**SINGAPORE’S RESPONSE TO QUESTIONNAIRE BY SPECIAL RAPPORTEUR ON HUMAN RIGHTS AND THE ENVIRONMENT – “THE RIGHT TO A SAFE, CLEAN, HEALTHY AND SUSTAINABLE ENVIRONMENT: TOXIC-FREE PLACES TO LIVE, WORK, STUDY AND PLAY”**

**Introduction**

1 Since independence in 1965, Singapore has been pursuing sustainable development. Our first generation of leaders laid the foundations of long-term planning and sustainable development, and since then, Singapore has always balanced economic growth with protecting our environment and ensuring social inclusion. In 1968, then-Prime Minister Lee Kuan Yew introduced a national campaign to transform Singapore into a clean and green city by addressing pollution. The success of this campaign ignited a series of initiatives through the years, beginning a journey that transformed Singapore’s cityscape and laid the foundation for urban planning that ensures Singaporeans have clean air, green spaces, and water. From the cleaning up of the Singapore River in the 1970s and 1980s to the annual Keep Singapore Clean campaign, we have strived to create a clean and safe living environment in Singapore.

**Clean Air**

2 A safe, clean, healthy and sustainable environment in Singapore is achieved in two main ways – ensuring clean air and clean land. First, ensuring clean air protects public health, and is an important component to ensure high quality of life. Singapore has introduced several policies to minimise air pollution, including regulating emissions standards for major sources of air pollution. Singapore benchmarks our ambient air quality against the World Health Organization (WHO) Air Quality Guidelines (AQGs) for particulate matter (PM10 and PM2.5), nitrogen dioxide (NO2), carbon monoxide (CO), ozone (O3) and sulphur dioxide (SO2). Ambient air quality is monitored in real time through a network of stations across the island, enabling authorities to enforce the control measures and check the effectiveness of the policies. This information is also made available to the public as the Pollutant Standards Index (PSI),[[1]](#footnote-2) which can be accessed through various platforms (e.g. the National Environment Agency’s website and mobile application).

3 The main domestic sources of air pollution in Singapore are emissions from industry and motor vehicles. From time to time, transboundary smoke haze from land and forest fires in the region around Singapore can also affect Singapore’s air quality, particularly during the Southwest monsoon period, typically from July to October.

4 We rely on legislation, strict enforcement programmes and air quality monitoring to curb emissions from major pollutant sources. These ensure that air quality remains good despite Singapore’s dense urban landscape and large industrial base. The primary piece of legislation which provides for air pollution control and enforcement in Singapore is the Environmental Protection and Management Act (Cap 94 A) (EPMA).

5 Air quality policies are regularly reviewed and updated to ensure they keep pace with technological advancements, whilst balancing the cost and environmental benefits. For example, emissions standards for motor vehicles have been progressively tightened over the years. These standards are benchmarked against the latest in the European Union (EU) and Japan, and regulated under the Environmental Protection and Management (Vehicular Emissions) Regulations. Various incentive schemes have also been rolled out to encourage the purchase of cleaner energy vehicles. As laid out in our recently announced Electric Vehicles (EV) Roadmap, Singapore plans to phase out Internal Combustion Engine (ICE) cars, and have all cars run on cleaner energy by 2040. By switching to EVs, we can significantly reduce carbon emissions and air pollution from ICE vehicles.

6 In addition to controlling emissions at source, the Singapore Government employs a strategy of integrated urban and industrial planning to minimise the public’s exposure to air pollution. Environmental considerations are factored into our land-use planning, development control, and building control stages, in order to minimise pollution impact and mitigate nuisance impact on surrounding land uses. For instance, industries are sited in designated industrial estates with adequate buffer from residential estates.

7 Transboundary haze pollution originating from land and forest fires in the region around Singapore can also affect Singapore’s air quality. As transboundary haze pollution causes adverse health effects over time, Singapore has put in place several measures, and works closely with the Association of Southeast Asian Nations (ASEAN), to manage haze. Regionally and bilaterally, some of these efforts include sharing images of hotspots, which may indicate land and forest fires, as well as offering technical fire-fighting assistance where necessary. Domestically, Singapore has established an inter-agency Haze Task Force that introduces measures to prepare for and ameliorate the impact of haze on public health and well-being, especially for vulnerable groups (such as children and the elderly). On the regulatory front, Singapore enforces the Transboundary Haze Pollution Act, introduced in 2014, which imposes criminal and civil liability against any entity, local or foreign, for conduct outside Singapore that causes or contributes to haze pollution in Singapore. Singapore also hosts the ASEAN Specialised Meteorological Centre (ASMC), which is the designated regional centre for weather, climate, as well as fires and transboundary haze monitoring, assessment and early warning. The ASMC is continuously improving its technical capabilities including remote hotspot sensing, multi-satellite composites and haze dispersion modelling.

8 On the multilateral front, Singapore is an active member of the World Meteorological Organization (WMO). Singapore hosts the WMO Regional Office for Asia and the South-West Pacific, which serves as the nerve centre for the WMO's technical programmes in the region. This includes the Global Atmosphere Watch (GAW) Programme which contributes to improving our understanding of transboundary air pollution.

9 As a result of our policies, and the collective efforts of our neighbouring countries, Singapore has enjoyed better air quality than many cities in Asia, and our PSI has remained mostly in the ‘Good’ and ‘Moderate’ range in recent years. We are committed to achieving high air quality standards through continued refinements of our pollution management strategies and transboundary haze forecasting efforts.

**Clean Land**

10 Singapore also maintains a clean environment. We have developed a comprehensive waste management system. Stringent regulations are in place to ensure proper waste collection, disposal and treatment to safeguard our public health and living environment, particularly for toxic industrial waste that can pose serious public health concerns if they are not managed properly. The National Environment Agency (NEA) regulates the collection and disposal of toxic industrial waste under the Environmental Public Health (Toxic Industrial Waste) Regulations. Such waste must be collected and disposed of by toxic industrial waste collectors that are licensed and regulated by NEA.

11 We ensure that our waste disposal sites are properly engineered, maintained and operated. Semakau Landfill, Singapore’s only landfill facility, is off-shore and about 8 km south of the mainland. Incineration ash from the waste-to-energy plants and non-incinerable waste are deposited here. Strict measures are in place to ensure environmental protection, including a network of monitoring wells for water quality. The landfill has become a nature haven and thriving flora and fauna is indicative that the ecosystem has been well protected.

12 Singapore is a Party to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention) and has implemented domestic measures under the Hazardous Waste (Control of Export, Import and Transit) Act (HWA) to fulfil our obligations. Under the HWA, the transboundary movement (i.e. export, import and transit) of hazardous wastes is subject to the Prior Informed Consent procedure in accordance with the principles and provisions of the Basel Convention.

13 To adapt to an increasingly resource-constrained world, Singapore also launched the Zero Waste Masterplan in 2019 to chart the vision and way towards a Zero Waste Nation and Circular Economy. Adopting a circular economy approach will allow us to maximise the recovery of resources from our waste to enhance resource and economic resilience. As part of the Zero Waste Masterplan, we are encouraging sustainable production and consumption through upstream regulations targeted at three priority waste streams – electrical and electronic waste (e-waste), packaging waste including plastics, and food waste.

14 Singapore implemented its first Extended Producer Responsibility (EPR) scheme for e-waste on 1 July 2021. Under the EPR scheme, producers of regulated electrical and electronic products are responsible for the collection and proper treatment of their products when they reach their end-of-life, as well as the proper handling and extraction of resources from the e-waste. This allows us to recover resources from a waste stream that is growing with rising affluence, and also prevents the e-waste from contaminating our environment.

15 Packaging waste makes up a third of the total domestic waste disposed of in Singapore, and more can be done to reduce and reuse packaging. We have started a Mandatory Packaging Reporting (MPR) framework. Under the MPR, businesses[[2]](#footnote-3) that place packaging on the Singapore market are required to report annually on their packaging data and submit their 3R (Reduce, Reuse, Recycle) plans. This will make companies more aware of their packaging use and encourage them to minimise waste and reduce business costs. We will also implement an EPR scheme for packaging waste, and are starting with a beverage containers return scheme, which will facilitate the return and recycling of beverage containers.

16 On food waste, we will require industrial and commercial premises which generate large amounts of food waste to segregate their food waste for treatment. This ensures that food waste is converted into useful products, such as animal feed, compost/fertiliser or biogas, instead of being incinerated. We are also developing a reporting framework for owners and operators of these premises to measure and report the amount of food waste that they have segregated for treatment.

17 To support the transition to a circular economy, Singapore is building up its capabilities to treat e-waste, plastic waste and food waste locally. For example, we are pursuing mechanical and chemical recycling as complementary solutions to treat plastic waste, and are working with industry partners to expand our recycling capabilities. The development of a thriving local recycling market can also create economic value and job opportunities for our people, and exportable solutions to support global green demand.

18 Singapore’s waste management and circular economy approaches also help prevent marine debris pollution in our waterways and coastlines by minimising waste at source and preventing the leakage of waste into the environment. PUB, Singapore’s National Water Agency, ensures that all used water is collected and treated at water reclamation plants to internationally recognised discharge standards, thereby ensuring that plastics (including microplastics) are removed from used water prior to their discharge. Litter that enters our waterways are trapped by litter traps and removed by flotsam removal craft. Marine litter that washes onto our beaches and coastlines are regularly removed by government agencies, to ensure that public health and a clean environment is safeguarded.

19 Overall, our waste management efforts allow us to build a robust and resilient waste management system – one that maximises the recovery of resources from waste, and also ensures proper treatment to provide a toxic-free environment for our people.

**Conclusion**

20 Building on the ongoing efforts as well as those over the past decades, Singapore continues to search for innovative sustainability solutions to maintain a clean and green environment for our residents. Our latest efforts are outlined in the recently launched Singapore Green Plan 2030 (Green Plan), a whole-of-nation roadmap towards sustainable development and net-zero emissions. It charts ambitious and concrete sectoral targets to position Singapore to achieve net-zero emissions as soon as viable. This will strengthen our efforts to implement the 2030 Agenda for Sustainable Development and the Paris Agreement. While the Green Plan focuses on delivering immediate to medium-term plans, it serves as a long-term and living plan that will evolve, with more ambitious targets and aspirations over time as key technologies mature.

21 The Green Plan will build a sustainable living environment while enhancing business opportunities in a low-carbon future. We hope to transform Singapore into a city of green possibilities, with sustainability becoming one of the core values defining Singapore.

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1. The 24-hour PSI is computed based on the 24-hour average of concentration levels of six pollutants - particulate matter (PM10), fine particulate matter (PM2.5), sulphur dioxide (SO2), nitrogen dioxide (NO2), ozone (O3) and carbon monoxide (CO). [↑](#footnote-ref-2)
2. Producers of packaged products such as brand owners, manufacturers and importers, as well as retailers such as supermarkets with annual turnover greater than $10 million. [↑](#footnote-ref-3)