

## SINGAPORE'S NEW ENVIRONMENTAL LAW

### *The Environmental Pollution Control Act, 1999*

#### I. INTRODUCTION

SINGAPORE'S new law to regulate pollution, the Environmental Pollution Control Act (the "EPCA"), was passed by Parliament on 11 February 1999 and assented to by the President on 20 February 1999.<sup>1</sup> It took effect from 1 April 1999.<sup>2</sup>

Prior to the passing of the EPCA, Singapore's laws relating to environmental pollution were sectoral, regulating under separate laws, the pollution of air, inland waters, marine waters, and the management of toxic and hazardous substances and wastes. Most of these laws were passed in the 1970's. They include the Clean Air Act (the "CAA") and the Clean Air (Standards) Regulations (governing air emissions from industrial premises), the Water Pollution Control and Drainage Act (the "WPCDA") and its Trade Effluent Regulations (governing water pollution from trade effluent, sewage and sullage), the Poisons Act and its Hazardous Substances Rules (governing toxic and hazardous substances), the Environmental Public Health Act and its subsidiary laws, (covering a host of matters including public nuisances, general waste and toxic industrial waste). Specific laws were also passed for marine pollution,<sup>3</sup> and for the indoor industrial environment and the health and safety of workers.<sup>4</sup>

These various laws have been criticized both for being sectoral and for lacking integration. Industries have complained of the need to obtain different licences from various government departments. There were criticisms that existing pollution control standards were outdated and in need of revision

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<sup>1</sup> Act 9 of 1999.

<sup>2</sup> No S 155/99.

<sup>3</sup> Prevention of Pollution of the Sea Act (Cap 243, Rev Ed) and the Merchant Shipping (Civil Liability for Oil Pollution) Act (Cap 180, Rev Ed).

<sup>4</sup> Factories Act (Cap 104, Rev Ed) and its various regulations.

to bring them in line with the standards of developed countries. There were also calls for laws requiring environmental impact assessments for development projects that may have an adverse impact on the environment. Existing laws do not contain provisions mandating environmental impact assessments, although the Ministry of the Environment (the "ENV") requires quantitative risk assessments (QRA) for industries that use or store large quantities of hazardous substances. Environmental impact assessments are also required for highly pollutive projects such as refuse incineration plants and power stations. However, these are administrative requirements imposed by ENV; they are not contained in any laws passed by Parliament, and they have not been required for non-industrial projects that may also have an adverse impact on the environment, such as the building of a golf course in an area rich in biological diversity.<sup>5</sup> This is because the Ministry of the Environment is only concerned with industrial pollution and public health. A different government authority, the Ministry of National Development, takes charge of national parks and nature reserves, as well as urban planning and development.

The new 'umbrella' law thus had to satisfy many sectors. Its preamble states that it is "An Act to consolidate the laws relating to environmental pollution control..." Is it a true "consolidation" of the environmental laws? What are the new changes to the law, brought about by this Act? Have the concerns regarding environmental impact assessments been addressed? This article attempts to evaluate the EPCA, in the context of the environment in Singapore today, to ascertain the extent to which these concerns have been addressed, and to evaluate the overall impact of these new laws.

### (i) Consolidation of environmental laws

It must be emphasized at the outset that the EPCA, as its name suggests, only addresses environmental pollution, and not other areas of the environment, such as nature conservation. Separate laws exist for the conservation of nature, which fall under the purview not of the Ministry of the Environment, but of the Ministry of National Development.<sup>6</sup>

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<sup>5</sup> Such an environmentally damaging project was proposed in 1992, requiring the destruction of part of a nature reserve in Lower Peirce Reservoir, for the construction of a golf course. See Nature Society Singapore, *Proposed Golf Course at Lower Peirce Reservoir – An Environmental Impact Assessment*, 1992.

<sup>6</sup> See Lye Lin Heng "Wildlife Protection Laws in Singapore" [1991] SJLS 287-319; Foo, Koh and Lye "Environmental Protection: The Legal Framework", in *Environment and the City – Sharing Singapore's Experience and Future Challenges*, 1995, Ed Ooi Giok Ling, Times Academic Press, 47-99 at 76-87. See also The Straits Times, 9 September 1994.

This long-awaited new environmental law was first mentioned in September 1994 by a representative from the Ministry of the Environment at a local conference.<sup>7</sup> Soon afterwards, the then Minister for the Environment, Mr Mah Bow Tan, elaborated that this new 'umbrella' environmental law would "bring all of Singapore's laws on pollution and public health into a single comprehensive whole." The Minister also mentioned that it would be called the Environmental Policy and Management Act, and was expected to come before Parliament by 1996.<sup>8</sup> It was not until three years later, in 1999, that this new law was brought before Parliament. It has been given a quite different title than was originally envisaged, with a focus on pollution control and excluding public health.

Even within its own context of environmental pollution, it is clear that the EPCA is not a true consolidation, as the laws relating to waste management, including toxic industrial wastes, continue to be governed by the Environmental Public Health Act. Marine pollution laws continue to be separate and distinct.

The EPCA addresses four main areas:

- (1) air pollution;
- (2) water pollution;
- (3) noise; and
- (4) toxic and hazardous substances.

Whereas previously these areas were under the control of different officers such as the Director of Air Pollution Control and the Director of Water Pollution Control and Drainage, the EPCA creates the new position of the Director of Environmental Pollution Control (hereafter referred to as "the Director") to carry out its provisions.

It can be said that the EPCA is a consolidation of *some* of the pollution laws, namely, the laws that relate to air pollution, water pollution, noise management and hazardous substances. In these four areas, little of the substantive laws have changed. However, there are some new provisions,

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<sup>7</sup> The proceedings of this Conference were published by the Institute of Policy Studies in 1995. See *supra*, note 6.

<sup>8</sup> See The Straits Times, 13 November 1994.

starting with definitions of "the environment",<sup>9</sup> "pollution of the environment",<sup>10</sup> "analysis", "container", "day", "export", "import", "hazardous substance", "industrial plant works", "process", "sale", "tank", "tank container", "toxic substance", and "workplace".

The other new provisions relate to the control of land pollution and the remediation of contaminated sites, the engagement of independent inspectors to check completed developments, mandatory insurance for persons who deal with hazardous substances, and the imposition of liability on main contractors of construction sites. Existing administrative practices are now formalized under the new law. These include the requirement for studies on pollution control for major potentially pollutive projects, the requirement for impact analysis studies for the owner or occupier of hazardous installations, and the monitoring of air emissions and discharge of trade effluent from industries.

## (ii) *Subsidiary legislation*

When the EPCA came into effect on 1 April 1999, a host of subsidiary laws also came into effect. These too, were subsidiary laws that had earlier been passed under various laws. The new EPCA regulations relate to the control of noise at construction sites,<sup>11</sup> boundary noise limits for factory premises,<sup>12</sup> trade effluent,<sup>13</sup> hazardous substances,<sup>14</sup> fees for licences<sup>15</sup> and the prohibition of open fires.<sup>16</sup> While the EPCA anticipates the passing of new laws on air emission standards, these have not yet been passed. Air emission standards still continue to be regulated by the Clean Air (Standards) Regulations<sup>17</sup> until such time as new standards are passed.

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<sup>9</sup> The environment is defined to consist of "all or any of the following media, namely, the air, water and land."

<sup>10</sup> "Pollution of the environment" is defined to mean "pollution due to the release (into any environmental medium) from any process of substances which are capable of causing harm to man or any other living organisms supported by the environment."

<sup>11</sup> EPC (Control of Noise at Construction Sites) Regulations, No S 157/99, repealing the EPH (Control of Noise at Construction Sites) Regulations, Cap 95, Rg 14.

<sup>12</sup> EPC (Boundary Noise Limits for Factory Premises) Regulations No S 156/99, repealing the EPH (Boundary Noise Limits for Factory Premises) Regulations, Cap 95, Rg 17.

<sup>13</sup> EPC (Trade Effluent) Regulations, No S 160/99, repealing the Water Pollution Control and Drainage (Trade Effluent) Regulations, Cap 348, Rg 4.

<sup>14</sup> The EPC (Hazardous Substances) Regulations No S 159/99, repealing the Poisons (Hazardous Substances) Rules, Cap 234, Rg 2.

<sup>15</sup> The EPC (Fees for Licences) Regulations No S 158/99.

<sup>16</sup> The EPC (Prohibition on the Use of Open Fires) Order, No S 161/99), repealing the Clean Air (Prohibition on the Use of Open Fires) Order, No S 38/73.

<sup>17</sup> No S 14/72.

### (iii) Administration

The EPCA makes provisions for the appointment of the Director of Environmental Pollution Control and such number of Deputy and Assistant Directors as the Minister may deem necessary to carry out the functions of the Act. The Director is empowered, with the permission of the Minister, to delegate his functions to any employee or agent of a statutory corporation, any member of a Town Council, any member of any committee of a Town Council; or any employee or agent of a Town Council (section 4).<sup>18</sup> Section 5 exempts the Director and his officers from personal liability in certain circumstances.

## II. CONTENTS OF THE EPCA

### A. Air Pollution: Part III (Use of Scheduled Premises – sections 6 to 9), and Part IV (Air Pollution Control – sections 10 to 14)

#### (i) Industrial Emissions

Air emissions from industrial premises were previously addressed by the CAA.<sup>19</sup> Under the CAA, air emissions from factory premises must conform to the standards prescribed by the Clean Air (Standards) Regulations.<sup>20</sup> Emission of dark smoke (defined as smoke that is as dark or darker than shade No 2 on the Ringelmann Chart)<sup>21</sup> was prohibited. The CAA required all fuel burning equipment and any control equipment on trade or industrial premises to be properly maintained.

The EPCA repeals the CAA. However, the provisions contained in the CAA are largely replicated in the EPCA's sections 6 to 9 (relating to scheduled premises) and sections 10 to 14 (relating to air pollution control).

#### (a) Highly pollutive industries – Scheduled premises

Highly pollutive industries require special permission before they are allowed to operate. They are classified as “scheduled premises” under the CAA, and this classification is continued under the EPCA. These premises fall into three categories: first, premises that are engaged in highly pollutive

<sup>18</sup> These provisions are quite similar to s 110A Environmental Public Health Act (inserted by Act 37 of 1989), now repealed and replaced by Act 22 of 1999, Fifth Schedule.

<sup>19</sup> Act 29 of 1970.

<sup>20</sup> No S 14/92.

<sup>21</sup> Paragraph 2(1)(a), Clean Air (Standards) Regulations.

activity (fourteen types of activities, ranging from cement and concrete works to primary metallurgical works and pulping works); second, premises that use high-capacity steam generators, large incinerators or furnaces and third, premises that are used for the storage of large quantities (over 100 tonnes) of hydrocarbons or hydrocarbon products which are highly toxic or highly flammable.

Special permission (a Licence from the Director of Environmental Pollution Control) is still required before scheduled premises can be occupied or used (section 6). The only change relates to the application for a licence for the use of scheduled premises. Whereas previously, the applicant was only required to give details of the trade or process proposed to be carried out in the premises, together with details of the methods to be adopted to control air pollution from the premises, the EPCA now requires that the applicant also furnish details of the measures to be undertaken to control air, water and noise pollution, as well as the measures the applicant undertakes to adopt to manage hazardous substances and to treat and dispose of toxic substances originating from or stored within the premises (section 6). These changes are necessitated by the integrated approach under this new Act

When granting a licence, the Director is empowered to impose conditions "to ensure that pollution of the environment, as well as hazardous substances are adequately managed and controlled" (section 7). These conditions include the power to require the owner or occupier to install and operate certain plants and equipment; repair, alter or replace any plant or equipment; erect or alter the height or dimension of any chimney; alter the method of operation or process used in the scheduled premises "to prevent, or reduce air, water or noise pollution or hazards"; install and operate instruments and carry out tests and keep records of such tests; as well as use a specified type of fuel. The Director's permission is required before the owner or occupier of scheduled premises can alter the method of operation; install, alter or replace any fuel burning equipment; erect or alter the height or dimension of any chimney; or use any fuel other than that specified by the Director. These conditions are similar to those under the CAA.

The term "occupier" follows the definition in the former WPCDA, and includes a person who has the charge, management or control of any premises or any part of any premises. The term "owner" is expanded to include the developer and the building contractor, where building works are carried out; and, in relation to the common property of any building comprised in an approved strata sub-division plan, includes the management corporation and managing agent appointed by the management corporation. This expanded definition ensures that air emissions from construction equipment are also controlled by the EPCA.

(b) *Other industrial premises*

Part IV of the EPCA (sections 10 to 14) requires the occupier of any premises to maintain and operate any fuel burning equipment and any air pollution control equipment in the premises "in an efficient condition" (section 10(1)). He must also ensure that any air pollution control equipment is "working in a proper and efficient manner whenever the industrial plant or fuel burning equipment is being used". Failure to comply constitutes an offence carrying in the case of a first offence, a maximum fine of \$20,000 and a daily fine of \$1,000 for each day that the offence continues after conviction, and, for subsequent offences, a fine of up to \$50,000 and a daily maximum fine of \$2,000.<sup>22</sup>

The existing emission standards under the Clean Air (Standards) Regulations<sup>23</sup> continue to apply until specifically revoked by new standards passed under the EPCA.<sup>24</sup> New standards are now being considered by the ENV, and are expected to be passed soon. Where no standards are prescribed, the owner/occupier must use "the best practicable means available" to prevent or minimise pollution (section 12(2)). Any dispute as to what constitutes the "best practicable means" shall be determined by the Director.

A new provision (section 12(4)) empowers the Director, by written notice, to prohibit the emission of any air impurity exceeding a specified amount, for a specific period of time.<sup>25</sup> Another new provision anticipates that the Minister may pass regulations providing for the control or prohibition of emission of air impurities from other sources (section 12(5)).

Section 13 (power of Director to require air pollution control works on premises) and section 14 (power to prohibit use of combustible materials, fuel burning equipment or industrial plants in designated areas) are reproduced from the Clean Air Act.

It should be noted that for offences under section 14, section 35 of the EPCA imposes *prima facie* liability on the principal contractor of a construction site. He is presumed until proven otherwise, to have control of the construction site, to have knowledge of the commission of the offence, and to have permitted the commission of the offence.<sup>26</sup> These presumptions are only

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<sup>22</sup> This is under the general penalty clause in s 67, EPCA. The penalty under the CAA was a maximum fine of \$10,000 and a daily fine of \$500 (s 23 CAA).

<sup>23</sup> S 14/72.

<sup>24</sup> S 78(1),(3).

<sup>25</sup> S 12(4) (formerly s 10 CAA).

<sup>26</sup> For a definition of "principal contractor" see *infra*, note 50.

rebutted if he can prove the exercise of due diligence. Section 14(3) presumes that the breach was committed by the occupier of the premises.<sup>27</sup>

(ii) *Open Burning*

The Clean Air (Prohibition of Open Fires) Order 1973<sup>28</sup> prohibited the burning of open fires in industrial or trade premises. It is now repealed but replicated in the Environmental Pollution Control (Prohibition of Open Fires) Regulations, 1999.<sup>29</sup>

(iii) *Vehicular emissions*

Emissions from motor vehicles were previously regulated by the Road Traffic (Motor Vehicles (Construction and Use) Rules<sup>30</sup> which require motor vehicles to comply with European or Japanese emission standards, and came under the control of the Ministry of Communications. However, the Ministry of the Environment controls the type of fuel to be used as well as the emission standards. The sulphur content for diesel was lowered from 0.3% to 0.05% from 1 March 1999. This lowering of sulphur content in diesel will enable ENV to set stricter emission standards. The new EPCA specifically empowers ENV to prescribe emission standards from any source of air pollution "including motor vehicles".<sup>31</sup>

New standards have just been passed, *via* the Environmental Pollution Control (Vehicular Emission) Regulations 1999,<sup>32</sup> with effect from 1 July 1999. These new Regulations prescribe new standards for exhaust and noise emissions for various categories of vehicles. The Road Traffic (Motor Vehicles (Construction and Use) Rules have been amended to specify that the standards for exhaust emissions conform to the standards prescribed by the EPC (Vehicular Emissions) Standards.<sup>33</sup>

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<sup>27</sup> The term "occupier" is defined in s 2 to mean:

- in relation to any premises, the person in occupation of the premises or having the charge, management or control thereof; and
- in relation to any part of the premises, different parts of which are occupied by different persons, the person in occupation or having the charge, management or control of that part.

<sup>28</sup> No S 38/73

<sup>29</sup> No S 161/99.

<sup>30</sup> Cap 276, Rule 9.

<sup>31</sup> Third Schedule, paragraph 4.

<sup>32</sup> No S 291/99.

<sup>33</sup> See paragraphs 35,37,38,40 (exhaust emissions) and paragraph 36 (noise emissions).



Motor vehicles registered on or after 1 July 1999 must conform to the exhaust emission standards prescribed in the First Schedule.<sup>34</sup> Motor vehicles that are already in-use and foreign registered motor vehicles in use in Singapore must conform to the exhaust emission standards prescribed in the Fifth Schedule.<sup>35</sup> Diesel vehicles (other than motor cycles or scooters) registered on or after 1 July 1999 must conform to the exhaust emission standards specified in the Second Schedule.<sup>36</sup> Motor cycles and scooters registered on or after 1 July 1999 must conform to the standards specified in the Third Schedule.<sup>37</sup>

There is a general prohibition on the emission of any visible smoke or vapour from any motor vehicle, whether petrol or diesel driven, when in use.<sup>38</sup>

All new petrol driven motor vehicles must be capable of running on unleaded petrol. A certificate from the vehicle's manufacturer shall be accepted as *prima facie* evidence that a vehicle registered after 1 July 1999 conforms to the prescribed standard.

There are special provisions for the owners of motor vehicle fleets.<sup>39</sup> The Director may require such persons to carry out various measures to ensure that every vehicle conforms to the prescribed standards, including the carrying out of regular servicing and repair, and the keeping of full and accurate records of such servicing and repair.

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<sup>34</sup> For petrol driven motor vehicles, the standard for exhaust emissions shall be the EC Directive 91/441/EEC or Article 31 of the Japanese Safety Regulations for road vehicles.

<sup>35</sup> These limit the emission of carbon monoxide from the vehicle's exhaust as follows:

- (a) for petrol driven vehicles (other than motor cycles) registered on or after 1 July 1992, not to exceed 3.5% by volume;
- (b) for petrol driven vehicles (other than motor cycles) registered on or after 1 October 1986 but before 1 July 1992, not to exceed 4.5% by volume;
- (c) for motor cycles registered on or after 1 October 1986, 4.5% by volume;
- (d) for motor cycles registered before 1 October 1986, 6% by volume.

Diesel vehicles must not emit smoke of opacity greater than 50 Hartridge Smoke Units (HSU) or its equivalent.

<sup>36</sup> These are as follows:

- (a) passenger cars and light commercial vehicles with gross vehicle weight not exceeding 3.5 tonnes must comply with EC Directive 93/59/EEC;
- (b) heavy duty vehicles with gross vehicle weight exceeding 3.5 tonnes must comply with EC Directive 91/542/EEC Stage 1.

<sup>37</sup> The standard prescribed is the United States Code of Federal Regulations (40 CFR 86.410-80).

<sup>38</sup> Fifth Schedule paragraph 5.

<sup>39</sup> Defined to mean a person who is the owner or who has under his control or possession three or more public service vehicles (other than trishaws) for the purposes of his trade or business generally, or as a manufacturer or dealer of motor vehicles, or for the transporting of goods or cargo.

There is a new provision (regulation 21) which requires the driver of every motor vehicle to stop the engine when the vehicle is stationary "for reasons other than traffic conditions". Failure to comply constitutes an offence under the Regulations.<sup>40</sup> It is thus an offence to keep the engine running while waiting to pick up passengers. This problem has been highlighted from time to time by readers in complaints to the Straits Times. Two letters were published in The Straits Times after the coming into effect of this new law. However, the replies from the Ministry of the Environment made no mention of this new law (even though it came into effect as from 1 July 1999), stating only that the Ministry was working with bus companies, the National Association of Travel Agents, and with taxi companies, as well as other vehicle fleet owners and the Automobile Association of Singapore to educate drivers "not to leave their vehicle engines idling for long periods of time."<sup>41</sup> This new law has not, as yet, been specifically mentioned or introduced to the public, and very few are aware that it exists.

#### B. *Water Pollution: Part V (sections 15 to 19)*

Prior to the passing of the EPCA, water pollution was regulated by the WPCDA.<sup>42</sup> Apart from regulating water pollution, the WPCDA contained provisions relating to drainage and sewerage systems. The new EPCA repeals the WPCDA. It brings water pollution control under its wing, but sewerage and drainage control now come under a new law, the Sewerage and Drainage Act<sup>43</sup> (the "SDA"), which was passed at the same time as the EPCA, "to provide for and regulate the construction, maintenance and improvement of sewerage and land drainage systems, to regulate the discharge of sewage and trade effluent and matters connected therewith."

Part V of the EPCA (sections 15 to 19) relates to water pollution control. Whereas previously, water pollution control came under the control of the Director of Water Pollution Control and Drainage, it is now under the control of the Director of Environmental Pollution Control appointed under section 3 of the EPCA. The control of sewerage and drainage now comes under the Director of Sewerage and Drainage, appointed under the new SDA.

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<sup>40</sup> The penalty for breach of the Regulations is a fine of up to \$2,000, and up to \$5,000 in the case of a subsequent conviction (regulation 23).

<sup>41</sup> See letters entitled "Such a waste to leave bus engines running", The Straits Times, July 29, 1999, p 38; "Gasp! Switch off those engines", The Straits Times, December 3, 1999; reply from the Ministry "Switch off engines or we'll take action", The Straits Times, December 8, 1999.

<sup>42</sup> Act 29 of 1975 amended by Act 16 of 1983.

<sup>43</sup> No 10 of 1999.

(a) *Licence required for discharges*

A licence is required for the discharge of "any trade effluent, oil, chemical, sewage or other polluting matters into any drain or land" (section 15). This new provision also requires persons who discharge without a licence, to immediately inform the Director. Failure to do so constitutes an offence (fine \$5,000). Section 15(2) provides that where there is a discharge, it is presumed, until the contrary is proven, that it was discharged by the occupier of the premises. As no specific penalty is stated, the offence falls under section 67 (maximum fine of \$20,000 for the first offence, and a fine of \$1,000 for each day the offence continues after conviction; for subsequent convictions, a maximum fine of \$50,000 and a daily fine of \$2,000).<sup>44</sup>

(b) *Treatment before discharge*

Section 16 requires all trade effluent to be treated in the manner prescribed, before discharge. Treatment plants must be operated and maintained in the manner prescribed, failing which an offence is committed. The first offence carries a maximum fine of \$20,000, imprisonment of up to three months, or both fine and imprisonment, and a daily fine not exceeding \$1,000; subsequent offences carry a maximum fine of \$50,000, imprisonment of up to three months or both fine and imprisonment, and a daily fine not exceeding \$2,000.

Standards for trade effluent are prescribed under the EPC (Trade Effluent) Regulations.<sup>45</sup> These new Regulations are substantially similar to the old Water Pollution Control and Drainage (Trade Effluent) Regulations. The provisions relating to discharge limits into sewers now appear in the new Sewerage and Drainage (Trade Effluent) Regulations.<sup>46</sup> Penalties have been enhanced, from a maximum fine of \$5,000 under the old Regulations, to a fine of \$10,000; and from a daily fine of \$100 under the old Regulations to a daily fine of \$300. Subsequent convictions entail penalties of a maximum fine of \$20,000 and a daily fine of \$500.

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<sup>44</sup> The penalty under the Water Pollution Control and Drainage Act was a fine of up to \$5,000, or imprisonment of up to 3 months or both fine and imprisonment; and in the case of a continuing offence, a further fine of \$100 daily (s 63).

<sup>45</sup> S 160/99.

<sup>46</sup> S 170/99.

(c) *Discharge of toxic or hazardous substances*

Section 17 reproduces the old section 15 WPCDA with some changes. It is an offence to discharge toxic or hazardous substances into inland waters. Severe penalties are prescribed: for the first offence, a maximum fine of \$50,000 (previously \$10,000) or imprisonment up to twelve months, or both; for the second or subsequent conviction, a maximum fine of \$100,000, plus mandatory imprisonment of not less than one month and not more than twelve months. Additionally, in the case of a second or subsequent offence, the Minister may direct that the work be stopped either indefinitely or for a specified period.<sup>47</sup> Failure to comply with a stop order constitutes an offence carrying a maximum fine of \$100,000 or three months' imprisonment or both fine and imprisonment, and a daily fine of \$2,000. The Director may take all necessary steps to ensure compliance with the order, and recover all reasonable costs and expenses as a debt due to the Government. Subsection (5) reproduces the first three presumptions under the old section 15 WPCDA which make it easier to prove an offence under the section.<sup>48</sup> It adds a fourth presumption, that where a toxic or hazardous substance has been discharged from any premises into any inland water, it shall be presumed, until the contrary is proven, that the occupier of the premises or the principal contractor of a construction site who has control of the site, had discharged or caused or permitted the toxic substance to be discharged (section 17(5)(d)).

Section 17(5)(d) is the first provision to extend liability to the principal contractor at construction sites. The responsibilities of the principal contractor for pollution control at construction sites are spelt out in greater detail in section 35.<sup>49</sup>

As the offence is severe, warranting considerable fines and mandatory imprisonment for a second or subsequent offence, section 17(6) requires

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<sup>47</sup> Under the WPCDA, s 15, the Minister's power to require that work be stopped only applies on a conviction for a third offence.

<sup>48</sup> These presumptions are as follows (S 17(5) EPCA):

- a person is deemed to have discharged a toxic substance into any inland water if he places the substance or causes it to be placed in a position where it is liable to fall, descend, wash, percolate or be blown into the water;
- the discharge of a toxic or hazardous substance shall be deemed to cause pollution of the environment if the substance has been discharged or placed in such a manner or in such quantity (whether by itself or with any other substance) as to subject persons or humans to a material risk of death, injury or impairment of health or as to threaten to pollute any inland water;
- the fact that the toxic substance is placed in containers shall not of itself be taken to exclude any pollution of the environment which might be expected to be caused if the substance were not in containers.

<sup>49</sup> See note 46.

that all prosecutions must be with the written consent of the Public Prosecutor. This is similar to section 15(5) WPCDA.

(d) *Clean-up*

Section 18 is new. It enables the Director to give written notice requiring any person who has discharged any toxic substance, trade effluent, oil, chemical, sewage, hazardous substance or other polluting matter, into any land, drain or sea, to remove and clean it up within the time specified. Failure to comply is an offence, carrying a maximum fine of \$50,000. The degree of cleanup is not specified.

(e) *Precautions in storage or transportation*

Section 19 is also new. It empowers the Director to give specific instructions to persons who transport or store toxic substances to take precautionary measures. The Director may require the installation of spill containment facilities, the use of approved containers, tanks and road tankers, the installation and operation of pollution control equipment to prevent and detect any leakage or discharge, the carrying out of specific tests on equipment and submit the results, and the preparation and submission of emergency contingency plans. Failure to comply is an offence, carrying a fine of up to \$20,000.

(f) *Liability of principal contractor in a construction site*

For offences under sections 15 and 17 committed in a construction site, section 35 imposes liability on the principal contractor as he is presumed to have control of the site, to have knowledge of the commission of the offence, and to have permitted the commission of the offence. His only defence is the exercise of due diligence. Section 35(4) provides that a defendant shall not be presumed to have exercised due diligence unless he has taken all reasonable measures to prevent the commission of the offence. "Principal contractor" is defined to mean a person who has entered into a contract with an owner, a developer or a lessee of a property or his agent for the purpose of carrying out any construction works on the property.<sup>50</sup>

*C. Land Pollution Control: Part VI (section 20)*

Prior to the passing of the EPCA, there were no laws relating to the contamination of land. This inadequacy was brought to the forefront in 1996,

<sup>50</sup> S 35(7). See *supra*, note 26.

when an oil company's storage terminal was found to have leaked oil into the ground. The company maintained that unless it could be shown to have contaminated the ground water, or the leakage could be regarded as the improper storage of waste (which was denied), it had not breached any laws. Nonetheless, the company declared it would spend some \$1 million to clean up the site.<sup>51</sup> Thereafter, Jurong Town Corporation ("JTC") introduced a 'decontamination clause' in its leases to 'high pollution risk' industries, such as petroleum, chemical and petrochemical works. This requires tenants to carry out an environmental baseline study before starting any work, to establish existing levels of pollutants in the soil and groundwater. This test must be repeated at the end of the lease to determine if the company had polluted the site. If so, the tenant is required to clean up the site before returning it to JTC.<sup>52</sup>

Part VI of the EPCA attempts to address this with a solitary provision (section 20). It provides that the Minister may make regulations to control the pollution of land where the land is so changed as to make it or its produce, "obnoxious, noxious or poisonous". No regulations have, as yet, been passed. However, at a recent seminar to introduce the new law, a Ministry spokesman indicated that the laws of the Netherlands on clean-ups are being closely studied.

#### *D. Control of Hazardous Substances (Part VII – sections 21 to 27)*

Part VII of the EPCA (sections 21 to 27) relates to the control of hazardous substances, and is largely derived from the Poisons Act.<sup>53</sup> The Poisons Act was passed in 1939 "to regulate the importation, possession, manufacture and sale of poisons". It covered industrial poisons as well as pharmaceutical-medical poisons.

Under the Poisons Act, a licence is required for the import and sale of any poison (section 3 of the Poisons Act). Licences for the importation, sale and storage of poisons listed in Part I of the Schedule of the Poisons Act (the "Poisons List") are issued by the Director of Medical Services, Ministry of Health. Poisons used in industries may fall under Part II of the Poisons Act and the Poisons (Hazardous Substances Regulations), and were regulated by the Pollution Control Department of the ENV. Persons who wish to deal with hazardous substances under the First Schedule of the Poisons (Hazardous Substances) Rules had to obtain a Poisons Permit from the licensing officer of the PCD.

<sup>51</sup> The Straits Times, 9 January 1996.

<sup>52</sup> The Straits Times, 10 January 1996, 29 January 1996.

<sup>53</sup> Cap 234, Ordinance 39 of 1938, last amended in 1999 (No S 53/99, S 280/99).

The new EPCA now brings industrial poisons/hazardous substances clearly under the control of the Director of Pollution Control, ENV. The Poisons Act continues to regulate other poisons, and licences under the Poisons Act continue to be issued by the Director of Medical Services and his officers.

The EPCA also regulates all industrial poisons, as hazardous substances under the EPCA Part VII (sections 21 to 27) and the EPC (Hazardous Substances) Regulations.<sup>54</sup> These are specified in Part I of the EPCA Second Schedule, and range alphabetically from acetic acid to vinyl chloride monomer. However, certain exclusions are allowed, for example, in the case of acetic acid, substances containing not more than 80% weight in weight of acetic acid; and preparations and solutions for photographic use are excluded. In general, the hazardous substances controlled under the EPCA are those that carry a mass-disaster potential, are highly toxic and pollutive and/or generate wastes that can only be disposed of with great difficulty. Part II of the Second Schedule lists substances, preparations and products that are exempted from the EPCA's controls on hazardous substances. These range from adhesives to vascular plants and their seeds.

#### (a) *Hazardous Substances Licence*

Any person who wishes to import, sell or export any hazardous substance controlled under the EPCA must obtain a Hazardous Substance Licence under section 22. The licence has a validity of one or two years, is issued free, and is not transferable.<sup>55</sup> The applicant must be a professional in his field or a senior management staff in his company. He must pass an oral test on the EPCA and its Hazardous Substances Regulations and will be required to sign a form stating that he has read and understood the EPCA and its Hazardous Substances Regulations. He has to attach the material safety data sheets of the hazardous substances, provide details of the storage premises, attach supporting documents of approval from the relevant authorities, provide details of the company's emergency action plan. Any changes to the information in the form must be notified to the Pollution Control Department (PCD) within 21 days.

#### (b) *Hazardous Substances Permit*

A Hazardous Substances Permit is required for the purchase, storage and/or use of any hazardous substance controlled under the EPCA. A Permit

<sup>54</sup> No S 159/99, with effect from 1 April 1999.

<sup>55</sup> Applications for a Licence can be submitted *via* the internet. See <http://www.gov.sg/env/info/rules/hshomepage/licenceguidelines.html>



will be issued by the PCD if the applicant can establish that the hazardous substance will be stored safely in an approved location and in compliance with the storage requirements, and that his premises have been approved for the use of hazardous substances. The applicant is required to declare that he has read and understood the EPCA and its Regulations.

(c) *Imports*

All imports of hazardous substances must be approved by the PCD. The importer must have a Hazardous Substances Licence and Transport Approval. He must also have a Certification of Import.

(d) *Transport of Hazardous Substances*

The transportation of hazardous substances is carefully detailed in the EPC (Hazardous Substances) Regulations, Part II (paragraphs 3 to 14). These are substantially similar to the provisions in the Poisons (Hazardous Substances) Rules, which have since been repealed. The Schedule specifies the types of hazardous substances and the quantities (in kilograms) that may be transported. The Regulations include detailed requirements on transport documentation, instructions for drivers, responsibilities of drivers, following a prescribed route, use of hazard warning panels and labels, precautions against fire, explosion, over-fill; prohibition of carriage of multi-loads of hazardous substances, and supervision of vehicles carrying hazardous substances.

Any person who intends to transport any hazardous substance in quantities exceeding those specified in the Regulations must obtain Transport Approval. The limits vary from 0 kg for highly toxic chemicals such as organochlorines pesticides to 1,000 kg for corrosives such as sulphuric acid. "Transport" is defined to mean transport by road, including any operation incidental to the whole course of carriage, such as loading, unloading and storage in transit.

Transport approval will be given if the applicant holds a licence or permit for hazardous substances and he can show proof that the hazardous substances will be transported safely in compliance with the transportation requirements. The transport emergency plan must first be vetted and approved by the Singapore Civil Defence Force (SCDF) before Transport Approval is given.

(e) *Storage of Hazardous Substances*

Section 24 of the EPCA requires every person storing or using any hazardous substance to do so in a manner that does not threaten the health or safety of others, or cause pollution of the environment. There is a presumption that a person who stores or has in his control any hazardous



substance, has done so knowingly. Section 25 empowers the Director to require the owner or occupier of any premises to remove any hazardous substance, where the Director is of the opinion that it is likely to threaten the health or safety of any person or cause pollution of the environment. Non-compliance constitutes an offence carrying a maximum fine of \$50,000.

Part IV of the EPC (Hazardous Substances) Regulations relates to the storage and supply of hazardous substances. The ENV's code of practice requires that the storage area be under cover, fenced up and securely locked. It must have a kerb/hump all round the storage area, be fitted with fire protection and safety facilities as well as leak detection and warning devices. It must have an emergency scrubbing system if toxic gases are stored. The containers and storage tanks for the chemicals must be designed, manufactured and tested in accordance with internationally-acceptable standards.

The ENV also requires an accident emergency action plan as a condition for granting licences and transport approvals. The plan must be comprehensive, covering off-site impacts and identification of likely accident scenarios and likely impact zones; contain notification and activation procedures, emergency procedures to contain, control and mitigate the impact of the spill, monitoring of the affected areas, procedures for decontamination and cleanup of affected areas, names of personnel and their assigned roles in emergencies, and a list of emergency equipment to be carried on the vehicle and at base, such as personal protection equipment, fire-fighting equipment, clean-up equipment, absorbents, neutralising solutions, monitoring equipment *etc.*

In the event of an accident or emergency (for example, chemical fire/release), the licence holder/consignor/transport approval holder must block off the area contaminated by the hazardous substance, notify the Civil Defence Force and the Pollution Control Department, and take immediate steps to have the area decontaminated. Thereafter, he must furnish a detailed report of the incident.

#### (f) *Impact Analysis Studies for Hazardous Installations and Studies on Pollution Control*

Sections 26 (impact analysis studies) and 36 (studies on pollution control) are new but they put into writing a practice that has been administered by ENV for sites that have a high potential to pollute. These include major projects such as oil refineries, petrochemical plants and land reclamation projects.

Section 26 empowers the Director to require the owner or occupier of any hazardous installation to carry out impact analysis studies to assess all potential hazards, estimate the frequency or probability of potential hazards, quantify the consequences and risk levels of such potential hazards, evaluate the effects of fires and other potential disasters including the

potential for release of toxic substances and contaminated fire-fighting water into the environment and identify all necessary preventive measures to avoid and control the hazards. The Director may by written notice, require the owner or occupier to review and evaluate existing measures for the prevention, reduction or control of potential hazards, submit proposals for new or additional preventive measures and implement such new measures as the Director may specify. The Director may also require that existing measures be modified, as well as require the owner/occupier to conduct a further review. Failure to comply with section 26 constitutes an offence carrying a maximum fine of \$20,000.

Section 36 empowers the Director to require any person intending to carry out any activity that is "likely to cause substantial pollution of the environment or increase the level of such pollution" to carry out a study on environmental pollution control (section 36(1)). Such person must submit a proposal for the implementation of measures to prevent, reduce or control the pollution, and implement such measures as may be specified by the Director. The study shall be conducted in the manner prescribed and the Director may issue guidelines for such study. The Director may also require modifications or additions to the proposed measures or require a further study to be conducted (section 36(3)). It is an offence to fail to comply with a notice under section 36(1) or (3).

(g) *Safety Audit Scheme*

The Pollution Control Department of ENV has developed a Safety Audit Scheme to encourage companies to develop a safe environmental management system to handle hazardous substances. The Scheme helps companies to systematically identify and rectify weaknesses in their management practices. Companies under the Scheme can either conduct their own safety audits in-house, or engage accredited consultants. Details of the Scheme are set out in the ENV's Info-Centre website, indicating the elements to be audited, list of accredited consultants, guidelines for the safety audit report and listing reference materials.

(h) *Quantitative Risk Assessment (QRA) Study for Installations which Store, Transport or Use Hazardous Substances*

The ENV has established guidelines for Quantitative Risk Assessment Studies. These include hazard identification, consequence analysis, frequency analysis, individual fatality risk, risk mitigation, chemical inventory. Again, these are detailed in the ENV's Info Centre website.

(j) *Emergency Response Plan*

The ENV has also established guidelines for the preparation of Emergency Response Plans. In the case of toxic releases/gases, guidelines are prescribed for the calculation of impact distances/zones, and the calculation of impact distances/zones. It also contains guidelines for monitoring during an incident involving hazardous materials (hazmat), as well as the planning format for an emergency response plan.

*E. Noise Control: Part VIII (sections 28 to 30)*

Part VIII of the new EPCA (sections 28 to 30) relate to noise control. The Singapore Green Plan had identified noise as a major cause for concern, particularly from construction activities and transport.<sup>56</sup> Noise induced deafness is a major occupational hazard in Singapore factories. An Environmental Noise Management Unit was then set up to look into the integrated management and control of environmental noise. Environmental noise management and control was hitherto decentralised and carried out by various agencies, including ENV, the Registry of Vehicles, the Mass Rapid Transit Corporation, the Department of Industrial Health, the Police Force, the Civil Aviation Authority of Singapore, and the Republic of Singapore Air Force. The Singapore Green Plan – Action Programmes recommended that ENV forms an Environmental Noise Advisory Committee, to serve as a formal consultative link between these agencies and the private sector, provide feedback and the latest know-how in management and control of environmental noise.<sup>57</sup>

Noise falls under the list of public nuisances that can be dealt with summarily by the Commissioner of Public Health under Part V of the Environmental Public Health Act.<sup>58</sup> Noise from construction sites is the source of many complaints. In 1990, the Environmental Public Health (Control of Noise from Construction Sites) Order was passed.<sup>59</sup>

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<sup>56</sup> *The Singapore Green Plan – Towards A Model Green City*, 1992, at p 33, Ministry of the Environment.

<sup>57</sup> *The Singapore Green Plan – Action Programmes*, 1993, Ministry of the Environment, pp 44-47.

<sup>58</sup> S 44(m) reads "any place where there occurs or from which there emanates noise or vibration as to amount to a nuisance."

<sup>59</sup> No S 466/90. For indoor noise, the Factories (Noise) Regulations was passed in 1996 (No S 372/96) to protect the hearing of workers. The Factories (Medical Examination) Regulations (No S 33/85) require workers who are exposed to high noise levels to undergo a medical examination for loss of hearing once in every twelve months.

(a) *Noise from Construction Sites*

The EPCA brings noise from construction sites under its wing. Section 28 empowers the Director to give written notice imposing requirements on the carrying out of building, demolition and construction works. Notice is to be given to “the person who appears to be carrying out or going to carry out the works”, or such other person who appears to the Director “to be responsible for or to have control over the carrying out of the works”. The notice may specify the type of plant or machinery to be used or not to be used; the hours during which the works may be carried out, and the level of noise or vibration which may emanate from the premises during specified hours. The Director may also, by written notice, order that work be stopped. Failure to comply constitutes an offence carrying a maximum penalty of a daily fine of \$10,000 and imprisonment for up to three months, or both fine and imprisonment.

(b) *Traffic Noise*

The EPC (Vehicular Emission) Regulations prescribe noise emission standards for various categories of motor vehicles.<sup>60</sup>

(c) *Noise in Industrial Premises*

Section 29 empowers the Director to prohibit noise in any workplace. He has wide powers including requiring the installation of equipment, the repair of existing equipment, the erection of a noise barrier, the installation of a specific plant *etc.*, to reduce the noise levels. He may issue a stop work order if there is non-compliance with his notice. Failure to comply with a notice constitutes an offence carrying similar penalties as section 28.

Section 30 provides that in acting under sections 28 and 29, the Director shall have regard to any relevant code/s of practice, and the need to protect persons in the locality from the effects of noise. Before specifying any particular method, plant or machinery in, the Director shall have regard to the desirability of specifying other methods, plants or machinery, which would be more acceptable to the recipient of the notice.

The EPCA also regulates boundary noise limits from factory premises, which used to fall under the jurisdiction of the Commissioner of Public Health under the Environmental Public Health Act.<sup>61</sup>

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<sup>60</sup> See *supra*, note 32.

<sup>61</sup> EPC (Boundary Noise Limits for Factory Premises) Regulations, No S 156/99, revoking the Environmental Public Health (Boundary Noise Limits for Factory Premises) Regulations, Cap 95, Regulation 17.

## F. Licences and Industrial Plant Works: Part IX (sections 31 to 34)

### (a) General provisions

The general provisions on licences are contained in section 32. They are substantially similar to the provisions contained in section 100 Environmental Pollution Control Act. Licences are granted or renewed at the discretion of the Director, and may be granted, renewed or refused "without giving any reason" or granted or renewed subject to such restrictions and conditions as the Director may think fit. They may also be suspended, cancelled or revoked at any time without compensation and without notice upon breach of any restriction or condition subject to which they were granted. Licences are not transferable except with the written approval of the Director. At any time during the term of the licence, the Director may amend or delete any of the conditions or impose additional conditions without giving any reasons. The Director is empowered to require any applicant for a licence to furnish such information and evidence as he reasonably requires for a full and proper consideration. It is an offence to furnish false information. The penalty is a fine of up to \$5,000. Any licence granted would be void and of no effect. Persons aggrieved by the Director's decision may, within fourteen days, appeal to the Minister, whose decision shall be final.

### (b) Single Licence

Section 31 allows a person who is required to obtain more than one licence, to apply to the Director for a single licence. This addresses one complaint against the previous system, where a number of licences may have to be obtained for a particular factory. Where there is a breach of a condition, sub-section (2) provides that the Director may, instead of suspending the licence entirely, prohibit the licensee from carrying out one or more of the activities specified in the licence; or modify the condition subject to which the licence was granted.

### (c) Clearance and compliance certificates

Section 33 prohibits any person from carrying out any industrial plant works unless the Director has certified by means of a "clearance certificate" that the plans comply with the requirements specified. Upon completion of the works specified in the clearance certificate, the holder of the certificate shall apply to the Director for a further certificate (a "compliance certificate") that the works have been completed in accordance with the plans submitted and the conditions imposed.

(d) *Registration of registered inspectors*

Section 34 requires the Director to keep and maintain a register containing the names and prescribed particulars of all persons registered as registered inspectors. It makes provisions for regulations to be passed which provide for the manner and form in which this register is to be kept, how persons may apply to be registered inspectors, the qualifications of registered inspectors and their appointment, their duties and responsibilities, and the circumstances in which registration may be cancelled. These regulations have yet to be passed.

G. *Environmental Pollution Control Measures:*  
*Part X (sections 35 to 40)*

This part contains some new provisions on environmental pollution control, such as the requirements for self-monitoring and submission of results, mandatory insurance, and the imposition of responsibility for pollution at construction sites on the principal contractor.

(a) *Principal contractor to prevent pollution from construction site: section 35*

Section 35 imposes responsibility for pollution at construction sites on the principal contractor. This is in relation to three specific offences which have already been discussed, *viz*: section 14 (breach of Minister's order prohibiting use of combustible materials, fuel burning equipment or industrial plants in designated areas); section 15 (discharge of trade effluent or other polluting matters without a licence); and section 17 (discharge of toxic substances into inland waters). Where there is a contravention of sections 14, 15 or 17, section 35(2) presumes, until the contrary is proven, that the principal contractor<sup>62</sup> of the construction site had control of the site, had knowledge of the commission of the offence at the site, and had permitted the commission of the offence at the site. These presumptions can only be rebutted if the defendant can prove that he exercised due diligence to prevent the commission of the offence. The exercise of due diligence can be proved if there exists an environmental management system. It is even better if the system is certified under ISO 14001. It is hoped that these new provisions will spur contractors to establish a system of management which not only ensures the health and safety of their workers but also protects the environment.

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<sup>62</sup> For definition of "principal contractor", see *supra*, note 50.

(b) *Study on pollution control*

Section 36, which relates to studies on pollution control, has already been mentioned. It provides that the Director may require a person intending to carry out any activity that is likely to cause pollution to carry out a study and submit it for the Director's approval within a specified time, together with a proposal for the implementation of measures to reduce or control environmental pollution. It would appear that this provision applies to development projects that are likely to cause pollution to the environment. The nature of these projects is not specified. It is for the Director to determine.

One question is its relation to section 26 (impact analysis studies for hazardous installations). Would the owner/occupier of a hazardous installation be required to do both a section 36 study on pollution control and a section 26 study on impact analysis? What about a development project that may not be highly pollutive but may have considerable impact on the environment in terms of affecting its ecological system or biological diversity, such as the building of residential or industrial estates close to a nature reserve? What about the construction of a golf course? Singapore has no law requiring an environmental impact assessment or analysis (EIA). Green groups like the Nature Society had hoped that the new 'umbrella' law would address this inadequacy, but it has not. The EPCA as its name indicates, only addresses issues of pollution. Even so, the circumstances in which a section 36 study would be required are not spelt out. Much is left to the discretion of the Director of Pollution Control.

(c) *Self-monitoring and submission of results*

Section 37, which relates to self-monitoring, is new. It empowers the Director to require the owner or occupier of any premises which generates air pollution, trade effluent or hazardous substances, to install suitable monitoring equipment or system at any point along the line of discharge. The owner/occupier shall ensure that the equipment or system is working properly and efficiently, keep proper records of all monitoring results and submit the records to the Director as required. Any monitoring result which discloses non-compliance with the prescribed emission standards shall be admissible as evidence in proceedings for non-compliance. It is an offence to alter any monitoring equipment without the written permission of the Director.

While section 37 is a welcome provision, it could be strengthened by providing for penalties for the submission of false records, for failure to submit on time, for tampering with the records. Such penalties should be more severe than the offence of non-compliance with the emission standards. One awaits the implementation of this provision and anticipates that guidelines



will be drawn. Must the owner/occupier draw the attention of the Director to the various incidents of non-compliance? What if one or more of these incidents are not highlighted due to oversight?

(d) *Mandatory Insurance*

Section 38 empowers the Minister to make regulations to require mandatory insurance for hazardous industries. The regulations will specify the terms and conditions of such insurance, the risks and damage to be insured against, and the form of the certificate of insurance. These regulations have yet to be passed. It is believed that ENV officials are working closely with insurance agencies to work out the details for implementation of this provision, which should be welcomed.

(e) *Power to prohibit work and processes in certain circumstances*

Section 39 is a consolidation of sections 16 and 18 of the CAA, and section 39 of the WPCDA. It empowers the Minister to direct the owner/occupier to stop operations, where the Minister has reason to believe that its operations are likely to cause environmental pollution or are dangerous to public health and safety. A new sub-section (1)(c) authorises the Minister to direct that the owner/occupier take specified steps to collect, store and treat the trade effluent, hazardous or toxic substance before it is discharged. Penalties for breach have been increased ten-fold, from a fine of \$10,000 under the Clean Air Act, to a fine of \$100,000 under the EPCA; imprisonment for up to three months, and a daily fine of up to \$2,000.

(f) *Advisory and Technical Committees*

Section 40 provides that the Minister may appoint such technical and advisory committees as he thinks fit, for any of the purposes of the Act or its regulations. This is derived from section 25 of CAA.

## H. *Penalties for Offences*

(a) *Offences under the EPCA*

In relation to fines, the maximum fine under the EPCA for a pollution offence involving non-hazardous substance is \$20,000 and a daily fine of up to \$1,000 for a first offence. Subsequent offences entail a fine of up to \$50,000 and a daily fine of \$2,000 for each day that the offence continues after conviction. The penalties are enhanced for offences relating to hazardous substances, where the maximum fine is now \$50,000 and a daily fine of



up to \$2,000. For non-compliance with any notice or order, the fine is \$20,000 under the EPC Regulations.

In relation to jail sentences, generally all jail sentences remain unchanged, except for the discharge of toxic substances into inland waters, where the maximum sentence to imprisonment is raised from six months to twelve months. There is a maximum jail sentence of three months for non-compliance with stop-work orders.

#### *(b) Offences under the EPCA Regulations*

The penalties for breach of the various regulations under the EPCA vary. The maximum penalty for a breach of the EPC (Control of Noise at Construction Sites) Regulations is a daily fine of \$10,000 for a first offence, and a daily fine of \$20,000 for a subsequent offence. For breach of the EPC (Boundary Noise Limits for Factory) Regulations, the fine is \$10,000 for a first offence, and \$20,000 for a subsequent offence. Offences under the EPC (Trade Effluent) Regulations carry a penalty of a fine of \$10,000 for the first offence, and a fine of \$20,000 for subsequent offences. Offences relating to hazardous substances carry enhanced penalties of a fine of up to \$30,000 and/or up to two years imprisonment.

#### *1. Enforcement: Part XI (sections 41 to 50)*

Part XI on Enforcement (sections 41 to 50) contains provisions largely derived from the Clean Air Act, Water Pollution Control and Drainage Act, and the Environmental Public Health Act.

Section 41 specifies the penalties for non-compliance with Notices or Orders where no specific penalties are prescribed. Such offences carry a fine of up to \$20,000. The Director or officer may enter the premises and execute the works specified in the order and recover any expenses reasonably incurred. Persons aggrieved by a Notice or Order can appeal to the Minister within fourteen days (section 42). The Minister may authorize the Director to immediately execute the Notice or Order, where he thinks that non-execution would be injurious or dangerous to public health. If the works have been carried out and the appeal is successful, the Director shall pay the costs and expenses of the works and any damages sustained by the appellant. If the appeal is dismissed or abandoned, and works have already been done, the Director may recover the costs and expenses.

Sections 43 to 50 empower the Director and his officers to do the following:

- Demand the names and addresses of owners/occupiers and principal contractors (section 43);

- Orally examine any person and require his attendance (section 44);
- Arrest any person whom the Director, his officer or any police officer has reason to believe has committed an offence under this Act (section 45);
- Order the immediate execution of works in cases of emergency, where it is necessary to prevent injury or danger to public health or serious pollution of the environment (section 46);
- Enter premises to survey, inspect, investigate or execute any work authorized by the EPCA or its regulations (section 47);
- Enter land that is adjacent any works to be executed under the EPCA (section 48);
- Search and seize any hazardous substance, take samples of any materials found on the premises, require the production of records, certificates and other documents, require the owner to send the samples for analysis and to submit the results to the Director; take photographs, require persons found in the premises to produce their identity cards or other identification papers (section 50).

It is an offence to obstruct the Director and his officers in their duties. The penalties are a fine of up to \$20,000 or imprisonment up to three months or both. Subsequent convictions carry a fine of up to \$50,000 or imprisonment or both (section 49).

#### *J. Compensation, Damages and Costs: Part XII (Sections 51 to 64)*

These provisions are largely reproduced from sections 42 to 55 of the Water Pollution Control and Drainage Act (WPCDA).

Section 51 provides for the determination of issues of compensation, damages, costs and expenses by a Magistrate's court or a District Court. It is derived from section 42 WPCDA, but new subsections (2)(3) and (4) elaborate on the powers of these courts. Section 52 empowers the occupier of premises, with the Director's approval, to execute works required to be done by the owner of the premises. Section 53 imposes a charge on premises for the recovery of costs and expenses from the owner of the premises, for work done under the Act. It is similar to section 44 WPCDA except for enhanced penalties for non-compliance. Section 54 enables the recovery of costs and expenses by instalments. Section 55 relates to proceedings for the recovery of arrears, including the execution of warrants of attachment and notice of sale. Section 56 enables the Director to appoint a person to publicly notify and effect an attachment of movable property and crops

found on the premises. Section 57 relates to the application of proceeds of sale. Section 58 confers title on a purchaser at a sale. Section 59 enables the costs of proceedings for recovery of arrears to be recovered as if they formed part of the arrears. Section 60 enables certain persons to stop a sale under section 55 by tendering payment to the Director. Section 61 allows certain persons to apply to court to stay proceedings for sale or attachment under the Act. Section 62 requires security for payment of arrears where an application is made under section 61. Section 63 makes the transferor of property liable for costs and expenses incurred for certain works performed before notice of transfer under section 19, Property Tax Act. Section 64 relates to proceedings to enable the owner to carry out work to comply with the EPCA where the occupier opposes such work.

Sections 54 to 64 are similar to sections 45 to 55 of the (now repealed) WPCDA, except for an enhanced daily fine of \$1,000 instead of \$200 under section 64(2) if the occupier continues to refuse permission to the owner to carry out works required under the EPCA.

#### *K. Miscellaneous Provisions: Part XIII (sections 65 to 78)*

Section 65 allows an authorized officer to give certain notices, orders, receipts, warrants and other documents on behalf of the Director. Section 66 relates to the service of notices, orders, summons or other documents. Section 67 provides general penalties for offences under the Act, for which no specific penalties have been stated. The court is empowered to order that the offender pay, in addition to the fine, the costs of any expenses incurred in connection with the execution of any work, together with interest. Section 68 empowers the Director to require the payment of a deposit to secure the execution of any work for which he has given a permit, consent or approval under the Act. Section 69 provides that certain inaccuracies in documents shall not invalidate proceedings under the Act. These provisions are similar to sections 56 to 65 of the WPCDA.

Section 70 is an improved version of the old section 66, WPCDA. It provides for the appointment of analysts, and the admissibility in evidence of certificates issued by an analyst.

Section 71 relates to offences by bodies corporate and is a reproduction of section 67 of the WPCDA. This is a disappointment, as section 67 is too general and makes no mention of the defence of due diligence. A better provision to follow is section 42 of the Hazardous Waste (Control of Export, Import and Transit) Act<sup>63</sup> which imposes liability on officers of a corporation,

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<sup>63</sup> Act No 13 of 1997.

shifting the onus of proof on the officer. There is a presumption of liability unless the officer proves that the offence was committed without his knowledge, consent or connivance, *and* that he had exercised due diligence to prevent its commission. Subsection (2) of Section 42 elaborates on the meaning of due diligence, specifying that the court shall have regard to factors including whether regular professional audits are conducted, whether recommendations have been followed, whether there is a sound environmental management system, whether there are emergency actions plans and whether the corporation's employees, agents and contractors have reasonable knowledge and understanding of the requirements of the Act so far as it affects them.

Section 72 empowers the composition of offences for a sum not exceeding \$5,000. Section 73 confers jurisdiction on a District or Magistrate's Court to hear all proceedings under the EPCA and to impose full punishment for any offence. Section 74 provides savings for prosecutions under other written laws. Section 75 gives the Minister very wide powers to grant exemptions to "any person, thing, premises or works or any class of person, things, premises or works". Section 76 enables the Minister to make regulations. Section 77 empowers the Minister to amend any schedule, by order published in the Gazette. However, this does not extend to amendment of the Third Schedule. Section 78 relates to transitional provisions.

### L. The Schedules

The EPCA contains four schedules.

The First Schedule relates to scheduled premises which are premises where highly pollutive works are carried out or where large quantities of highly toxic or highly flammable substances are stored. These premises require a special licence before they can be allowed to operate.

The Second Schedule relates to the control of hazardous substances. It is in four parts. Part I is a list of hazardous substances. It is in two columns, the first lists the substance, and the second column lists its exclusions. As an example, acetic acid is listed as a hazardous substance. But substances containing not more than 80% weight in weight of acetic acid are excluded, as are preparations and solutions for photographic use. Part II contains a list of general exemptions, covering, *inter alia*, adhesives, enamels, glazes, glue, inks, pigments and varnishes. Part III requires a special label for asbestos in vehicle brake and clutch lining containing asbestos in the form of chrysotile. Part IV requires special labels (two different types) for paints containing lead compounds. These are reproduced from the Poisons (Hazardous Substances) Rules.

The Third Schedule specifies the various matters that can be the subject matter of regulations under sections 76(1) and 77(1) of the EPCA. These relate to air pollution, noise, hazardous substances and water pollution and

the fees and charges that can be prescribed under the EPCA.

The Fourth Schedule relates to consequential amendments

### III. CONCLUSION

The new EPCA is an improvement to the general laws on pollution in several respects. It is a consolidation of the laws relating to air, water, noise and hazardous substances, it streamlines administration, provides for enhanced penalties for breach, and contains new provisions imposing liability on the principal contractor in construction sites. However, it is still not a true "consolidation" of the pollution laws, despite its preamble. The laws relating to waste still remain under the Environmental Public Health Act. Additionally, many of the new provisions are not capable of implementation as yet, as no regulations have been passed. A year after the passing of the Act, no regulations have been passed relating to the contamination of land, mandatory insurance, and self-monitoring. It is also surprising that to date, new standards for air emissions have still not been imposed. Industrial plants still continue to be regulated by the Clean Air (Standards) Regulations which were passed in the early 1970's and are clearly outdated. This strange anomaly exists despite the repeal of the Clean Air Act on 1 April 1999, with the passing of the EPCA.

It is also disappointing that, despite the emphasis on ISO 14000 and environmental management systems, there are no provisions imposing greater transparency and disclosure on corporations, and obligations of due diligence on officers of a corporation. The liability of individual officers remains unchanged as under the old section 67 of the WPCDA.

Perhaps the greatest disappointment is that there is still no provision for environmental impact assessments (EIAs). The measures contained in the EPCA (impact analysis studies and pollution studies under sections 26 and 36 respectively) are very different from an environmental impact assessment study. The former focus only on the potential pollutive impacts of a project, while an environmental impact study requires a comprehensive, integrated detailed study of all environmental impacts including ecological, and social impacts.

In land-scarce Singapore, the protection of sites that are rich in biological diversity should be carefully balanced with the need for development. Indeed, this was emphasized in the Green Plan and its Action Programmes, which stated that in drawing up the Development Guide Plans, the Urban Redevelopment Authority shall ensure that the aggregate area of nature sites is not less than five per cent of Singapore's land area.<sup>64</sup> However, only

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<sup>64</sup> See *The Singapore Green Plan - Action Programmes*, *supra*, note 57, at 50.

three percent of the five per cent devoted to nature sites is legally protected. And without a mandatory requirement for environmental impact assessments, there is no safeguard that development projects including those fringing these protected areas, are properly undertaken with due consideration of all possible impacts on the environment.

It is also unclear which projects warrant a section 26 pollution impact analysis study, and which projects warrant a section 36 study on pollution control. For example, which studies, if any, are required for a project to reclaim land? Such a project does not appear to warrant a section 26 study, as it is not a hazardous installation. Does it warrant a section 36 study? If so, what is encompassed in this study? Should not such a project require an assessment of its impact on the marine ecology that is affected? This is unclear under the Act. It is exacerbated by the fact that few laws exist to protect the marine environment in Singapore. It has been said that:

“The need for EIAs in the development process is even more critical when viewed against the tiny area that is Singapore. Any error in planning may be disastrous in consequence. Development and nature conservation must be carefully integrated. Planners must be fully apprised of the situation before they can make any decision. NGOs with specialized knowledge on particular aspects of the environment, like the Nature Society, should be consulted. The public should be informed so that they may participate in the process....”<sup>65</sup>

Indeed, the Rio Declaration and Agenda 21 (‘Earth’s Action Plan’), emphasized the need for participation of citizens in environmental matters, and for environmental impact assessments (EIAs) as a national instrument.<sup>66</sup> However, in Singapore, at least for the present, public participation, to the extent that it exists at all, is in its infancy.<sup>67</sup> A case in point is the recent announcement of proposed developments on three of Singapore’s sixty three off-shore islands.

It was announced on 11 May, 2000, that St John’s, Lazarus and Rennet Islands are being turned into “resort-style developments for tourists and those who can afford the lulling sounds of waves lapping against their

<sup>65</sup> See Foo KB, Lye LH and Koh KL, *supra*, note 6, at 87.

<sup>66</sup> Principles 10 and 17, also Principle 11 on the need to enact effective environmental legislation.

<sup>67</sup> By way of contrast, see Indonesia’s Environmental Management Act, 1997 (No 23 of 1997, Articles 5, 6, 7, 10, 19, 37, 38); Thailand’s Enhancement and Conservation of National Environmental Quality Act, 1992 (sections 6,7,8); the new Thai Constitution (Articles 56, 58, 59, 79, 290).

walls.”<sup>68</sup> The plan is to transform these islands into a “coastal botanical haven where people can live in harmony with nature and yet have modern conveniences.” The project will cost \$280 million, and includes a five-star hotel, a three star hotel, 70 waterfront homes and some 1,700 apartments. The islands will also have 180 shops and 50 restaurants. Two causeways will link the three islands “for easy commuting and help create calmer waters for a proposed marina and water activities like skiing and wind surfing.”

In the words of the Chief Executive of the Singapore Tourism Board (the STB): “This is a first-of-its-kind development for locals and tourists alike where we’re creating a new lifestyle development with a coastal botanical setting.” At the time of the announcements through the media, reclamation works had already begun on the three islands.

Despite assurances that 80 per cent of the islands will remain untouched, and that the STB had engaged the National University of Singapore to conduct a study of the islands’ ecological features and assess the possibility of creating a haven for endangered species,<sup>69</sup> the news roused the public. Letters to the Forum page of the Straits Times have expressed concern, one stating “I was horrified to read of the (STB)’s plan to destroy yet more natural habitats within our coastal waters...”<sup>70</sup>

The fact is that the decision to develop the islands in this way was made without the public being aware of, or having the chance to participate in, the decision-making process. This is only possible because of the absence of laws mandating environmental impact assessments, which laws would usually provide for public disclosure, discussions and feedback. This top-down approach, while patently expeditious, justifies the concerns expressed by citizens, who are often taken by surprise by announcements of development projects, almost always after the decisions have already been made. While

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<sup>68</sup> “Resort living on new island project”, The Straits Times, May 11, 2000, p 1. See also “Coming Up, Singapore’s Capri”, *ibid.*, at 25.

<sup>69</sup> The University’s role under the agreement with STB is to:

- develop an inventory of the flora and fauna on the St John’s and Lazarus Islands;
- develop plans to conserve and enhance a coastal botanical collection for the islands;
- study the feasibility of creating a habitat for threatened species on the islands;
- determine the feasibility of developing St John’s and Lazarus Islands as a gateway to eco-tourism attractions in the region. See letter from STB “Islands will keep to natural state”, The Straits Times, May 15, 2000.

<sup>70</sup> See “Not another plastic resort, please”, The Straits Times, May 12, 2000, p 61; “Island project won’t help tourism”, The Straits Times, May 13, 2000; “Let’s have an eco-sensitive world class resort”, The Straits Times, May 13, 2000; “\$300m reasons to reveal island feasibility study”, The Straits Times, May 26, 2000; “Why are nature spots being depleted?”, The Straits Times, May 27, 2000; “Will Southern Islands project stand the test of time?”, The Straits Times, May 29, 2000.



it is stated that the Singapore Environment Council and the Nature Society "are also supporting the STB in its plans to audit and conserve the natural environment", one wonders whether these two non-governmental organisations were in fact ever privy to the discussions on the fate of these islands.

Thus, it can be said that while the regulations to implement new provisions in the EPCA are awaited with considerable interest, it appears that hopes for a more integrated approach to the environment, encompassing environmental impact studies/assessments for development projects and greater public participation have faded altogether, with the passing of the new 'umbrella' law, the EPCA. This 'umbrella' only provides very selective shelter, taking only four areas of pollution control under its wing. And it is highly unlikely that there will be another, larger, 'umbrella' embodying more of the fundamentals expressed at Rio, at any time in the near future.

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