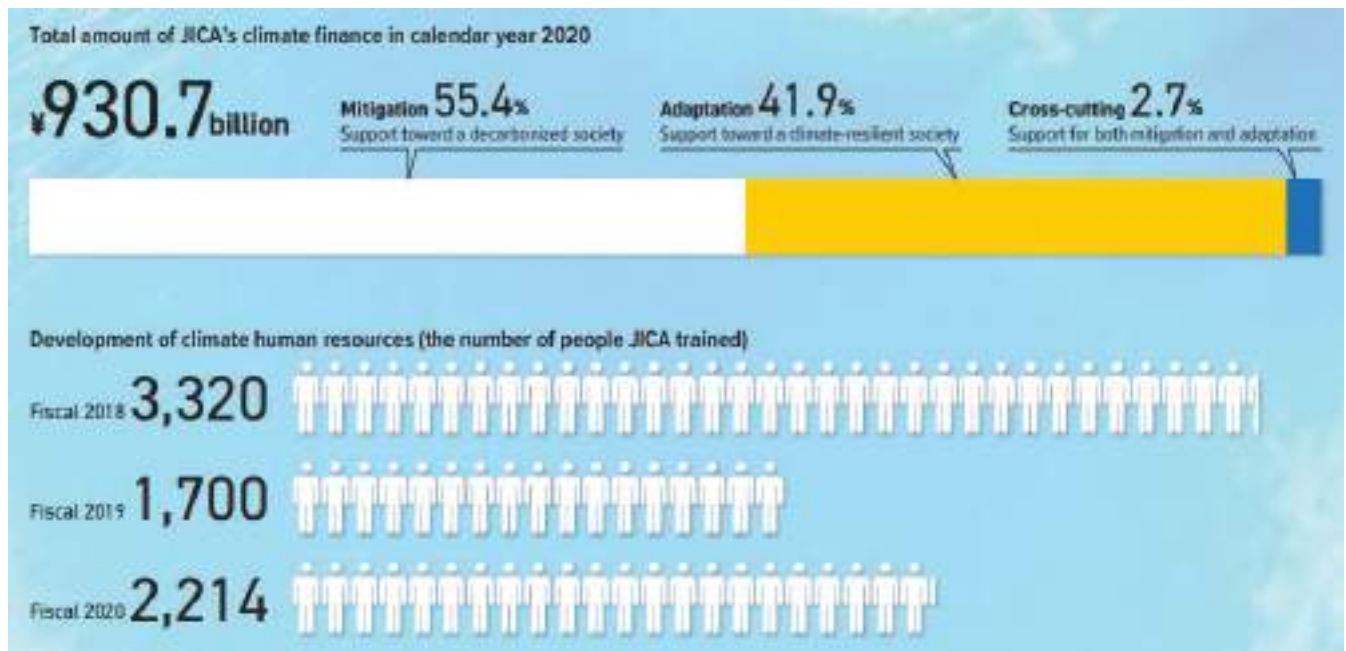


By amount region



Number of countries (2019)





8

1. Introduction of JICA
2. JICA's cooperation strategy on climate change
 - a. JICA Global Agenda
 - b. Approach₁ Paris Agreement Implementation
 - c. Approach₂ Co-Benefit Approach
 - d. Good practices

9

2. JICA's cooperation strategy on climate change

JICA cooperates on climate change actions consistent with international framework conventions and Japanese government policy.

International Frameworks	• Paris Agreement • Sustainable Development Goals (SDGs) Goal 13: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters (13.1), Integrate climate change measures into national policies, strategies and planning (13.2) • Sendai Framework for Disaster Risk Reduction 2015-2030: Integrated the actions to reduce disaster risk as part of development assistance programs associated with climate change adaptation.
Japan Govt.	• NDC, Long-term Strategy under the Paris Agreement • Infrastructure System Export Strategy 2025 etc. • Development Cooperation Charter (2023 June)
JICA Cooperation Policy	• JICA Global Agenda No.16: Climate Change • JICA's policy paper on climate change

10

JICA Global Agenda

— JICA's 20 Strategies for Global Development Issues

NO. 16

Climate Change

Confronting the threat of climate change with Partner countries

JICA is committed to provide support for climate change that requires immediate action, to enhance the ability to cope with climate change, and to help achieving a sustainable society.

In order to stop the enormous negative impact of climate change on the economy and society, we must drastically reduce greenhouse gas emissions. JICA will contribute to solving global issues in cooperation with partner countries that are having difficulty combating climate change and promoting sustainable development at the same time.



Japan International Cooperation Agency (JICA) works toward the achievement of the Sustainable Development Goals (SDGs).

Cover CG graphics: Osamu Fukuoka (alfarobe)

20

JICA Global Agenda

Contributing to the goals of UNFCCC and building sustainable and resilient societies through

- strengthening capacity development to respond to climate change
- promoting co-benefit that pursue both development issues and climate change measures.



12

Agenda

1. Introduction of JICA
2. JICA's cooperation strategy on climate change
 - a. JICA Global Agenda
 - b. Approach₁ Paris Agreement Implementation
 - c. Approach₂ Co-Benefit Approach
 - d. Good practices

13

Approach 1

Promote implementation of the Paris Agreement

1 Supporting for the development and implementation of plans

- Formulating, implementing, and monitoring Climate Change Plan
- Promoting the transition to a decarbonized and climate change resilient society

2 Strengthening the greenhouse gas inventory and transparency framework

- Biennial Transparency Reports
- GHG inventories
- Progress on national reduction targets

3 Introduction and use of climate finance

- Programme loans and the Green Climate Fund
- Combination of financial and technical cooperation support

14

Approach 1: Promote implementation of the Paris Agreement

Promote implementation of the Paris Agreement

Specific Efforts

- Support for the development and implementation of plans
- Strengthen the greenhouse gas inventory and transparency framework
- Introduction and use of climate finance



[Grant] Project for Construction of the Pacific Climate Change Center
[Technical Cooperation] Project for Capacity Building on Climate Resilience in the Pacific (Samoa)



[Technical Cooperation] Project for capacity development to establish a national GHG inventory cycle of continuous improvement (Mongolia)



Support for Planning and Implementation of the Nationally Determined Contributions in Vietnam



[Technical Cooperation] Project of Capacity Development for the Implementation of Climate Change Strategies (Indonesia)

15

1. Introduction of JICA
2. JICA's cooperation strategy on climate change
 - a. JICA Global Agenda
 - b. Approach₁ Paris Agreement Implementation
 - c. Approach₂ Co-Benefit Approach
 - d. Good practices

16

How to address challenges? : Approach 2



Definition

JICA's Co-benefit of climate change refer to :

Measures that support both Climate Change and Development to realise **Climate Resilient and Sustainable Development**. To achieve this, adaptation and mitigation measures are considered the main pillars to minimize the climate change risks, and at the same time pursuing maximum consideration to the **natural environment, biodiversity**, etc., in order to **maximise synergies** and **minimise potential trade-offs** with Sustainable Development.



17

Mitigation

Greenhouse gas emissions reduction and enhancement of absorption



► Energy

Sustainable use of stable and affordable energy
(Transmission and distribution networks, renewable energy, energy conservation)

► Urban development, transportation and traffic

Low-carbon and environmentally friendly cities
(Public transportation systems, comprehensive services from planning to infrastructure development)

► Conservation of forests and other natural environments

Biodiversity conservation and prevention of desertification
(Conservation of the natural environment and forests)

18

Approach 2: Co-benefits of Climate Change

(Mitigation)

- Clean energy, transportation and building low-emission, climate resilient infrastructures will have a significant effect on climate change

Specific Efforts

- Improving energy efficiency (power generation, power loss reduction, energy conservation)
- Development and use of renewable energy sources
- Expansion of public transportation
- Support for cities to develop and implement plans to achieve carbon neutrality



[Loans] Delhi Mass Rapid Transport System Project in India



[Loans] Kampala Flyover Construction and Road Upgrading Project (Uganda)



[Loans] Olkaria V Geothermal Power Plant (Kenya)



19

Adaptation

Building a climate change resilient society



Examples for this approach

► Disaster risk management

Flood risk assessment based on climate change impact projections

► Water resource management

Planning for comprehensive water resource management based on climate risk

- Groundwater conservation
- Drought-resilient water supply system

► Agriculture

- Participatory Irrigation Management
- Diversifying livelihood options through multi-crop cultivation and multiple management
- Introducing agricultural insurance

20

(Adaptation)

Assessment of climate risks and enhancement of adaptation measures

Specific Efforts

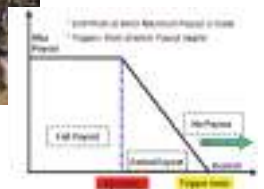
- Capacity building and facility development for
 - Climate risk assessment
 - Prediction and early warning
 - Rapid response preparedness
- Proactive investments in
 - Climate risk prevention and reduction
 - Infrastructure development
 - Resilience contributing to Build Back Better
- Develop risk financing



[Grant] Improvement of meteorological radar system (Mauritius)



[Technical Cooperation] Pilot project of weather index-based crop insurance promotion (Ethiopia)



[Grant] Project for Reconstruction on Nippon Causeway on Tarawa to Adapt Climate Change (Kiribati)

21

1. Introduction of JICA
2. JICA's cooperation strategy on climate change
 - a. JICA Global Agenda
 - b. Approach1 Paris Agreement Implementation
 - c. Approach2 Co-Benefit Approach
 - d. Good practices

22

Good practice for partnership with national and sub-national actors Comprehensive Support to Low-Carbon and Build Climate-Resilient City



Low-Carbon and Climate-Resilient City

23

Urban railways

Blue Line

- Opened in 2004
- Total Project Cost: 358 Billion JPY
- ODA Loan Amount: 222 Billion JPY
- Civil Work, Depot, Track by ODA Loan
- E&M, O&M by Private Investment

Purple Line

- Opened in Aug 2016
- Total Project Cost: 210 Billion JPY
- ODA Loan Amount: 79 Billion JPY
- Civil Work, Depot, Track by ODA Loan
- E&M, O&M by Private Investment

Red Line

- Under construction (to be opened in Nov 2021)
- Total Project Cost: 332 Billion JPY
- ODA Loan Amount: 268 Billion JPY
- Civil Work, Depot, Track, E&M by ODA Loan



Smart Transport Technology

The Project of Smart Transport Strategy for Thailand 4.0

Background

- Traffic congestion, air pollution and GHG emission in Bangkok
- Announcement of Thailand 4.0

Technologies

- Proposal of Smart mobility strategic integration method
- Implementation of Smart Transport System (Sukhumvit Model)

Expected outcome

By implementing the Smart mobility strategic integration method,

- traffic congestion will be resolved
- Quality of Life will be enhanced (with new travel behaviors and life styles)

Smart City where QOL is enhanced



Traffic congestion in Bangkok



2023 Commissioned Projects FY2023 MOEJ City-to-City Collaboration for Zero-Carbon Society project

(Developing an Institutional Framework Towards KL Zero Carbon City and Neighborhood in Collaboration with Tokyo Metropolitan Government and Saitama City)

printed in 2024

Indication of recyclability: can be recycled into paper for printing.

This printed material is produced using only materials suitable for recycling into paper for printing [A rank], in accordance with the criteria for judgment pertaining to 'printing' in the basic policy under the Green Purchasing Act.

2023 Commissioned Projects FY2023 MOEJ City-to-City Collaboration for Zero-Carbon Society project

(Developing an Institutional Framework Towards KL Zero Carbon City and Neighborhood in Collaboration with Tokyo Metropolitan Government and Saitama City)

printed in 2024

Indication of recyclability: can be recycled into paper for printing.

This printed material is produced using only materials suitable for recycling into paper for printing [A rank], in accordance with the criteria for judgment pertaining to 'printing' in the basic policy under the Green Purchasing Act.