

The Secretary for Environment and Ecology, who has overall policy responsibility for environmental protection, receives assistance on the formulation of new policies as well as management of environmental issues from the Permanent Secretary for Environment and Ecology (Environment), who is also the Director of Environmental Protection. The Advisory Council on the Environment advises the Government on measures for the prevention and abatement of pollution.

The Environment and Conservation Fund (ECF) provides funding support to local non-profit making organisations for educational, community waste reduction and recovery, research, technology demonstration and other projects in relation to environmental and conservation matters. The Environmental Campaign Committee (ECC) set up in 1990 promotes public awareness of environmental matters and encourages the public to contribute actively towards a better environment. The EPD's Environmental Resource Centres provide easy access of environmental protection information, and organise regular workshops for the public.

**Planning Against Pollution:** Considerable emphasis is placed on pre-empting environmental problems by requiring designated works projects to undergo statutory environmental impact assessment (EIA) process to ensure that environmental factors are considered at all stages of project planning and development.

At strategic level, key environmental information relating to major proposals has to be provided in submissions to the Executive Council to facilitate decision-making. For some major proposals or plans, strategic environmental assessment would also be conducted.

At local level, environmental quality is safeguarded through the application of the guidance provided in the Hong Kong Planning Standards and Guidelines.

The Environmental Impact Assessment Ordinance provides the legal framework for applying the EIA process to designated projects and implementation of agreed environmental measures through Environmental Permits.

To lead by example, all government bureaux and departments are required to publish annual environmental reports starting from 2000. Private and government owned public corporations are encouraged to do likewise.

The EPD has been actively promoting environmental audit, environmental management system and environmental reporting to improve corporate environmental performance in both private and public sectors. To assist organisations in pursuing environmental management, useful guidelines are available at the EPD's website at <http://www.epd.gov.hk>.

**Legislation and Pollution Control:** The EPD is responsible for the enforcement of most of the measures contained in the 11 pollution control legislation.

**Air:** The control on air pollution is effected under the Air Pollution Control Ordinance. Major emitters, such as power plants and cement plants, are categorised as Specified Processes and subject to stringent licensing control. Emission caps have been imposed on all power stations through licence conditions since 2005. Amendments to the Ordinance have enabled the stipulation of emission caps for the power sector by a Technical Memorandum (TM). A total of nine TMs were issued from 2008 to 2021 to progressively tighten the emission caps from 2010 to 2026 and onwards. For other processes, the installation and alteration of fuel burning equipment need prior approval from the EPD. To

reduce air pollutants, limits are imposed on the sulphur content of fuels sold in Hong Kong. All commercial and industrial processes are required to use ultra low sulphur diesel under an amendment regulation that became effective in October 2008. Subsidiary regulations have been in place to control smoke from furnaces, open burning, construction dust, volatile vapour from petrol filling stations, dry-cleaning machines, products containing volatile organic compounds and emissions from non-road mobile machineries.

Specific control on asbestos work requires registration of asbestos consultants, laboratories, contractors and supervisors. The use, supply, import or transshipment of all types of asbestos has been totally banned from 4 April 2014. To promote good indoor air quality (IAQ), an IAQ Management Programme has been introduced, of which the implementation of the IAQ Certification Scheme for Offices and Public Places is one of the major tasks. Organisations participating in the certification scheme have been progressively adopting the more stringent IAQ Objectives, which were updated in 2019, as the certification standard. IAQ labels can be displayed at certified premises to demonstrate the attainment of good IAQ levels.

To tackle air pollution caused by vehicle emissions, the Government is implementing a number of programmes. These include introducing stringent vehicle fuel and emission standards that are practical and commercially viable, exploring clean alternatives to diesel vehicles and strengthening vehicle emissions inspection. In July 2010, the Government tightened the statutory specifications of motor vehicle diesel and unleaded petrol to Euro V standards and implemented statutory control on the quality of motor vehicle biodiesel. In addition, the statutory emission standards for newly registered motor vehicles were tightened from Euro V to Euro VI in phases according to vehicle class, starting from 1 July 2017. The statutory emission standards for newly registered diesel private cars and motorcycles were also tightened to California LEV III from 1 October 2017 and Euro IV from 1 October 2020 respectively. To reduce emission from diesel vehicles, all newly registered taxis must use liquefied petroleum gas (LPG) or unleaded petrol. Almost all taxis are now fuelled by LPG. The incentive scheme to encourage diesel public light buses to switch to LPG or electric light buses was completed in end 2005; more than 80 per cent of the public light buses now run on LPG. From April 2008, buyers of newly registered environment-friendly commercial vehicles enjoy concessions for their first registration taxes.

Moreover, the Motor Vehicle Idling (Fixed Penalty) Ordinance which introduced a statutory prohibition against idling vehicles with running engines came into operation in December 2011. Apart from the Smoky Vehicle Control Programme which controls smoky diesel vehicles on road, the Government started in September 2014 to strengthen control of emissions from petrol and LPG vehicles using roadside remote sensing equipment. The ex-gratia payment scheme launched in March 2014 and completed in June 2020 has phased out about 80 000 pre-Euro IV diesel commercial vehicles. In addition, to ensure timely replacement of diesel commercial vehicles in the long run, the Government also limits the service life of diesel commercial vehicles first registered after 31 January 2014 to 15 years. The Government launched again in October 2020 an incentive-cum-regulatory programme to progressively phase out some 40 000 Euro IV diesel commercial vehicles

by end 2027. Since March 2011, the Government has put in place a \$1.1 billion New Energy Transport Fund (previously named Pilot Green Transport Fund) to subsidise the trial and wider use of green innovative transport technologies on a variety of commercial transport tools including goods vehicles, taxis, light buses, buses, vessels, motorcycles, non-road vehicles, or the aforesaid transport tools of charitable/non-profit making organisations providing services to their clients

In addition, the Government has been promoting a wider adoption of electric vehicles (EVs) which have no tailpipe emissions. The Government has launched a \$2 billion EV-charging at Home Subsidy Scheme on 21 October 2020, to subsidise car parks of existing private residential buildings to install EV charging-enabling infrastructure. The Government has further injected \$1.5 billion into the subsidy scheme in 2022-23, expecting the scheme to cover more than 140 000 parking spaces in total. Furthermore, the Environment Bureau announced the first Hong Kong Roadmap on Popularisation of EVs (the Roadmap) in March 2021, setting out the long-term policy objectives and plans to promote adoption of EVs with a view to achieving the goal of zero vehicular emissions before 2050. Key measures under the Roadmap include no new registration of fuel-propelled private cars including hybrid vehicles in 2035 or earlier; trials for electric public transport and commercial vehicles, with a view to formulating a concrete way forward and timetable around 2025; expansion of the EV charging network and promote its marketisation; training for technicians and mechanics on EV maintenance; formulation of a producer responsibility scheme for retired EV batteries; establishment of a task force to examine the high-end development of new decarbonisation technology globally; and a review of the Roadmap around every three years.

Joining the global effort to protect the ozone layer, Hong Kong has honoured the full obligations of the Montreal Protocol and its subsequent amendments through the enforcement of the Ozone Layer Protection Ordinance. To comply with the requirements under the Protocol, Hong Kong has banned the import of all products containing hydrochlorofluorocarbons (HCFCs) since January 2020.

The Government has implemented a series of measures to control marine emissions. These include implementing MARPOL Annex VI requirements, controlling vessel smoke emissions by legislation, upgrading the quality of locally supplied marine light diesel in April 2014 and mandating ocean going vessels to switch to cleaner fuel while berthing in July 2015 by legislation. Hong Kong is the first port in Asia to introduce the fuel switch requirement. In addition, Hong Kong has collaborated with the Ministry of Transport and the Guangdong authorities to jointly implement control measures set under the domestic marine emission control area in the Pearl River Delta waters. Starting from 1 January 2019, all vessels, irrespective of whether they are sailing or berthing, are required to use low sulphur marine fuel in Hong Kong waters.

To continuously improve the air quality for better protection of public health, the Government tightened Air Quality Objectives (AQOs) since 1 January 2014 and required a review of the AQOs be conducted at least once every five years. The current AQOs took effect from 1 January 2022. The Government has embarked on a new round of review to assess the scope for further tightening the AQOs, with an aim of completing the review by 2023. In addition, the Government announced the "Clean Air Plan for Hong Kong 2035" in June 2021, setting out long-term goals and strategies to further improve air quality, with a view to leading Hong Kong to become a liveable city with air quality on par with major international cities by 2035.

**Waste:** The Waste Disposal Ordinance (WDO) provides for the control and regulation of the production, storage, collection and disposal of waste. Moreover, in line with the Basel Convention, the ordinance enables a permit control on import and export of hazardous waste and bans

the import of hazardous waste from developed countries to Hong Kong. Since 1 January 2021, Hong Kong has enhanced its control over the import and export of waste plastics in accordance with the Plastic Waste Amendments to the Basel Convention.

Based on the principle of "polluter pays", charging schemes have been introduced under the respective Ordinances to charge for the treatment of chemical, clinical and MARPOL waste at the Chemical Waste Treatment Centre. In addition, private sector users of refuse transfer stations are required to pay for the service. Similarly, disposal of construction waste at the landfills, outlying islands transfer facilities or sorting facilities, and disposal of inert construction waste at public fill reception facilities, are also subject to charges.

The Dumping at Sea Ordinance controls marine dumping activities in line with the requirements under the 1996 Protocol to the London Convention.

**Water:** The Water Pollution Control Ordinance provides for declaration of 10 Water Control Zones and four supplementary Water Control Zones to cover the whole area of Hong Kong. Except discharge of domestic sewage to foul sewers and unpolluted water to storm drains, rivers and other water bodies, all other discharges into these zones have been subject to regulatory control. A Technical Memorandum of Effluent Standards provides transparency in setting control limits for any discharge licences to be issued to dischargers. They are designed to enable achievement of the Water Quality Objectives.

**Noise:** The Noise Control Ordinance provides for the control of noise from construction sites, domestic premises and public places, industrial and commercial premises, motor vehicles, intruder alarm systems as well as specified noisy equipment. Noise from general construction works at night and on general holidays is controlled through a permit system which has essentially banned non-essential noisy construction works in built-up areas. All percussive piling works are prohibited at night and on public holidays, and require a permit at other times. Noisy diesel, steam and pneumatic piling hammers are essentially banned in built-up areas. Hand-held breakers and air compressors must comply with stringent noise emission standards and be fitted with noise emission labels. The management of bodies corporate is to be held personally liable for repeated noise offences.

Noise from domestic premises and public places is controlled by the police on a reasonableness approach, whereas noise from industrial or commercial premises is controlled by the EPD through noise abatement notices. To minimise traffic noise, newly registered vehicles including motorcycles are required to comply with stringent noise emission standards.

Enforcement of the above pollution control ordinances is undertaken by the EPD through investigation of pollution complaints, inspection and licensing of pollution sources, issuing pollution abatement notices and prosecution of offenders. The Regional Offices have proved to be very effective in tackling local pollution concerns and strengthening communication with the local communities on the government's environmental protection work. In parallel, the EPD also develops partnership with the trade and industry to assist in law compliance and pollution prevention, promote corporate environmental management as well as raising environmental awareness of the general public.

**Sewage and Waste Collection, Treatment and Disposal:** Based on a sewage disposal strategy, the Government has devised 16 sewerage master plans (SMPs) to cover the whole territory of the HKSAR. Most of these SMPs have been reviewed in light of population increase and land development.

The Harbour Area Treatment Scheme (HATS), which comprises a major deep tunnel collector system and treatment works, has been implemented for handling sewage generated from all districts around Victoria Harbour. HATS Stage 1 collects sewage from Kowloon and the north-eastern

part of Hong Kong Island and transports it through a network of deep tunnels to the Stonecutters Island Sewage Treatment Works (SCISTW) for treatment. HATS Stage 2A collects sewage from the northern and south-western parts of Hong Kong Island to the expanded SCISTW for treatment. With full commissioning of Stage 2A in December 2015, all sewage from both sides of Victoria Harbour has been intercepted and diverted to the SCISTW for centralised treatment and disinfection before discharge, resulting in further improvement in the water quality of the harbour. Meanwhile, the Government is taking focused effort to tackle the discharge of residual pollutants to the harbour caused by sewer misconnections, leakages and street activities. Engineering measures including the provision of dry weather interceptors and rehabilitation of the sewerage network are being progressively implemented with a view to further enhancing the quality of coastal waters of Victoria Harbour.

The sewerage system is also being extended to serve more rural village areas. As of 31 December 2021, a population of about 234 500 in the rural areas has been connected to public sewers.

The EPD is the waste disposal authority responsible for planning and development of waste treatment and disposal facilities.

In 2020, the three large modern landfills in the New Territories received and disposed of a daily total of about 10 810 tonnes of municipal solid waste (MSW) including domestic waste, and commercial and industrial waste, in which 8 160 tonnes were containerised waste transported to the landfills in bulk from six refuse transfer stations in urban areas and seven refuse transfer facilities at outlying islands. Overall construction waste disposed of at landfills amounted to a further 3 420 tonnes per day.

The Chemical Waste Treatment Centre on Tsing Yi Island has treated more than 1.08 million tonnes of chemical waste since the plant commissioned in 1993. Moreover, it also incinerated more than 24 146 tonnes of clinical waste since its first reception of the waste in August 2011. A storage facility for low level radioactive waste on Siu A Chau was commissioned in 2005. Livestock waste collected from local farms is delivered to landfills for disposal, while some horse stable waste is treated at the Ngau Tam Mei Animal Waste Composting Plant. T-PARK, a sewage sludge incineration facility at Tsang Tsui, Tuen Mun has commenced its operation since April 2015 with daily throughput about 1 000 - 1 200 tonnes per day. The heat generated from the incineration process is converted to electricity for internal operation use while surplus electricity is exported to the public grid.

There are 13 closed landfills in Hong Kong; their restoration works have been completed and the sites are safe for beneficial use by the public. A soccer-cum-baseball pitch at Sai Tso Wan Landfill was opened in 2004. A BMX Park and a Temporary Cricket Ground, built on Gin Drinkers Bay Landfill, were opened in 2009 and 2018 respectively. Two recreation parks developed on Jordan Valley Landfill and Ngau Chi Wan Landfill were opened to the public in 2010. Part of the Ma Yau Tong Central and Ma Yau Tong West Landfills were developed into two sitting-out-areas and opened to the public in 2011. At Tseung Kwan O Stage I Landfill (TKOL-I), the cycle track cum pedestrian footpath along the waterfront was opened to the public in 2012 while the Pet Garden and Football Training Centre were opened to the public in 2013 and 2018 respectively. A butterfly conservation area was established at Siu Lang Shui Landfill in 2022 for enhancing and conserving the butterfly habitat. In addition, the Tung Wah Group of Hospitals is constructing a camp site cum green education ground (named E-Co Village) at the TKOL-I with a view to commissioning the facilities in 2023 tentatively. A recreational park is also being constructed at the GDBL for completion in 2024.

**MSW Management:** Hong Kong's daily per capita domestic waste generation rate is still high in comparison to other Asian cities with similar economic development, which puts tremendous pressure on the entire waste management

strategy. The Environment Bureau published the "Waste Blueprint for Hong Kong 2035" (the Blueprint) in February 2021 which outlines the strategies, goals and measures to tackle the challenge of waste management up to 2035. Under the vision "Waste Reduction • Resources Circulation • Zero Landfill" advocated by the Blueprint, the Government will work with the industry and the community to move towards two main goals. The medium-term goal is to gradually reduce the per capita MSW disposal rate by 40-45% and raise the recovery rate to about 55% by implementing MSW charging, while the long-term goal is to move away from the over-reliance on landfills for direct disposal of MSW by developing adequate waste-to-energy/ resources facilities.

Enshrining the principle of "polluter pays" and the element of "eco-responsibility", Producer Responsibility Scheme (PRS) requires relevant stakeholders including manufacturers, retailers and consumers to share the responsibility for the collection, recycling, treatment and disposal of end-of-life products. The Product Eco-responsibility Ordinance was enacted in July 2008 to provide the legal basis for introducing PRSs in Hong Kong. Following the full implementation of the Plastic Shopping Bag Charging Scheme in the entire retail sector since April 2015, the EPD has initiated the legislative process for making subsidiary legislation for enhancing the Scheme in June 2022, including to increase the minimum charging level and tighten the scope of exemption of the Scheme. The PRS on waste electrical and electronic equipment (WEEE) has been fully implemented in 2018 and the treatment and recycling facility (WEEE-PARK) developed to underpin the scheme has also commenced full operation in March 2018. In parallel, the EPD has been implementing the PRS on glass beverage containers progressively, and has initiated the legislative process for the relevant subsidiary legislation in June 2022 for the full implementation of the PRS. The EPD is also preparing to introduce a PRS for plastic beverage containers and to amend the relevant legislation for regulating disposable plastic tableware.

In addition, the bill of the Waste Disposal (Charging for Municipal Solid Waste) (Amendment) Ordinance 2021 to implement MSW charging was passed by the Legislative Council in August 2021. The preparatory period of 18 months as a basic arrangement has begun. We are now actively taking forward relevant preparatory work to enable the Government, various stakeholders and the public to prepare for the implementation of MSW charging. Our current target is to implement MSW charging in the second half of 2023. Furthermore, to complement the implementation of MSW charging, and to support the public to practise waste reduction and recycling more proactively, the Government undertook to provide recurrent resources to strengthen our work on these fronts starting from the financial year 2019-20, which would be further increased to no less than \$800 million to 1 billion approximately from the financial year when MSW charging is to be implemented. The amount of this annual provision would be commensurate with the estimated gross revenue to be generated from MSW charging in the initial period so as to achieve the effect of "dedicated-fund-for-dedicated-use".

Food waste is a major constituent of MSW in Hong Kong, the EPD officially launched a Food Wise Hong Kong Campaign in May 2013 to raise public awareness and promote reduction in food waste. The "Food Wise Eateries" Scheme was also launched in November 2015 in encouraging eateries to offer food portioning options to their customers in order to reduce food waste. The "Big Waster" who symbolises food wastage in the Campaign has disseminated information on food waste reduction to the general public through different channels including the social media platforms and strengthened interaction with supporters, in particular the youth. In support of the Government's target to attain carbon neutrality before 2050, the terms of reference and membership of the Food Wise Hong Kong Steering Committee have been updated in 2021 to encourage and facilitate the separation and collection of

unavoidable food waste to enhance recycling of resources and help reduce the carbon footprint.

To complement public education, drive behavioural changes and improve the recovery rate of waste plastics, the EPD has commenced progressively since January 2020, a two-year pilot scheme on waste plastics collection and recycling in Eastern District, Kwun Tong and Sha Tin. All types of waste plastics from non-commercial and non-industrial sources will be collected for proper handling and recycling. We have further extended the Pilot Scheme to nine districts progressively since end March of 2022, covering over half of the population in Hong Kong. Subject to the experience and effectiveness of the Pilot Scheme, we will further optimise the service and extend the service to cover the entire territory. In addition, the EPD has launched the Pilot Scheme on Food Waste Collection on a larger scale in 2021 to enhance the recycling of food waste from commercial and industrial sources (including the food and beverage sector) with a view to progressively covering more housing estates..

For unavoidable and non-recyclable waste, the department proposes to develop a number of waste treatment facilities. It includes state-of-the-art multi-technology integrated waste management facilities with advanced incineration as the core treatment technology to substantially reduce the volume of such waste before final disposal and to recover energy from the waste. Construction of the first phase of the integrated waste management facilities (I-PARK1) at an artificial island site near Shek Kwu Chau was started in December 2017 and is scheduled for commissioning in 2025. In parallel the Government will continue to develop the O-PARKs and optimise the use of sewage treatment works for carrying out food waste/sewage sludge anaerobic co-digestion, as well as explore other innovative food waste treatment technologies, with a view to enhancing the overall food waste treatment capability in Hong Kong. The first O-PARK, located at Siu Ho Wan, North Lantau, was commissioned in 2018 for recycling source separated food waste to useful compost and biogas products. The second O-PARK located at Sha Ling of the North District is under construction and is expected to be commissioned in 2024. In the meantime, the EPD is carrying out the food waste/sewage sludge co-digestion trial scheme at Tai Po Sewage Treatment Works and the associated food waste pretreatment facilities have commenced its operation since May 2019. The food waste pre-treatment facilities at Sha Tin Sewage Treatment Works are also being developed and scheduled to commence operation in 2023. As for yard waste, the EPD has developed a temporary yard waste recycling centre Y-PARK, which has commenced operation in June 2021, to turn suitable yard waste into useful materials such as mulch for planting and gardening, compost, biochar feedstock, and wood boards and wood beams for making wooden furniture, decoration, artworks and renovating facilities. A pilot plant to convert yard waste into biochar is currently under construction in EcoPark and scheduled to commence operation in 2023.

The advance works of the South East New Territories Landfill Extension was completed in November 2021 and it started to receive construction waste. The EPD is proceeding with the work on the remaining two landfill extension schemes to meet the future need for waste disposal.

Apart from the Government's efforts in waste management, local recycling operations are playing an important role. In 2020, 1.54 million tonnes of MSW recyclables were recovered. Under the steer of the Steering Committee to Promote the Sustainable Development of the Recycling Industry chaired by the CS, the Government has formulated policies to upgrade the operational capabilities of the recycling industry. These include providing infrastructure such as land sites and dedicated berths in Public Cargo Working Areas, training and development of the industry's workforce, encouraging research and investment in relevant technologies, and fostering community support for recycling and enhancing the collection network of recyclables.

The \$1 billion Recycling Fund was launched in October 2015 and is open for applications. The Recycling Fund

promotes the recovery and recycling of waste into useful resources and products by facilitating the upgrading of operational capabilities and efficiency in the recycling industry to support its sustainable development. It further promotes low-carbon transformation by supporting the recycling industry to apply technology to make high value-added products, so as to achieve re-industrialisation, reduce disposal at landfills and promote a circular economy to reduce waste and the carbon footprint. Another \$1 billion was injected in April 2021 and the application period has been extended to 2027. Moreover, the EPD will continue to provide long-term land at affordable cost at the 20-hectares EcoPark in Tuen Mun for the recycling industry with a view to encouraging investment in more advanced technologies and value-added recycling processes in Hong Kong. There are diverse types of materials recycled in EcoPark, including waste cooking oil, waste metals, waste wood, WEEE, waste plastics, waste batteries, waste construction materials, waste glass, waste rubber tyres and waste paper etc. The Government has 17 short-term tenancy sites occupying 3.5 hectares of land leased out exclusively for use by the recycling industry.

The EPD continues to support waste reduction and recycling work at community level through progressive expansion and upgrading of its Community Recycling Network, comprising Recycling Stations which promotes green living and provides recycling support, Recycling Stores and Recycling Spots which are conveniently located near residential areas. As at mid-2022, over 160 community collection points have been in operation. The EPD has also set up a Green Outreach to provide on-site waste reduction and recycling support in the entire territory. The Green Outreach collaborates with community partners to educate the public proper separation of waste at source and clean recycling, and assists property management companies and residents' organisations to identify proper recycling outlets.

Besides, the EPD has been running a Reduce and Recycle 2.0 Campaign since mid-2020 to promote wider adoption of clean recycling practice in more types of recyclables. To promote waste reduction and recycling, the Government has been taking the lead in adopting a green procurement policy, such as avoiding single-use disposable items and purchasing products with improved recyclability, higher recycled contents, less packaging and greater durability as far as practicable.

**Environmental Monitoring and Investigations:** The EPD has introduced environmental monitoring schemes and specific investigations to establish an objective basis for local action.

Water quality monitoring includes 82 routinely-sampled stations for inland waters, 94 for marine waters and 60 for bottom sediments. The EPD monitors the water quality of 42 gazetted beaches closely during the bathing season and reports on the latest beach water quality weekly.

Hong Kong has a long coastline of about 1 178 km in length. To upkeep its cleanliness for public enjoyment, the Government has set up an inter-departmental working group to oversee the clean up operations by relevant departments and engage the public in clean up activities as part of its environmental education programme.

Air pollutant levels are measured continuously at 15 general and three roadside monitoring stations. The EPD launched a health risk-based Air Quality Health Index (AQHI) on 30 December 2013. The index informs the public of the short-term health risk of air pollution and helps them take precautionary measures to protect their health. The AQHI is released every hour via the internet, mobile app and telephone hotline.

Surveys of waste generation throughout Hong Kong have been conducted since 1981 to collect information needed for planning future waste disposal facilities.

Most major development projects are subject to environmental monitoring and audit. The EPD oversees programmes to ensure that recommendations in the EIA are

strictly implemented and appropriate mitigation actions are promptly taken.

**Regional and International Co-operation:** To tackle regional environmental issues, Hong Kong has been co-operating with its Mainland and Macao partners through the Hong Kong-Guangdong Joint Working Group on Environmental Protection and Combating Climate Change, the Hong Kong-Guangdong Joint Working Group on Cleaner Production and the Hong Kong-Macao Environmental Protection Liaison Meeting.

The governments of Guangdong and Hong Kong signed an Environmental Co-operation Agreement in August 2009, including key co-operation areas in regional air and water quality, nature conservation, and green business development, etc. The two governments also signed a 2016-2020 Co-operation Agreement on Environmental Protection in September 2016 to further strengthen regional collaboration on environmental protection.

Since November 2005, a Pearl River Delta (PRD) Regional Air Quality Monitoring Network set up by the governments of Guangdong and Hong Kong has been reporting daily air quality information to the public. With growing concerns about air pollution control and economic development of the region, Hong Kong, Guangdong and Macao signed a “Co-operation Agreement on Regional Air Pollution Control and Prevention among Hong Kong, Guangdong and Macao” in September 2014 to foster regional co-operation and enhance the regional air quality monitoring network by additional monitoring stations and monitoring parameters to enrich the air quality monitoring information. The enhanced network has been releasing real-time hourly air pollutant concentrations since then. The monitoring results of the network from 2006 to 2021 showed a substantial reduction in the major air pollutant concentrations in the region. To continuously improve regional air quality and provide a robust scientific basis for mapping out further air quality improvement strategies in the PRD Region, the governments of Guangdong and Hong Kong are working together on the study “Post-2020 Regional Air Pollutant Emission Reduction Targets and Concentration Levels” to formulate emission reduction plan and targets for 2025 and 2030.

Hong Kong, Guangdong and Macao also launched a study “Characterisation of photochemical ozone formation, regional and super-regional transportation in the Greater Bay Area” in 2021. Through a series of air quality measurements at sea, land and air, the formation and transportation characteristics of ozone in the Greater Bay Area could be explored.

The Government in collaboration with the Guangdong authorities launched a Cleaner Production Partnership Programme in April 2008, which provides technical support to Hong Kong-owned factories in Guangdong and Hong Kong to facilitate adoption of cleaner production technologies and practices. As at May 2022, more than 3 600 funding applications were approved and over 620 awareness and technology promotion activities were organised with about 59 000 participants. To enhance the efforts in promoting cleaner production, the two governments jointly launched the Hong Kong – Guangdong Cleaner Production Partners Recognition Scheme in August 2009 to give recognition to the efforts of Hong Kong-owned factories and commercial enterprises in pursuing cleaner production. As at May 2022, there were 344 enterprises holding valid commendations. The two governments also signed the Hong Kong-Guangdong Co-operation Agreement on Cleaner Production in November 2014.

Hong Kong and its neighbour Shenzhen, meanwhile, are jointly implementing action programmes to protect the water quality of the adjoining water bodies, including Deep Bay and Mirs Bay. The EPD and the Shenzhen government also entered into agreements to strengthen co-operation on environmental protection and promotion of cleaner production in December 2007 and November 2008 respectively.

Exchanges and collaboration in various areas of environmental protection with Macao have been enhanced under the steer of the annual Hong Kong-Macao Environmental Protection Liaison Meeting since 2008. In October 2016, the EPD and the Macao Environmental Protection Bureau signed the Hong Kong-Macao Environmental Protection Co-operation Agreement to further strengthen exchange and co-operation in various areas.

The Stockholm Convention on Persistent Organic Pollutants (POPs) became effective to the HKSAR in November 2004. The HKSAR Implementation Plan (HKSARIP) was included in China's National Implementation Plan. The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade became effective to the HKSAR in August 2008. The Hazardous Chemicals Control Ordinance came into operation in April 2008 to regulate non-pesticide hazardous chemicals regulated under the Stockholm Convention and the Rotterdam Convention. Five and one new non-pesticide POPs have been added to the Ordinance for regulation starting from January 2015 and June 2017 respectively, in accordance with amendments to the Stockholm Convention. Two new non-pesticide hazardous chemicals have also been added to the Ordinance for regulation starting from July 2018, in accordance with amendments to the Rotterdam Convention. The updated HKSARIP was submitted by the Central People's Government to the Secretariat of the Stockholm Convention in December 2018 to include the latest progress and strategy in implementing the Convention.

The Minamata Convention on Mercury became effective to the HKSAR in August 2017. To ensure HKSAR's full compliance with the international obligations under the Convention, and protect public health and the environment from anthropogenic emissions and releases of mercury and mercury compounds, the Mercury Control Ordinance (Cap. 640) was passed by the Legislative Council in May 2021 and is expected to commence before the end of 2021. Cap. 640 has four main provisions, namely the introduction of a permit system to control the import and export of all forms of mercury, the phasing out of mercury-added products listed in the Convention, the phasing out of the use of mercury and mercury compounds in the manufacturing processes listed in the Convention, and the introduction of a permit system to control the storage of all forms of mercury and mercury compounds.

To address the climate change challenge, the HKSAR, as part of the People's Republic of China, has been working closely with the international community under the United Nations Framework Convention on Climate Change and its Kyoto Protocol and Paris Agreement. The HKSAR has also joined the C40 Cities Climate Leadership Group (C40) to enhance co-operation with participating cities to combat climate change. Furthermore, the “Co-operation Agreement between Hong Kong and Guangdong on Combating Climate Change” was signed between the two governments in August 2011. Co-operation between the two places on combating climate change and the related scientific research and technology development are overseen by the Special Panel on Combating Climate Change established under the Hong Kong-Guangdong Joint Working Group on Environmental Protection and Combating Climate Change.

The 2020 and 2021 Policy Address announced that Hong Kong would strive to achieve carbon neutrality before 2050, and would reduce total carbon emissions from the 2005 level by half before 2035 respectively. To this end, the Government released in October 2021 the “Hong Kong's Climate Action Plan 2050”, setting out the vision of “Zero-carbon emissions • Livable city • Sustainable Development”, and outlining the four decarbonisation strategies, namely “net-zero electricity generation”, “energy saving and green buildings”, “green transport” and “waste reduction” that would lead Hong Kong towards the goal of carbon neutrality. The Government set up a new Steering Committee on Climate

Change and Carbon Neutrality under the Chairmanship of the Chief Executive in 2021 to oversee climate strategies and actions at the highest level and will establish a new Office of Climate Change and Carbon Neutrality to strengthen co-ordination and promote deep decarbonisation

In the next 15 to 20 years, the Government will devote about \$240 billion to take forward various measures on climate change mitigation and adaptation, covering renewable energy, energy saving and green buildings, green transport, waste management and enhancement of flood control capability, etc. The Government set up the \$200 million Green Tech Fund (GTF) in 2020 to provide better and more focused funding support to research and development projects which can help Hong Kong decarbonise and enhance environmental protection. To further promote the development and application of decarbonisation technologies that cater for the needs of Hong Kong's environment, the Government injected an additional funding of \$200 million to the GTF in the 2022 Budget. The funding injected will primarily be used to subsidise projects in priority areas such as net-zero electricity generation, energy saving and green buildings, green transport and waste reduction. Hong Kong is moving along the "low carbon" pathway to become an economy based on low energy consumption and low pollution. A host of actions are being pursued to enhance energy efficiency, use clean fuels, and rely less on fossil fuels. By implementing various environmental protection measures and promoting low carbon initiatives, Hong Kong is aspiring to be one of the greenest cities in China.