



## Recent Developments in Environmental Law and Policy in Singapore

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### Introduction and Overview

Sited one degree north of the Equator, the tiny tropical Republic of Singapore is a city-state, with a land area of 710 square kilometres and a large population of five million people (a density of 7,000 persons per sq km). As land is scarce, land use planning is very comprehensive, with each plot of land zoned for a particular use.<sup>1</sup> The majority of its people live in high-rise apartments. Most apartments are built by the Government's public housing authority, the Housing Development Board (HDB), which houses 84 per cent of the population. These apartments are sold to citizens and permanent residents on 99 year leases<sup>2</sup> in one of the most successful public housing schemes worldwide. Singapore is also sited within the Malesian Region, which accounts for a rich diversity of flora and fauna. Although much of its natural environment was destroyed by the 1930s, the government which came to power in 1959 has taken firm steps to develop Singapore as a "City in a Garden". Strong

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<sup>1</sup> L.H Lye, 'Land Use Planning, Environmental Management and the Garden City as an Urban Development Approach in Singapore', in N. Chalifour, P. Kameri-Mbote, L.H Lye and J. Nolon (eds), *Land Use Law for Sustainable Development* (2007) Cambridge University Press, 374-396.

<sup>2</sup> See further: <http://www.hdb.gov.sg/>.

measures have been taken to enhance its greenery and enrich its biodiversity, including the passing of legislation. Singapore's air and water quality are well within World Health Organisation (WHO) standards.<sup>3</sup> All inland waters support aquatic life, the coastal waters meet recreational water standards, and the physical environment is one that is 'clean and green'.

A former Crown colony, Singapore inherited the common law as the base of its legal system. Thus, common law actions in tort such as claims in nuisance, negligence, trespass and the rule in *Rylands v Fletcher*<sup>4</sup> continue to apply; as well as the doctrine of *stare decisis*. An integrated system of environmental management is implemented by various agencies. The Ministry of Environment and Water Resources and its two statutory boards, the National Environment Agency (NEA) and the Public Utilities Board (PUB), take charge of pollution control and water resources respectively. In particular, the NEA enforces the *Environmental Protection and Management Act (EPMA)*, the *Environmental Public Health Act (EPHA)* and the *Hazardous Waste (Control of Import, Export and Transit) Act* (which implements the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal*) and their subsidiary laws.<sup>5</sup> PUB ensures an efficient, adequate and sustainable supply of water, and enforces the *Public Utilities Act* and its subsidiary laws including the *Public Utilities (Reservoirs and Catchment Areas) Regulations*. The Ministry of National Development plays a key role in Singapore's physical transformation and the conservation of its natural and man-made heritage. Its National Parks Board (NParks) manages four nature reserves, two national parks, 22 nature sites and over 320 public parks.<sup>6</sup> It is also responsible for implementing the *Convention on Biological Diversity*. NParks administers the *Parks and Trees Act* which protects animals and plants within the parks and areas under its purview. The Agri-Veterinary Authority (AVA) is responsible for ensuring food safety and supply,

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<sup>3</sup> See further: National Environment Agency (NEA) *Annual Report 2008-09* (available at [http://web1.env.gov.sg/cms/ar2009/content/nea-annual\\_report.pdf](http://web1.env.gov.sg/cms/ar2009/content/nea-annual_report.pdf)).

<sup>4</sup> (1868), L.R. 3 H.L. 330.

<sup>5</sup> A list of laws enforced by NEA is available at <http://app2.nea.gov.sg/legislation.aspx>. Electronic copies of the primary laws are available at <http://statutes.agc.gov.sg/>. Electronic copies of the subsidiary laws (rules, regulations, notifications etc) and soft laws (guidelines, codes of practice) can be found on the websites of the government authorities tasked with enforcing these laws (eg. [www.nea.gov.sg](http://www.nea.gov.sg) (National Environment Agency); [www.nparks.gov.sg](http://www.nparks.gov.sg) (National Parks Board)). Electronic copies of all laws, cases and legal writings are also available at [www.lawnet.com.sg](http://www.lawnet.com.sg).

<sup>6</sup> For further information on this authority, see: <http://www.nparks.gov.sg/cms/>.

safeguarding animal and plant health and protecting endangered wildlife.<sup>7</sup> It enforces the *Wild Animals and Birds Act*, *Animals and Birds Act*, *Fisheries Act*, *Control of Plants Act* and the *Endangered Species (Import and Export) Act* (which implements the *Convention on International Trade in Endangered Species of Wild Fauna and Flora*). The Maritime and Port Authority<sup>8</sup> enforces the *Prevention of Pollution of the Sea Act*, *Merchant Shipping Oil Pollution (Civil Liability) Act* and the *Merchant Shipping (Civil Liability for Bunker Oil Pollution) Act*. The Energy Market Authority<sup>9</sup> manages the energy market in Singapore and advises the Government on national needs, policies and strategies relating to energy utilities.

This short report highlights recent developments in policies and laws that relate to the environment and incidents relating to the environment in 2010. There are no major decisions relating to the environment and only a few new laws have been passed.

## Oil Pollution

Singapore is one of the world's busiest ports. On 25 May 2010, two vessels<sup>10</sup> collided, causing a 2,500 oil spill that polluted the waters of the east coast. While containment and cleanup operations were conducted by the [NEA](#), NParks teamed up with biodiversity experts from the [Tropical Marine Science Institute](#) and the [Raffles Museum of Biodiversity Research](#) to monitor and manage the situation at ecologically sensitive locations such as Chek Jawa and Pulau Ubin, which are rich in marine life. The [Animal Concerns Research & Education Society \(ACRES\)](#) mounted [daily operations](#) along East Coast Park to rescue animals victimised by the oil spill.<sup>11</sup> By 4 June 2010, the NEA assured the public that the cleanup was a success and the beaches were re-opened. It is unclear what action has been taken against the two ships or their owners but Singapore is party to the *International Convention on Civil Liability for Bunker Oil Pollution Damage* (2001), *International Convention on Civil*

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<sup>7</sup> For further information on this authority, see: <http://www.ava.gov.sg>.

<sup>8</sup> For further information on this authority, see: <http://www.mpa.gov.sg>.

<sup>9</sup> For further information on this authority, see: <http://www.ema.gov.sg/>. See further the *Energy Market Authority of Singapore Act*, 2001.

<sup>10</sup> The Malaysian-registered tanker MT Bunga Kelana suffered a gash on its port side after colliding before dawn with the MV Waily, a bulk carrier registered in St Vincent and the Grenadines.

<sup>11</sup> See further: <http://theonlinecitizen.com/2010/05/singapore-coping-oil-spill/> and [http://app2.nea.gov.sg/news\\_detail\\_2010.aspx?news\\_sid=20100604924460905755](http://app2.nea.gov.sg/news_detail_2010.aspx?news_sid=20100604924460905755)

*Liability for Oil Pollution Damage* (1992) and the *International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage* (1992). In 1998, Singapore passed the *Merchant Shipping (Civil Liability and Compensation for Oil Pollution) Act*<sup>12</sup> and in 2008 the *Merchant Shipping (Civil Liability and Compensation for Bunker Oil Pollution) Act*<sup>13</sup>, which took effect from 21 November 2008.<sup>14</sup> Compulsory insurance against liability for bunker oil pollution is required for any ship having a gross tonnage of more than 1,000.

In 1991, Singapore passed the *Prevention of Pollution of the Sea Act* ‘... to give effect to the *International Convention for the Prevention of Pollution from Ships* 1973 as modified and added to by the Protocol of 1978, and to other international agreements relating to the prevention, reduction and control of pollution of the sea and pollution from ships...’. Many subsidiary laws have subsequently been passed under this Act. The latest of these is the *Prevention of Pollution of the Sea (Harmful Anti-Fouling Systems) Regulations*, passed in 2010, to implement the *Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS Convention)*.<sup>15</sup> Parties to the Convention are required to prohibit and/or restrict the use of harmful anti-fouling systems on ships flying their flag, as well as ships not entitled to fly their flag but which operate under their authority and all ships that enter a port, shipyard or offshore terminal of a party. Thus, with effect from 31 March 2010, all ships (excluding fixed or floating platforms, floating storage units and floating production storage and off-shore loading units) in the Port of Singapore, including all harbour craft and pleasure craft, are prohibited from applying or using harmful anti-fouling systems (AFS) on their ships or craft. A ship to which the *AFS Convention* applies may be inspected by Port State Control officers for the purpose of determining whether the vessel is in compliance with the Convention.<sup>16</sup>

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<sup>12</sup> Act 33 of 1998, Chapter 180 Rev. ed.

<sup>13</sup> Act 24 of 2008, Chapter 197A Rev. ed.

<sup>14</sup> For further information on this new law, see: [http://www.mpa.gov.sg/sites/circulars\\_and\\_notices/pdfs/port\\_marine\\_circulars/pc08-21.pdf](http://www.mpa.gov.sg/sites/circulars_and_notices/pdfs/port_marine_circulars/pc08-21.pdf).

<sup>15</sup> S. 198/2010.

<sup>16</sup> Further information is available at [http://www.mpa.gov.sg/sites/circulars\\_and\\_notices/pdfs/port\\_marine\\_circulars/pc10-04.pdf](http://www.mpa.gov.sg/sites/circulars_and_notices/pdfs/port_marine_circulars/pc10-04.pdf).

## Water Quality at Beaches

The NEA had in August 2008 revised its guidelines for water quality for recreational use. The revised guidelines were developed based on the World Health Organisation's water quality guidelines for recreational use. These revised guidelines are based on the microbial indicator, *Enterococcus*\*, which corresponds better with the health risks associated with the use of recreational beach water compared to the previous indicator, faecal coliform. Only beaches with not more than 5 per cent of the collected water samples having enterococcus counts of greater than 200 per 100 ml, and graded 'good' or 'very good', are suitable for whole-body water contact activities such as swimming, water-skiing, and wakeboarding (also known as primary contact activities). Beaches that have more than 5 per cent of the collected samples having enterococcus counts greater than 200 per 100 ml and graded 'Fair', 'Poor' or 'Very Poor' are not suitable for primary contact recreation. In 2008 and 2009, five out of six popular recreational beaches monitored by NEA met the 'good' or 'very good' standard. The NEA completed its survey of recreational beaches in September 2010. As in 2009, the Pasir Ris beach was found to be unfit for swimming. It was found that this beach's water quality is affected by various possible sources, including: minor leakage from older sewers; moored vessels; animals; and discharges from small-scale Sewage Treatment Plants that presently serve the more remote areas in Pasir Ris. The low water currents in the concave part of Pasir Ris beach are not effective in diluting and dispersing the discharges. To help improve the water quality at Pasir Ris beach, the PUB has an ongoing plan to extend the sewer network and phase out the 39 old sewage treatment plants by 2012. PUB also has an ongoing sewer rehabilitation programme for aging sewers in this area, under which 23km of sewers will be rehabilitated by 2011.<sup>17</sup>

## Air Quality

The *ASEAN Agreement on Transboundary Haze Pollution* was signed by all 10 countries of ASEAN in 2002. However, Indonesia is yet to ratify this Agreement. Notwithstanding this omission, considerable progress has been made in

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<sup>17</sup> See further: *NEA News Release* (dated 7 September 2010) 'Annual Assessment of Water Quality at Beaches' available at [http://app2.nea.gov.sg/news\\_detail\\_2010.aspx?news\\_sid=20100907770799672002](http://app2.nea.gov.sg/news_detail_2010.aspx?news_sid=20100907770799672002).

implementing the Agreement, including: establishing the ASEAN Transboundary Haze Pollution Control Fund; undertaking various activities under the ASEAN Peatland Management Strategy; conducting simulation exercises for monitoring, assessment and joint emergency response; implementing zero burning and controlled-burning practices; developing an online inventory of available fire fighting resources that could be made available in case of emergency; establishing the Panel of ASEAN Experts on Fire and Haze Assessment and Coordination for deployment during impending critical periods; and publishing the ASEAN Haze Action Online website (<http://haze.asean.org>) to facilitate information sharing and dissemination on fire and haze issues.

Sub-regional frameworks such as the Sub-Regional Ministerial Steering Committee on Transboundary Haze Pollution (comprising Brunei Darussalam, Indonesia, Malaysia, Singapore and Thailand) and the Mekong Technical Working Group (comprising Cambodia, Lao PDR, Myanmar, Thailand and Viet Nam) have added further impetus to tackling forest fires and smoke haze in their respective regions. Collaborative capacity building programmes among Brunei Darussalam, Indonesia, Malaysia, Singapore and Thailand have been implemented in fire-prone areas under the framework of *Indonesia's Comprehensive Plan of Action in Dealing with Transboundary Haze Pollution*. These specifically include Indonesia-Malaysia collaboration in Riau Province and Indonesia-Singapore collaboration in Muaro Jambi Regency, Jambi Province. A US\$ 15 million regional peatland project, comprising a grant of US\$ 4.3 million from the Global Environment Facility, is being implemented to undertake measures to prevent peatland fires, the major source of smoke haze in the region.

The 6<sup>th</sup> Meeting of the Conference of the Parties to the *ASEAN Agreement on Transboundary Haze Pollution*, and the 12<sup>th</sup> Informal ASEAN Ministerial Meeting on the Environment took place in Bandar Seri Begawan, Brunei Darussalam on 13 October 2010. The Ministers reviewed on-going programmes on the environment to promote future regional cooperation on the environment. Soon thereafter, from 15 to 22 October 2010, air quality in Singapore was adversely impacted by smoke from burning of forests in Indonesia. On 21 October 2010, the Minister for Environment and Water Resources contacted his Indonesian counterpart, to register Singapore's concerns that the haze situation would further deteriorate if Indonesia does not put in place immediate and enhanced measures to curb the hotspot situation in Sumatra.

He urged Indonesia to allocate the necessary resources, and implement timely and effective measures, to solve the haze situation. Singapore again reiterated its offer to augment Indonesia's efforts to combat the haze problem, including helping to put out the fires in Sumatra.<sup>18</sup> Singapore has formed an Inter-Agency Haze Task Force (HTF) comprising representatives from various government agencies and chaired by the NEA. The HTF has drawn up a set of action plans to mitigate the impact of the haze in the event of a severe smoke haze episode. The HTF met to prepare for activation of the Haze Action Plan, which spells out the measures that each agency would take to minimize the impact of the haze on the public at different levels of the Pollution Standard Index (PSI). Fortunately, the haze situation improved.

## Littering

Singapore is well known for its enforcement of strict anti-litter laws. Persons who litter may be fined up to SGD\$5,000<sup>19</sup>, although the usual composition fine for a first offender with a small piece of litter who pleads guilty is \$200. Offenders may also be sentenced, under a Corrective Work Order (CWO), to clean up a public site under supervision.<sup>20</sup> Illegal dumping of waste from a vehicle entails a maximum fine of \$100,000 and the vehicle used may be forfeited. Despite on-going campaigns to stamp out littering, it continues to be a concern. According to a recent survey, it was found that four in ten people are unlikely to bin their trash. Thus, it was announced that from 7 June 2010, NEA will increase patrols at littering hotspots from one day per week to two days per week; and stricter sentencing guidelines were introduced. The fine for first offenders who plead guilty will be raised to \$300, but for third and subsequent offenders, the maximum fine will be \$5000. CWOs will be made more visible to the public by being conducted at busy public places, such as barbeque pits at East Coast Park, shopping areas, bus interchanges and HDB neighbourhood

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<sup>18</sup> See further: *NEA News Release* (dated 21 October 2010) 'Urging Indonesia to act' available at

[http://app2.nea.gov.sg/news\\_detail\\_2010.aspx?news\\_sid=20101022475142591106](http://app2.nea.gov.sg/news_detail_2010.aspx?news_sid=20101022475142591106).

<sup>19</sup> Sections 17 and 21, *Environmental Public Health Act*. The exchange rate as at 26 November 2010 was SGD\$1.32 to USD\$1.00.

<sup>20</sup> Section 21A, *Environmental Public Health Act*. See further: L. Lye 'A Fine City in a Garden - Environmental Law and Governance in Singapore' (2008) *SJLS*, 68-117.

centres. The maximum number of hours remains at 12 hours, and only a maximum of 3 hours can be imposed per day.<sup>21</sup>

## Noise

Noise is a major concern in Singapore. In 2008 and 2009, NEA received about 14,000 and 12,000 complaints on construction noise respectively, up from about 9,000 in 2007 and 6,000 in 2006. On 8 March 2010, the Minister for the Environment stated that the Government's long-term goal is to prohibit construction work at sites within 150m of residential areas and noise sensitive developments on Sundays and Public Holidays. The changes will be implemented progressively to give the construction industry sufficient time to adjust. Sites starting work from 1 September 2010 will not be allowed to carry out construction activities from 10pm on the night before a Sunday or Public Holiday to 10am on the day itself. NEA will extend this prohibition to the rest of the day on Sundays and Public Holidays for sites starting work from 1 September 2011.<sup>22</sup> The NEA has also tightened the noise standards for new and in-use vehicles. The revised standards for new vehicles, which are based on those currently implemented in Japan and the EU, will take effect from 1 October this year.<sup>23</sup> Traffic noise comes under the purview of the Land Transport Authority (LTA), which conducts noise-impact assessments for road and MRT development projects as part of its evaluation of traffic projects. It has been announced that the NEA has put out a tender for a study on traffic noise which comprises the LTA, Urban Redevelopment Authority, Housing Board, National Parks Board and Singapore Mass Rapid Transit (SMRT).<sup>24</sup>

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<sup>21</sup> See further: *NEA News Release* (dated 6 June 2010) 'National Environment Agency Adopts A More Integrated Strategy To Curb Littering In Singapore' available at [http://app2.nea.gov.sg/news\\_detail\\_2010.aspx?news\\_sid=20100607732194423387](http://app2.nea.gov.sg/news_detail_2010.aspx?news_sid=20100607732194423387).

<sup>22</sup> See further: <http://www.938live.sg/News/Singapore/EDC100309-0000157/>  
[Govt to tighten noise limits for construction sites/](#).

<sup>23</sup> *Environmental Protection and Management (Vehicular Emissions) Regulations*, amended S. 564/2010.

<sup>24</sup> See further: [http://www.reach.gov.sg/YourSay/DiscussionForum/tabid/101/mode/1/Default.aspx?ssFormAction=%5B%5BssBlogThread\\_VIEW%5D%5D&tid=%5B%5B813%5D%5D](http://www.reach.gov.sg/YourSay/DiscussionForum/tabid/101/mode/1/Default.aspx?ssFormAction=%5B%5BssBlogThread_VIEW%5D%5D&tid=%5B%5B813%5D%5D).

## Climate Change

Singapore's contribution to global emissions is miniscule, at less than 0.2 per cent. It is a party to the *UN Framework Convention on Climate Change*, and ratified the *Kyoto Protocol* in 2006. It is a member of the Group of 77 (G77) as well as the Alliance of Small States and is particularly concerned about global warming as it is a low-lying island and subject to several vulnerabilities associated with sea level rise.

Singapore is not an Annex I country and is therefore not required to make specific cuts in greenhouse gas emission levels. It has however declared that it will reduce its emissions by 16 per cent below Business as Usual (BAU) in 2020, contingent on a legally binding global agreement and all countries implementing their commitments in good faith. Its *National Climate Change Strategy*<sup>25</sup> was presented in 2008. A National Climate Change Secretariat (NCCS) was set up on 1 July 2010 under the Prime Minister's Office.<sup>26</sup> Senior Minister Prof S Jayakumar chairs the Inter-Ministerial Committee on Climate Change which comprise the Ministers for Finance, Trade and Industry, Foreign Affairs, Transport, National Development and Environment and Water Resources. The NCCS will support international negotiations and coordinate domestic mitigation and adaptation responses to climate change, coordinate climate policies across government agencies and ensure that plans are prepared and progress tracked and monitored.

Adaptation - The Government has commissioned studies to assess Singapore's vulnerability in regard to long-term physical impacts such as sea level rise, temperature profiles and wind. Studies are also being conducted on secondary impacts such as biodiversity, energy demand and public health. A study will also be done to map out those parts of Singapore's coastline that will be threatened by sea level rise – this will start in 2011 and end in December 2013.<sup>27</sup>

Mitigation - As Singapore has limited access to alternative energies, its approach to reduce emissions is primarily to improve energy efficiency in all sectors, as well as put in resources to test-bed alternative energy sources to facilitate easy and early

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<sup>25</sup> See further: [http://app.mewr.gov.sg/data/ImgUpd/NCCS\\_Full\\_Version.pdf](http://app.mewr.gov.sg/data/ImgUpd/NCCS_Full_Version.pdf).

<sup>26</sup> See further speech by Mr Tan Yong Soon (26 July 2010) available at [http://www.thegovmonitor.com/world\\_news/usa/singapore-gets-serious-about-climate-change-36127.html/print/](http://www.thegovmonitor.com/world_news/usa/singapore-gets-serious-about-climate-change-36127.html/print/).

<sup>27</sup> 'Singapore to study threat of rising sea levels', *The Straits Times*, 30 November 2010.

implementation. The Economic Development Board (EDB)'s Clean Energy Programme Office has launched a Clean Energy Research and Test bedding Programme to support the test bedding of clean energy applications in government buildings. With the support of the Government, the Agency for Science, Technology and Research (A\*STAR), National University of Singapore (NUS) and Nanyang Technological University (NTU) are currently engaged in several research projects working on developing alternative energies and other green technologies. Nuclear energy is also being considered.

The *Sustainable Singapore Blueprint* (SSB) was released in April 2009 by the Inter-Ministerial Committee on Sustainable Development.<sup>28</sup> It contains measures to reduce the island's energy intensity (per dollar GDP) by 20 per cent from 2005 levels by 2020 and by 35 per cent from 2005 levels by 2030. It sets targets for reducing energy intensity and emissions in four key sectors of the economy, namely: industry; transport; households; and buildings. It calls for long-term carbon emissions cuts in households, businesses and industries. \$1 billion was committed over five years to improve the energy efficiency of the economy in these 4 sectors. These measures will help reduce carbon emissions by 7 to 11 per cent from the business-as-usual (BAU) scenario by 2020.<sup>29</sup>

NEA chairs an Energy Efficiency Singapore Programme Office (E2PO) comprising members from the Energy Market Authority (EMA), Economic Development Board (EDB), Land Transport Authority (LTA), Building Control Authority (BCA) and the Agency for Science, Technology and Research (A\*STAR). The E2PO has developed a national plan to promote energy efficiency, also known as *Energy Efficient Singapore* (*E2 Singapore*). NEA also set up the Energy Efficiency National Partnership (EENP) in April 2010, to engage industry. To support implementation of the *E2 Singapore*, a Sustainable Energy Fund (SEF) of S\$50 million over 5 years has been established, administered by the E2PO. A portion of the SEF will be used to incentivise energy efficiency improvements in the different sectors such as industry and buildings. The SEF will also be used to fund energy efficiency studies to improve data availability across all sectors. Energy audits are encouraged and co-funded under the \$10 million *Energy Efficiency Improvement Assistance Scheme* (EASe)

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<sup>28</sup> See further: <http://app.mewr.gov.sg/web/contents/ContentsSSS.aspx?ContId=1299>.

<sup>29</sup> See further: 'The Economics of Climate Change' available at [http://www.mof.gov.sg/budget\\_2010/download/FY2010\\_Budget\\_Highlights\\_part4.pdf](http://www.mof.gov.sg/budget_2010/download/FY2010_Budget_Highlights_part4.pdf).

launched in 2005. Under *EASe*, funding of up to 50 per cent of the cost for energy audits, subject to a cap of \$200,000, will be provided to any Singapore registered company with a building or manufacturing facility in Singapore. The recommended energy efficiency measures from the energy audits are projected to result in annual energy savings of \$23.4 million, energy savings of 296,402 MWh and 150 kt of CO<sub>2</sub> savings per year for the companies, if implemented.

New Laws - The *Environmental Protection and Management (Energy Conservation) Regulations*<sup>30</sup> came into effect on 1 January 2008, mandating energy labels for motor vehicles and certain electrical appliances (refrigerators, washing machines, clothes dryers). All energy inefficient appliances will be removed from the market by 2011. The Government has announced plans for an *Energy Conservation Act* to come into effect in 2013, to facilitate a coordinated approach to standards for energy efficiency and energy management for companies that consume large amounts of energy. The *Building Control (Environmental Sustainability) Regulations (2008)*, which came into effect on 15 April 2008, require a minimum environmental sustainability standard that is equivalent to the Green Mark Certified Level for new buildings and existing buildings that undergo major retrofitting. The minimum environmental sustainability standard will be revised with effect from 1 Dec 2010.<sup>31</sup> The requirements on environmental sustainability of buildings will be integrated with the building plan process. The qualified person who submits the building plan and other appropriate practitioners will be responsible for assessing and scoring the building works under their charge using the criteria and scoring methodology spelled out in the *Code for Environmental Sustainability of Buildings (2<sup>nd</sup> ed. August 2010)*. Higher emission standards will be imposed for taxis by 2014, and for buses, by 2020. Singapore is also doing separate studies on carbon pricing to ascertain whether to impose a carbon tax. From 2013, corporations that use more than 15GWh of energy a year will be required to appoint an energy manager report energy use and submit plans to NEA to improve energy efficiency.

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<sup>30</sup> See further: <http://app2.nea.gov.sg/data/cmsresource/20090316653072840750.pdf>.

<sup>31</sup> See further: [http://www.bca.gov.sg/EnvSusLegislation/Environmental\\_Sustainability\\_Legislation.html](http://www.bca.gov.sg/EnvSusLegislation/Environmental_Sustainability_Legislation.html).

## Biodiversity

Singapore ratified the *Convention on Biological Diversity* on 21 December 1995. As it is clear that more and more people will live in cities in the future, Singapore believes that cities have an important role in biodiversity conservation. In May 2008, at the 9<sup>th</sup> Meeting of the Conference of the Parties, Singapore proposed the establishment of an index to measure biodiversity in cities. In February 2009, the First Expert Workshop was convened in Singapore.<sup>32</sup> Seventeen technical experts, comprising representatives from the Global Partnership on Cities and Biodiversity worked on designing the *Cities Biodiversity Index (CBI)*.<sup>33</sup> This *CBI* functions as a self-assessment tool for cities to benchmark their biodiversity conservation efforts. It comprises three components: (i) native biodiversity in the city; (ii) eco-system services provided by biodiversity in the city; and (iii) governance and management of biodiversity in the city. From March to September 2009, the Task Force on Cities and Biodiversity worked with Singapore to test the *CBI* in several cities,<sup>34</sup> resulting in the publication of the first version of [the User's Manual for the City Biodiversity Index](#). A Second Expert Workshop was held in July, 2010, resulting in the publication of a revised version of [the User's Manual for the City Biodiversity Index](#).<sup>35</sup>

On 31 October 2010, the *CBI* was formally endorsed by the Parties to the CBD at CBD COP-10 City Summit held in Nagoya, Japan.<sup>36</sup> Singapore has offered to host a Cities and Biodiversity Forum for Mayors during the next World Cities Summit to be held in mid-2012, as a preparatory meeting to CBD COP-11 in India in October 2012. At this Mayors Forum, cities can report on their progress in biodiversity conservation and the application of the *CBI*. The deliberations of the forum can then be reported to CBD COP-11. To enhance understanding of the *CBI*, the Centre for Urban Greenery and Ecology (CUGE), will be organising a new training and capacity building

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<sup>32</sup> A full report of the First Expert Workshop is available on the CBD Website (<http://www.cbd.int/doc/?meeting=EWDCBI-01>) as UNEP/CBD/EW.DCBI/1/3.

<sup>33</sup> See further: *Singapore's 4<sup>th</sup> National Report to the CBD*, September 2010 (available at <http://www.cbd.int/doc/world/sg/sg-nr-04-en.pdf>).

<sup>34</sup> Some eight cities (Curitiba, Montreal, Nagoya, Singapore, Brussels, Paris, Edmonton and Joondalup) have agreed to test-bed the Singapore Index. The following ten other cities have indicated their interests to test-bed the index: Adelaide; Amsterdam; Cape Town; Gold Coast; Jerusalem; Melbourne; Oslo; Seattle; Taiwan City; and Vancouver.

<sup>35</sup> See further: <http://www.cbd.int/authorities/gettinginvolved/cbi.shtml>. On 27-29 April 2010, an ASEAN Workshop on the CBI was held in Singapore, organised by NParks' Centre for Urban Greenery and Ecology (CUGE) and the ASEAN Centre for Biodiversity (ACB).

<sup>36</sup> See further: [http://www.thegovmonitor.com/world\\_news/asia/singapore-index-on-cities-biodiversity-formally-endorsed-in-nagoya-41761.html](http://www.thegovmonitor.com/world_news/asia/singapore-index-on-cities-biodiversity-formally-endorsed-in-nagoya-41761.html).

programme on urban biodiversity conservation in May 2011. Targeted at officials from cities and local authorities, participants will also learn about Singapore's experience and efforts in urban biodiversity conservation.

## **Conclusion**

In conclusion, while most aspects of the environment are well regulated and enforced in Singapore, it is hoped that laws on recycling will soon be passed. Additional laws which are required include those mandating environmental impact assessments and those protecting marine biodiversity. Although there have been many domestic calls for their introduction, it does not appear that they will appear in the near horizon.