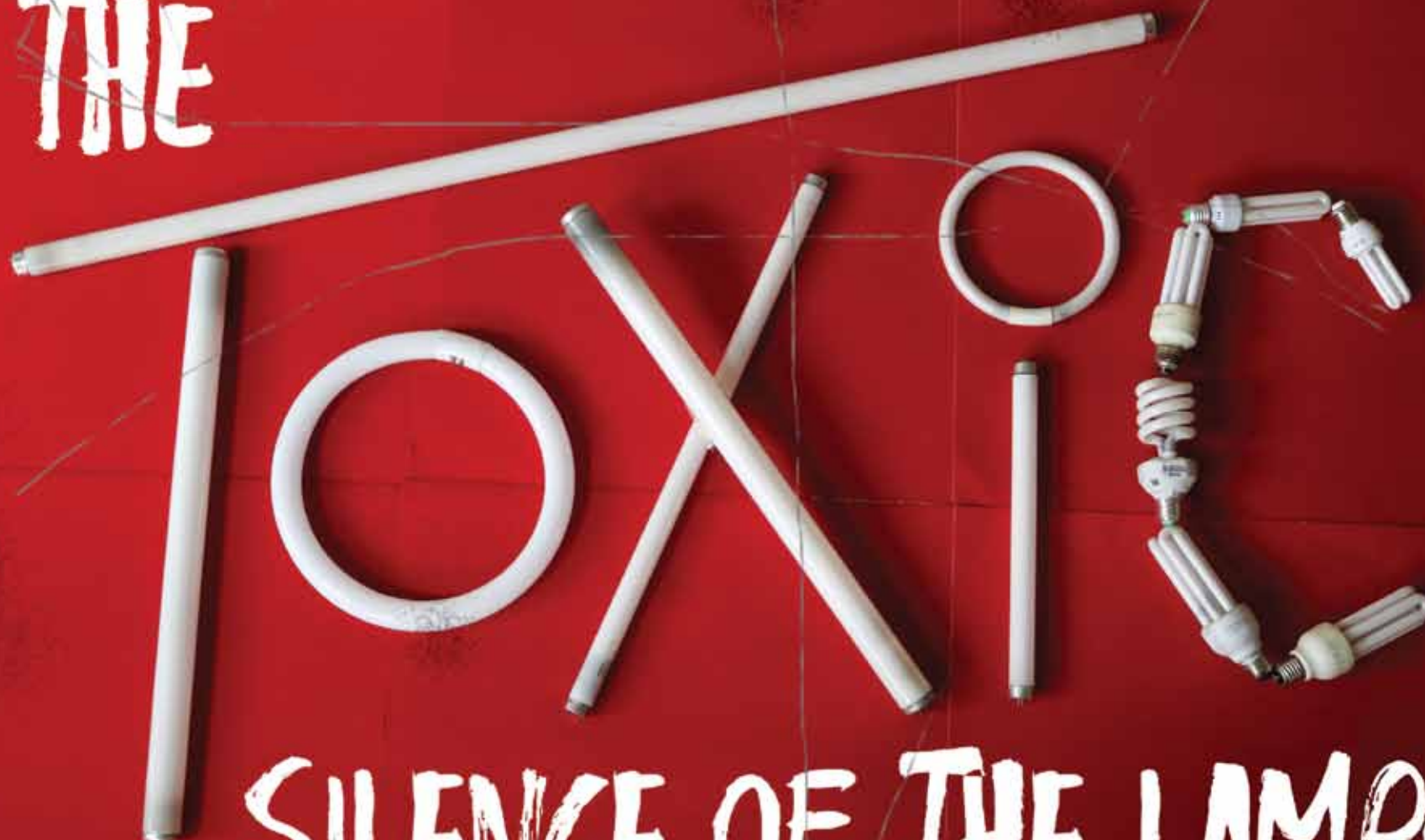


THE



SILENCE OF THE LAMPS

2018 Edition

A Photo Investigation on Prevailing Disposal Practices for Mercury-Containing Lamp Waste
EcoWaste Coalition



THE TOXIC SILENCE OF THE LAMPS

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ACKNOWLEDGEMENTS:

We thank Manny Calonzo, Thony Dizon, Jover Larion, Sonia Mendoza, Primo Morillo, and Rey Palacio for contributing the 150 lamp waste photos at the core of this report, bearing out that a picture is indeed worth a thousand words.

Our profuse thanks to Lee Bell (Mercury Policy Adviser, IPEN), Manny Calonzo (Adviser, EcoWaste Coalition), Lia Esquillo (Regional Coordinator for Southeast and East Asia, IPEN), Sonia Mendoza (Chairperson, Mother Earth Foundation), Rey Palacio (Campaigner, EcoWaste Coalition), Marlon Pareja (Director, Environmental Resources Management Center, De La Salle University-Dasmariñas), Atty. Gloria Estenzo Ramos (Vice President, Oceana – Philippines), Geri-Geronimo Sañez (Chief, Hazardous Waste Management Section, Environmental Management Bureau), and Eileen Sison (President, EcoWaste Coalition) for reviewing this report and providing pertinent comments and inputs, Denice Zamboanga for the cover photo and to Joseph Manalo for the design and layout.

Special thanks to the Swedish Society for Nature Conservation (SSNC) for providing financial support to the EcoWaste Coalition’s “Project Toxics-Free Philippines” that made the publication of this report possible.

Published by the EcoWaste Coalition

April 2018

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This document has been produced with the financial contribution by the Swedish International Development Co-operation Agency (SIDA) through the Swedish Society for Nature Conservation, (SSNC). The views herein shall not necessarily be taken to reflect the official opinion of SSNC, or its donors.

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I. Background and Rationale:

From February 1 to March 8, 2018, the EcoWaste Coalition, a non-profit environmental health organization working for a zero waste and toxics-free society, conducted yet another investigation as to how mercury-containing lamp wastes are handled, stored and disposed of by lamp waste generators in 21 local government units in Metro Manila and nearby cities.

The group carried out a similar study in 2014 entitled “The Toxic Silence of the Lamps.” Prior to this, the EcoWaste Coalition prepared a case study on “Compact Fluorescent Lamps in the Philippines” (2011) that was part of a major study by UN Environment into the possible effects on human health and the environment in Asia and the Pacific of the trade in products containing cadmium, lead and mercury.

By conducting this latest study, the EcoWaste Coalition intends to call attention anew to the urgency of employing environmentally sound management of mercury-containing lamp wastes generated by millions of households, commercial and industrial establishments, and public institutions across the country to prevent and reduce mercury emissions from improper handling, storage and disposal procedures.

Mercury in lighting products in the form of mercury vapor is released due to breakage during their use or during their handling, storage and disposal. Humans are exposed to mercury when a lamp containing mercury breaks. When mercury escapes from the glass tubing, it evaporates and circulates in the biosphere contaminating the air. Inhalation is the typical exposure route for mercury released from lighting products. Dermal contact with the mercury contaminated phosphor powder that lines fluorescent lamps is another exposure



pathway that can impact on those who handle broken lamps and can cause the spread of contamination.

Occupational health risks are generally high for unprotected waste collectors, haulers and recyclers handling mixed discards in the municipal solid waste stream with bare face and hands. Aside from lamp waste, waste workers have to deal with mercury from other mercury-added products and wastes, including other electronic waste such as switches and relays, medical devices such as thermometers, skin whitening cosmetics, dental fillings, etc. Exposure to mercury and other hazardous and toxic substances in the waste stream is a major threat to waste workers' health.

The country's lamp waste generation is estimated at 50 million pieces per year : 22 million pieces from commercial and industrial establishments, 15 million pieces from government offices, hospitals and schools, and 13 million pieces from the households. Of the 50 million pieces, only 0.5 million pieces (1%) are treated off-site, 4 million pieces (8%) are stored, 3.5 million pieces (7%) are sold to junk shops, and 42 million pieces (84%) are disposed of as garbage.

An inventory assessment for the identification and quantification of mercury releases in the Philippines by the Environmental Management Bureau in 2008 revealed that 378.89 tons of mercury and mercury-containing wastes are discharged yearly into various media. Mercury-added lighting products such as double-end fluorescent tubes and compact fluorescent lamps are listed among the major sources of mercury and mercury-containing wastes emitting or releasing 23.5 and 2.20 tons of mercury per year, respectively. To illustrate its toxicity, "one fluorescent lighting tube contains enough mercury to contaminate 30,000 liters of water to an unsafe drinking level. "

The focus of the current report is upon mercury-containing lamp wastes that are broken, burned out or spent fluorescent, high-pressure sodium, metal halide, and mercury vapor lamps, as well as cold cathode fluorescent lamps, neon lights, mercury short-arc lamps and mercury capillary lamps, generated by domestic, business and institutional lamp waste generators.

For the purpose of this study, environmentally sound management "means taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes. "

II. Objectives:

The study was primarily conducted to determine prevailing practices in the handling, storage and disposal of mercury-containing lamp waste in Metro Manila and adjacent cities vis-à-vis the laws and regulations governing lamp waste management in the Philippines and the provisions of the Minamata Convention on Mercury.

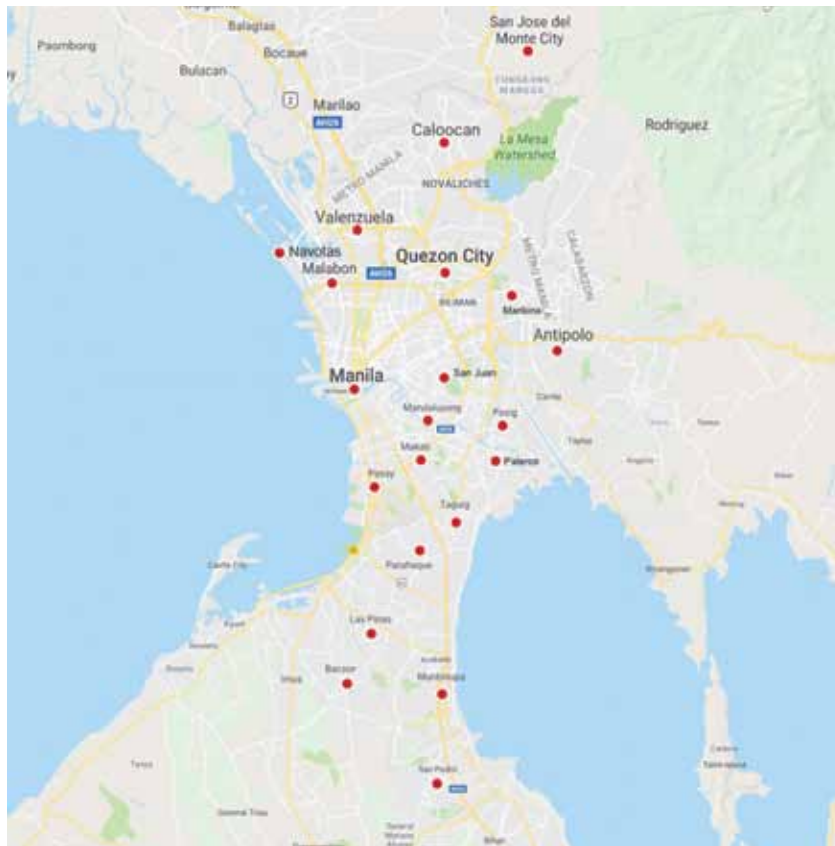
The study was likewise undertaken to gather evidence-based information that will support the:

- a. Activation of the 2013 Asian Development Bank-funded Lamp Waste Management Facility with mercury recovery;
- b. Review of implementation of the 2013 joint directive by the Department of Energy and the Department of Environment and Natural Resources establishing an extended producer responsibility (EPR) system for lamp waste; and
- c. Ratification by the Government of the Philippines of the Minamata Convention on Mercury that it signed in 2013.
- d. Promotion of environmentally sound management of hazardous waste to curb pollution and reduce occupational hazards among waste workers.
- e. Joint Guidelines from the Department of Interior and Local Government, Department of Health, Department of Trade and Industry and the Department of Environment and Natural Resources for local government units to craft and implement ordinance to ensure a safe and responsible management, utilization and disposal, including separation of household and office hazardous wastes from other municipal solid wastes in their respective areas as provided under RA 9003, and proper coordination with the DTI as to compliance by the industry and monitoring of product quality and safety standards for consumers' protection.

III. Scope and Coverage:

The photo documentation centered on existing practices in lamp waste handling, storage and disposal by lamp waste generators from households, businesses and government institutions. While the focus was on discarded mercury-containing lamps, a few of the photos would also show how burned-out light-emitting diode (LED) lamps are disposed of.

Photos were randomly taken with mobile phones from 150 locations at Metro Manila's 17 component local government units, namely, Caloocan, Las Piñas, Makati, Malabon, Mandaluyong, Manila, Marikina, Muntinlupa, Navotas, Parañaque, Pasay, Pasig, Quezon, San Juan, Taguig and Valenzuela Cities and Pateros Municipality, and the cities of Antipolo, Bacoor, San Jose del Monte and San Pedro in the adjacent provinces of Rizal, Cavite, Bulacan and Laguna, respectively.



IV. Results:

From the photos taken, the following lamp waste disposal practices can be observed:

1. Broken and burned-out lamps are generally disposed of along with ordinary municipal solid waste and hauled to landfill facilities.
2. Lamp wastes are typically left at the gate, walls, lamp post, street corner or sidewalk to be collected by waste haulers.
3. Corners with the ubiquitous “bawal magtapon ng basura dito” (do not throw garbage here) and “bawal umihi dito” (do not pee here) signages are often littered with lamp waste.
4. Lamp wastes are thrown along with other discards in mixed open dumpsites in public or private vacant lots.
5. Piles of construction, renovation and demolition debris often include lamp wastes.
6. Spent lamps are also disposed of in storm drains and creeks.
7. Stockpiles of unwanted lamps are unsafely kept behind some government buildings causing the lamps to break.

This study shows and confirms:

1. The lack of awareness and compliance with hazardous waste management laws and regulations by lamp waste generators from households, businesses and institutions.
2. The low level of awareness among lamp waste generators, national and local government authorities as well as waste workers, about the hazards posed to public health and the environment by the improper handling, storage and disposal of discarded mercury lamps.
3. The lack of a system for a free take-back of end-of-life lighting products despite an order from the Department of Energy and the Department of Environment and Natural Resources, which took



effect in October 2013, directing the lighting industry to set up a systematic collection, transportation and disposal of lamp wastes.

4. The non-operation of a USD\$1.37 million lamp waste recycling facility that can safely recover mercury and retrieve recyclable components from some six million lamps per year for eight-hour daily operations despite being stalled, commissioned and operated on a pilot basis in 2013.
5. The lack of a suitable storage for lamp wastes in materials recovery facilities (MRFs), especially at government, school and business MRFs, where such wastes can be properly labeled and packaged and safely stored prior to recycling or disposal.
6. The lack of awareness on the proper management of mercury lamp wastes during renovation activities in household, commercial or institutional establishments.
7. The inadequate implementation of consumer product safety standards on lighting products (i.e., “requirements as to precautions in storage, transporting and packaging”), which the Department of Trade and Industry is tasked to establish and enforce under Article 7 of RA 7394.
8. Furthermore, the study indicates the lack of awareness and mechanism for managing mercury-free LED lamp wastes, given the growing demand for energy efficient LED lights in the country.

V. Discussion:

What are the laws governing lamp waste management in the Philippines?

The documented handling, storage and disposal practices for mercury-containing lamp wastes point to poor compliance to key laws governing the management of such wastes in the country: Republic Act 6969 (Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990) and its related Department Administrative Orders (DAOs), Republic Act 9003 (Ecological Solid Waste Management Act of 2000) and Republic Act 7394, the Consumer Act of the Philippines. DENR DAO 1997-38 (Chemical Control Order or CCO for Mercury and Mercury Compounds), in line with R.A. 6969, seeks to “reduce hazards to health and the environment from the use, handling, management, transport and disposal, and subsequent release and exposure to mercury. ” Among other requirements, “containers of mercury or mercury compounds and mercury-bearing or mercury contaminated wastes should be corrosion-resistant, and strong enough to withstand breakage during normal handling, transport and storage. ”

DENR DAO 2013-22 provides for the manual detailing the “Revised Procedures and Standards for the Management of Hazardous Wastes,” which lists “waste electrical and electronic equipment (WEEE)” and “special wastes” including “busted lamps” among the various categories of hazardous wastes.

R.A. 9003 provides for waste segregation at source or the “practice of separating, at the point of origin, different materials found in solid waste in order to promote recycling and re-use of resources and to reduce the volume of waste for collection and disposal. ” While lamp waste is not overtly listed in the list of household hazardous wastes classified as “special wastes” (which includes batteries and electronic goods), it is understood that lamp waste falls under this waste category that “are usually handled separately from other residential and commercial wastes. ”

R.A. 9003 states that “upon effectivity of this Act, toxic materials present in the waste stream should be separated at source, collected separately and further screened and sent to appropriate hazardous waste treatment and disposal plants, consistent with the provisions of R.A. No. 6969. ” It further directs “the National Ecology Center (to) assist local government units in establishing and implementing deposit or reclamation programs... to provide separate collection systems or convenient drop-off locations for recyclable materials and particularly for separated toxic components of the waste stream... to ensure that they are not incinerated or disposed of in a landfill. ”

In 2013, the Department of Energy (DOE) and the Department of Environment and Natural Resources (DENR) issued Joint Administrative Order No. 2013-09-0001 on the “Lighting Industry Waste Management Guidelines” to regulate the disposal of end-of-life lighting products containing mercury, arsenic and other hazardous substances in line with the requirements of R.A. 6969, R.A. 9003 and R.A. 7638 (Department of Energy Act of 1998). It is described as “first environmental regulation anchored on the principle of Extended Producer Responsibility (EPR). ”

The said joint DOE and DENR directive establishes “the procedures to be followed in the preparation, approval, review, implementation of a Lamp Waste Management Plan to regulate the management of lamp wastes, and to help protect the environment as well as our people’s health and well-being. ” It “tasks the lighting industry to set up a systematic collection, transportation, recycling and disposal of all lamp wastes in the country. ”

RA 7394 declared as a public policy of the State “to protect the interests of the consumer, promote his general welfare and to establish standards of conduct for business and industry” and attain measures for their protection against hazards to health and safety.” The sale and responsible management of lamp wastes are deemed covered by said law. The Department of Trade and Industry is tasked to promulgate and adopt consumer standards, under Section 7, which includes “requirements as to precautions in storage, transporting and packaging; requirements that a consumer product be marked with or

accompanied by clear and adequate safety warnings or instructions, or requirements respecting the form of warnings or instructions.”

What does the Minamata Convention on Mercury say about mercury-containing lamps and the management of lamp waste?

As summarized in the book “An NGO Introduction to Mercury Pollution and the Minamata Convention on Mercury ” published by IPEN, “the mercury treaty includes measures that will limit the mercury content of compact fluorescent lamps to 5 mg or less for the equivalent of a 30 watt bulb with CFL’s containing higher levels of mercury to be phased out by 2020 (although renewable 5-year exemptions can be repeated twice making the effective phase-out date 2030). Linear fluorescent bulbs - triband lamps less than 60 watts and containing greater than 5 mg mercury and halophosphate lamps less than 40 watts and containing greater than 10 mg mercury are also subject to the same phase-out period. ”

“The mercury treaty requires that Parties take measures to ensure that mercury waste is managed in an environmentally sound manner taking into account the existing waste management regulations of individual countries, ” it explained. Such measures can include a range of interventions, including the setting up of mercury waste treatment and disposal facilities to the development of laws and regulations and other measures.

The Philippines signed the Minamata Convention on Mercury in October 2013. The government, led by the Department of Environment and Natural Resources, is working towards the ratification of the treaty and the required concurrence by the Senate.

Why should we be deeply concerned with mercury in lamp waste?

The improper handling, storage and disposal of lamp wastes may cause harmful mercury exposure that can harm human health and

threaten the environment as well. According to the “Guidebook on the Management of Mercury-Containing Lamp Wastes ” published by the Department of Environment and Natural Resources (DENR) and the Department of Energy (DOE), “when mercury-containing lamps are broken, compacted, crushed, or disposed of improperly, mercury is released into the air, water and land, posing significant threat to people and the environment,”

“Mercury and its compounds are highly toxic, especially to the developing nervous system, which is very sensitive to all forms of mercury. Exposure to high levels of mercury can cause permanent brain damage, central nervous system disorders, memory loss, heart disease, kidney failure, liver damage, vision loss, sensation loss, and tremors. Mercury is also a suspected endocrine disruptor, which means it can damage the reproductive and hormonal development and growth of fetuses and infants. Even at low-level exposure to mercury has caused serious health effects that including neurological damage, reproductive system damage, behavioral problems and learning disabilities,” the guidebook said.

With 50 million pieces of lamp waste generated annually, out of which only 0.5 million pieces (1%) are treated in government-accredited treatment, storage and disposal facilities and the rest are stored (4 million pieces or 8%), sold to junk shops (3.5 million pieces or 7%) or disposed of as garbage (42 million pieces or 84%), lamp waste management in the Philippines is indeed a real public health and environmental challenge.

Why is improper waste disposal a public health and environmental issue?

The mercury vapor in a mercury-containing lamp can be released if it breaks in the waste stream, is dumped, burned or recycled in uncontrolled conditions. According to the UN Environment, “mercury released in a landfill may be exposed to the air and volatilize, or, unless the landfill is specially designed, may enter leachate and eventually reach the groundwater. The disposal of mercury and

mercury-containing products is particularly problematic where waste is burned, as the mercury volatilizes and enters the air. Thus mercury should never be burned. ”

The improper disposal of lamp waste and other mercury-containing wastes can result to mercury contaminating the surroundings and endangering humans and wildlife. Waste workers who handle, collect, store and dispose of lamp wastes are particularly prone to chronic exposure to mercury from the moment such wastes are tossed to the garbage trucks and transported to dumpsites and landfills.

As noted in the National Framework Plan for the Informal Sector in Solid Waste Management , “there is high level of exposure due to the manual handling of the waste and the lack of protective gear/equipment. Risks from the manual handling come from direct contact with waste such as broken glasses, human/fecal matters, materials with toxic substances, containers with residues from chemicals, pesticides, needles and bandages from hospitals/clinics, and smoke and toxic fumes from open burning of waste. ”

While house-to-house garbage collection and hauling are primarily performed by men, many women in the informal waste sector are engaged in the actual retrieval of recyclables from bins, garbage piles on streets and vacant lots, dumpsites, and landfills where unsegregated discards, including lamp wastes, are often disposed of. While women and men in the waste management sector are exposed to mercury and other harmful substances in discarded materials, pregnant and breastfeeding women are at a greater risk because many of these chemicals, including cadmium, lead and mercury, can cross the placenta during fetal development, and can contaminate breast milk, transferring some of the mother’s body burdens to the infant. These chemical pollutants will not only be passed down to the offspring but such pollution markers will be carried far into the next generations. Infants who have been exposed to mercury may be born with symptoms resembling cerebral palsy, spasticity, and other movement abnormalities, convulsions, visual problems and abnormal reflexes. Despite the possibility of harm from environmental

contaminants in breast milk, breastfeeding is still recommended as the best infant feeding method. Also, women exposed to toxicants in e-waste, which includes burned-out lighting products, “may suffer from anemia, fetal toxicity, hormonal effects, menstrual cycle irregularities, endometriosis, autoimmune disorders, and cancers of the reproductive system.

How should mercury lamp waste be handled, stored and disposed of?

Because mercury can be dangerous to human health, the requirements of R.A. 6969 and R.A. 9003 and related regulations, particularly DENR DAO 1997-38 and DENR DAO 2013-22, should be complied with to ensure that waste workers will not be exposed and harmed by mercury emissions from discarded lamps, and that mercury will not pollute the environment. Moreover, the technical guideline prepared by the Environmental Management Bureau specifying the environmentally sound handling, storage, treatment and disposal of mercury lamp waste should be observed.

Additionally, the UN Environment has recommended some precautionary steps to avoid or limit exposure due to mercury in wastes. Some of the agency’s recommendations are as follows:

- Mercury containing products should be segregated from other waste before disposal.
- If stored, the waste should be kept in closed containers in order to prevent any leaks or vaporization.
- Mercury wastes may be recycled and the mercury recovered, as long as special precautions are taken that all mercury emissions from this process are below internationally agreed standards.
- Mercury-containing wastes should never be burned or incinerated.

VI. Recommendations:

To promote the environmentally sound management of mercury-containing lamp waste and reduce mercury contamination of the waste stream, waste workers and the ecosystems, the EcoWaste Coalition recommends the following:

1. For the Department of Energy to get the dormant Lamp Waste Management Facility with mercury recovery up and running in 2018.
2. For the Department of Energy and the Department of Environment and Natural Resources to initiate a participatory review of the implementation of Joint Administrative Order No. 2013-09-0001 on the “Lighting Industry Waste Management Guidelines.”
3. For the Government of the Philippines to proceed with the ratification of the Minamata Convention on Mercury in 2018 and the required concurrence by the Senate.
4. For the National Solid Waste Management Commission in collaboration with environmental health groups to conduct public information and education on mercury lamp waste management and the necessary measures to prevent and reduce occupational exposure to mercury, especially among waste workers.
5. For municipal and city authorities to craft ordinance to ensure the inclusion and implementation of environmentally sound management of special wastes, including lamp wastes and other household hazardous wastes, integrate in their Local Government Solid Waste Management Plans, with implementing guidelines jointly promulgated by the Department of Interior and Local Government, Department of Trade and Industry, Department of Health and the Department of Environment and Natural Resources.
6. For the lighting industry, in collaboration with the local governments and other stakeholders, to designate convenient collection programs and/or drop-off points for lamp waste, especially for household and small-sized lamp waste generators, with appropriate receptacles that will prevent breakage.

7. For business and institutional lamp waste generators to put up interim on-site storage for their waste lamps that adhere to good and safe practices in lamp waste packaging, labeling and storage.
8. For the Department of Trade and Industry to require manufacturers to specify the mercury content on the lamp and its packaging to assist consumers in purchasing lighting products with the lowest mercury content, and to facilitate the identification and inventory of such products scheduled for phase-out by 2020. Additionally,

lighting manufacturers should ensure compliance to the following labeling requirement as per Philippine National Standards IEC 60968:2012: “WARNING: Contains Mercury, Handle with Care and Dispose Properly.”

9. For the government, industry, civil society and other stakeholders to initiate a process that will promote the recycling of used LED lights.

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ANTIPOLO



Outside Abas Diesel Merchandising, Marikina-Infanta Highway, Masinag, Antipolo City, 24 February 2018



Outside Andy Car Aircon Parts & Services,
Marikina-Infanta Highway, Masinag, Antipolo City,
24 February 2018



Outside Aristocrat Restaurant, Marikina-Infanta Highway,
Masinag, Antipolo City, 24 February 2018





15 Gen. Aguinaldo Highway, Pinapaan II, Bacoor City
25 February 2018



Outside CVM Pawnshop, Molino Road
25 February 2018



Outside Mar Gold Miranda Enterprise, Gen. Aguinaldo
Highway, Panapaan II, Bacoor City, 25 February 2018



Vacant Lot near Ariel Car Aircon, Molino Road,
25 February 2018



Vacant lot near Asia United Bank, Gen. Aguinaldo Highway,
Panapaan II, Bacoar City, 25 February 2018



CALOOCAN CITY



Fastened warehouse, Gen. Luis St., Kaybiga, Caloocan City, 8
February 2018





Outside 7-Eleven, Gen Luis St., Caloocan City, 8 February 2018



Outside 700 Gen. Luis St., Kaybiga, Caloocan City
8 February 2018



Phase 5, Bagong Silang, Caloocan City
22 February 2018



Sidewalk near Petron, Gen. Luis St., Kaybiga, Caloocan City
8 February 2018





Sidewalk, Camarin, Caloocan City
23 February 2018



Sidewalk, Gen Luis St., Bagbaguin, Caloocan City
8 February 2018



Sidewalk, Camarin, Caloocan City, 23 February 2018



Vacant lot next to 223 Rizal Ave., Caloocan City
21 February 2018



Sidewalk, Camarin, Caloocan City, 23 February 2018



Vacant lot. 4th Ave. cor. Del Mundo St., Caloocan City
12 February 2018

LAS PIÑAS



22 Outside Boracay Bar & Grill, Zapote-Alabang Road
4 March 2018



Outside Lucita's Buffet & Grill, Zapote-Alabang Road
4 March 2018



Outside Lucita's Buffet & Grill, Zapote-Alabang Road
4 March 2018





24 Outside Renz Resto Bar, Real St., Zapote, Las Pinas City
16 February 2018



Outside Smile Sizzle Resto, Real St., Pulang Lupa, Las Pinas City
25 February 2018



Outside Super Zei Computer Service, Real St., Las Pinas City
16 February 2018



Outside Puregold, Real St., Zapote, Las Pinas City
16 February 2018



Pamplona Elementary School Central, Zapote-Alabang Road,
Pamplona Uno, Las Pinas City, 16 February 2018

MAKATI



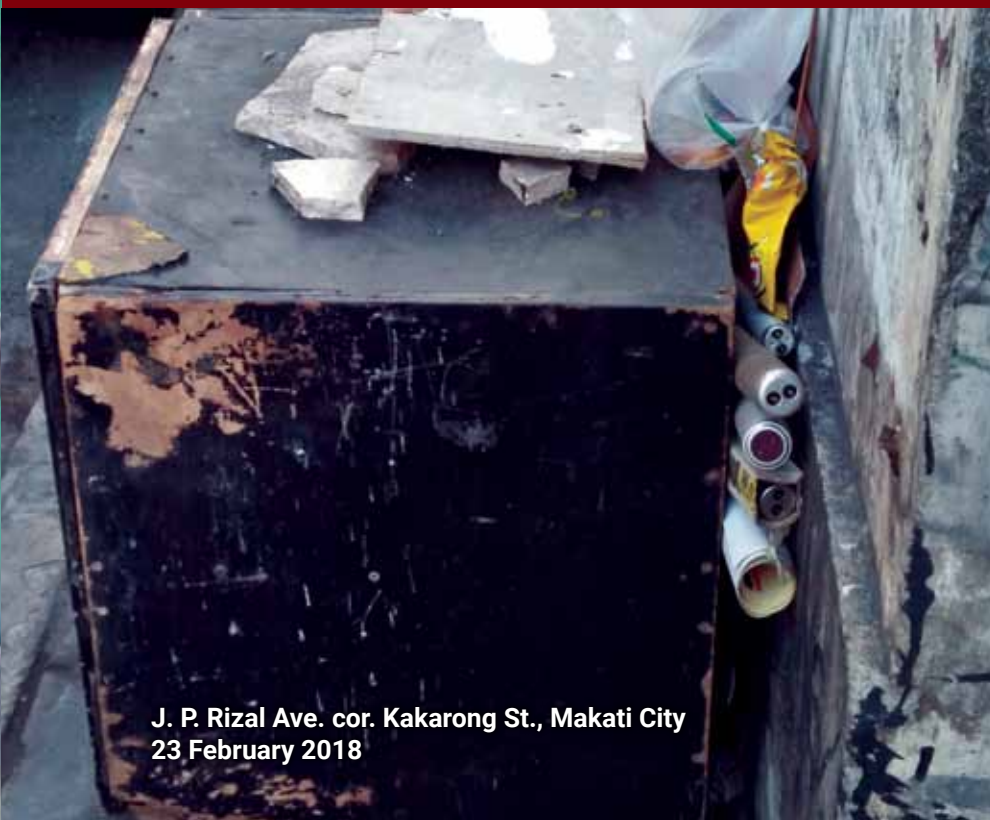
Makati, 5488 Osmena Highway near Gen. Tinio St., Makati City
26 19 February 2018



Makati, 7395 Kalayaan Ave., Makati City, 3 February 2018



Makati, Building renovation project, Yakal St., Makati City
4 March 2018



J. P. Rizal Ave. cor. Kakarong St., Makati City
23 February 2018



Makati, Lamp post, Kamagong St. near Don Chino Roces Ave., Makati City
4 March 2018



Metropolitan Ave., Makati City, 3 March 2018



Molina St., Makati City, 2 March 2018



Outside Landbank, J.P. Rizal Ave., Makati City
24 February 2018



Outside Makati Central Fire Station, Makati City, 4 March 2018



Outside McDonald's Kingswood, Metropolitan Ave., Makati City



Outside UCPB, J. P. Rizal Ave. cor. Santiago St., Makati City
16 February 2018



30 Sidewalk, F. Zobel St., Poblacion, Makati City
2 March 2018



Sidewalk, J. P. Rizal Ave., Poblacion, Makati City
1 March 2018



Sidewalk, Kalayaan Ave., Makati City
24 February 2018



Sidewalk, Marconi St. cor. Arnaiz Ave., Makati City
19 February 2018



Truck outside Signex, Kalayaan St., Makati City
2 February 2018



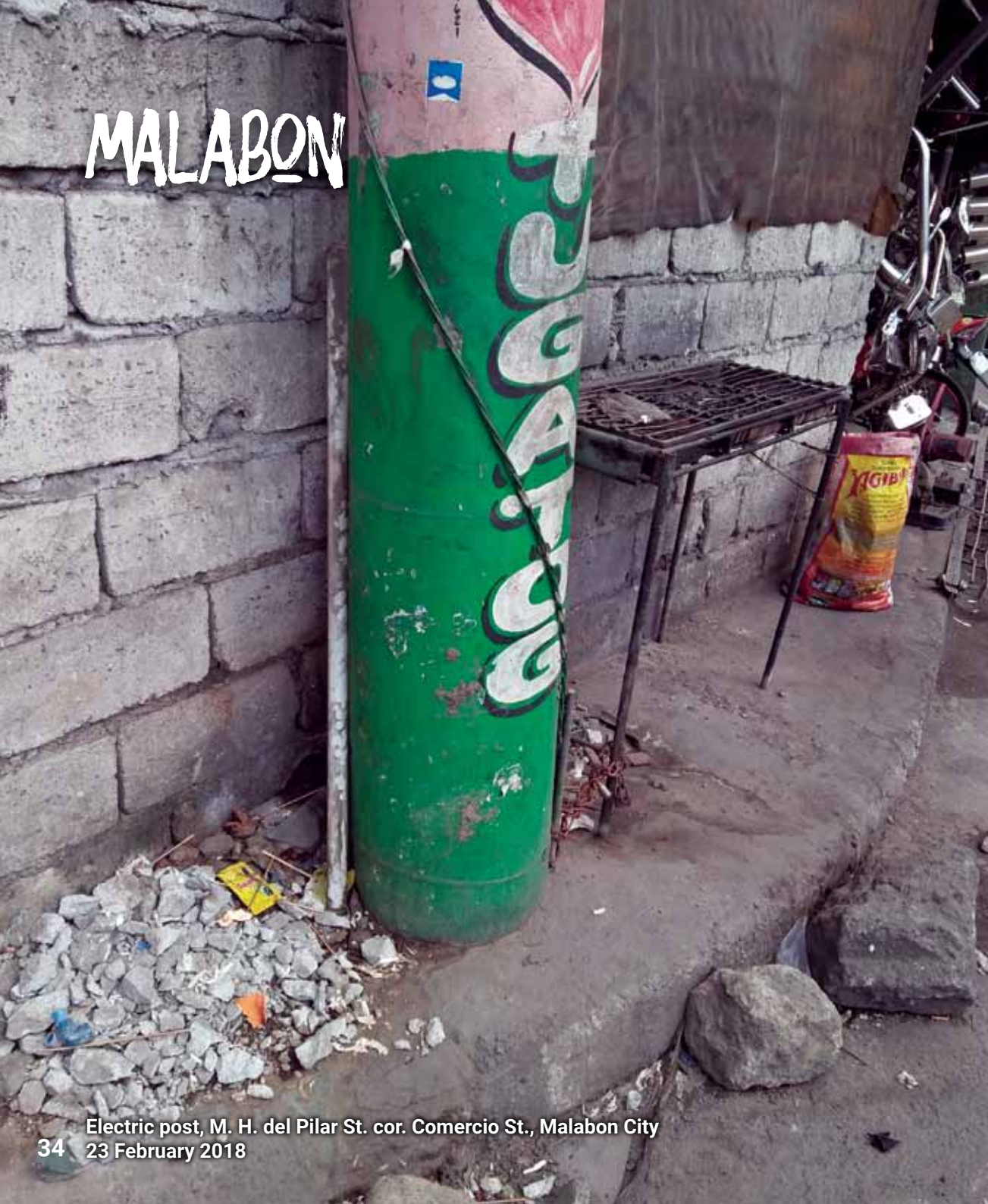


Waste bin outside San Jose Elem School, J. Felipe St., Makati City
5 March 2018



Yague St., Makati City
12 February 2018

MALABON



Electric post, M. H. del Pilar St. cor. Comercio St., Malabon City
23 February 2018



Canal, Dr. Lascano St., Malabon City
23 February 2018



Estero, Dr Lascano St., Malabon City
23 February 2018



Outside Bank of Commerce, Gov. Pascual Ave., Acacia, Malabon City
23 February 2018



Outside Lowgear Enterprises, M. H. del Pilar St., Maysilo, Malabon City
23 February 2018



Outside Bayan Fire Station, Malabon City, 18 February 2018



Outside Mercury Drugstore, Gov. Pascual Ave., Acacia, Malabon City
23 February 2018



Outside Malabon Public Market, 18 February 2018

MANDALUYONG

155 EDSA, Mandaluyong City, 14 February 2018



Archdiocesan Shrine of Divine Mercy, Mandaluyong City
21 February 2018



Outside Victor Ortega Salon, Kalentong, Mandaluyong City
21 February 2018



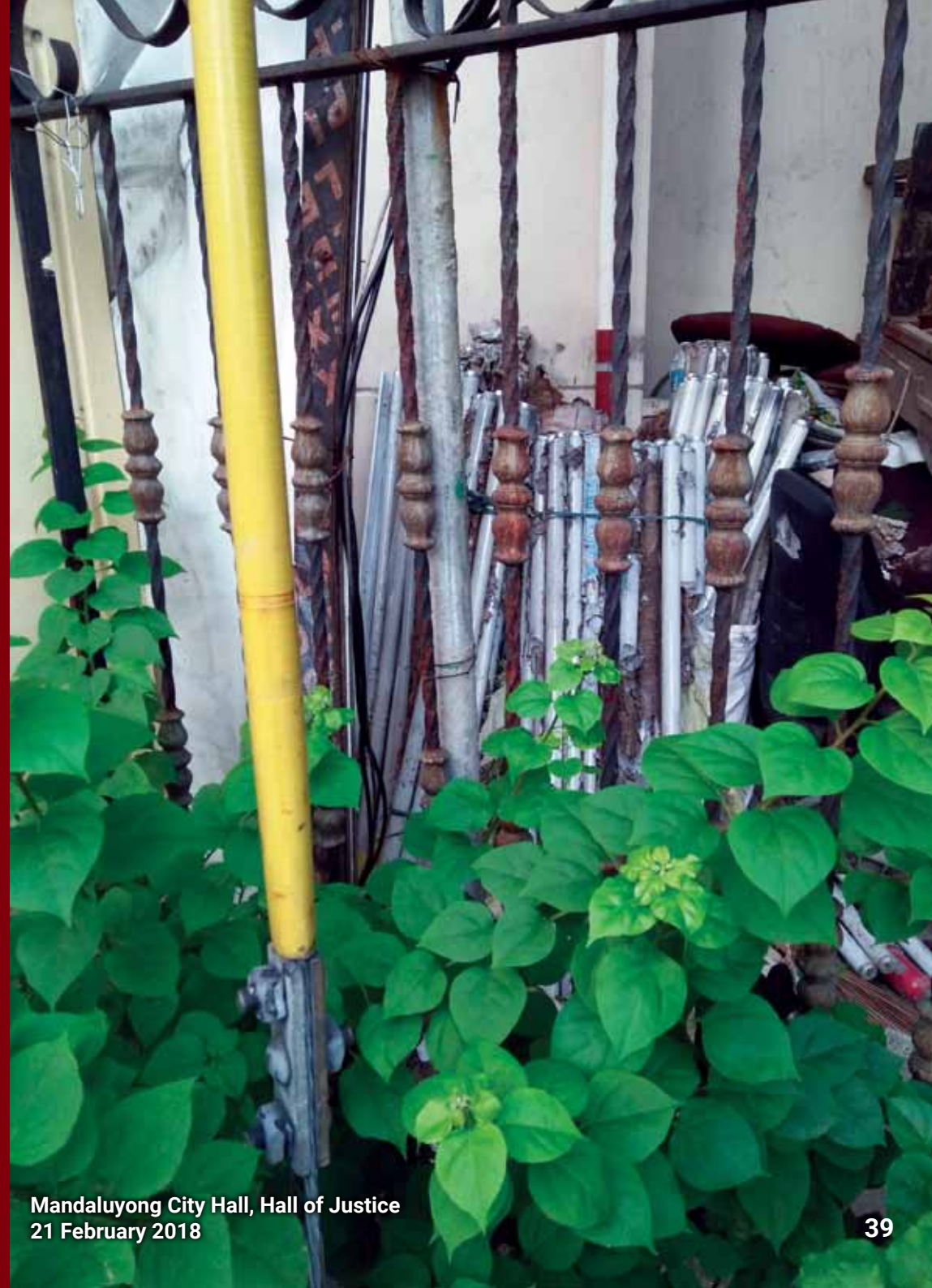
Dumpster, Mandaluyong City Hall
21 February 2018



Electric Post, Boni Ave. cor Ortigas St., Mandaluyong City
21 February 2018



Mandaluyong City Hall, Anti-Illegal Vending Task Force, Mandaluyong City
21 February 2018



Mandaluyong City Hall, Hall of Justice
21 February 2018



Presidential Commission on Good Government, EDSA, 14 February 2018



Sidewalk near BDO, Shaw Blvd., Mandaluyong City
14 February 2018





Presidential Commission on Good Government, EDSA, 14 February 2018



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ROBERTO G. CORTEJO
KAGAWAD

CELSO C. PANGILINAN
KAGAWAD

STANLEY A. GATHARDAS
KAGAWAD

GEORGIA G. TRINIDAD
KAGAWAD

JOEL S. BALLESTA
KAGAWAD



Sidewalk, EDSA cor. Apo St., Mandaluyong City, 27 February 2018

MANILA



992 San Andres St., Malate, Manila
13 February 2018



Betamix General Merchandise
Angel Linao St., Manila, 13 February 2018



Court of Appeals, M. Orosa St.
Ermita, Manila, 3 February 2018



Carlos Palanca St. cor. Estero Cegado St.
Manila, 23 February 2018



Electric post, F. Agoncillo St.
Malate, Manila, 1 March 2018



Court of Appeals, M. Orosa St.
Ermita, Manila, 3 February 2018



Manila, Enrique St. cor. Zobel Roxas St., Manila, 13 February 2018



Manila, Enrique St. cor. Zobel Roxas St., Manila, 13 February 2018



Estero, R. Hidalgo St., Quiapo, Manila
19 February 2018



Garbage box, Soler St., Manila
18 February 2018



Garbage dump under the footbridge, R-10, Manila, 18 February 2018



Garbage dump under the footbridge
R-10, Manila, 18 February 2018



Garbage dump, Oroquieta St. near Lope de Vega St., 12 February 2018



Island, Rizal Ave. near Raon St., Sta. Cruz, Manila, 3 February 2018



Lamp post, Angel Linao St., Paco, Manila, 13 February 2018



Manila City Hall, Manila, 22 February 2018



Manila City Hall, Manila, 22 February 2018



Multinational Business Inc., Plaza Sta. Cruz
Manila, 8 March 2018



National Museum, Padre Burgos Ave., Ermita,
Manila, 3 February 2018



National Museum, Padre Burgos Ave., Ermita, Manila
3 February 2018



NGC Construction, Angel Linao St., Paco, Manila
13 February 2018



Outside Barangay 206 Hall, Carlos Palanca St., Quiapo, Manila
23 February 2018



Outside Chowking, Pablo Ocampo St., Malate
Manila, 16 February 2018



Outside Edmart Hardware, R. Hidalgo St.,
Quiapo, Manila, 19 February 2018



Outside Kristin Design Center, Taft Ave., Manila, 3 February 2018





Outside Metrobank, Pedro Gil St., Santa Ana, Manila, 16 February 2018



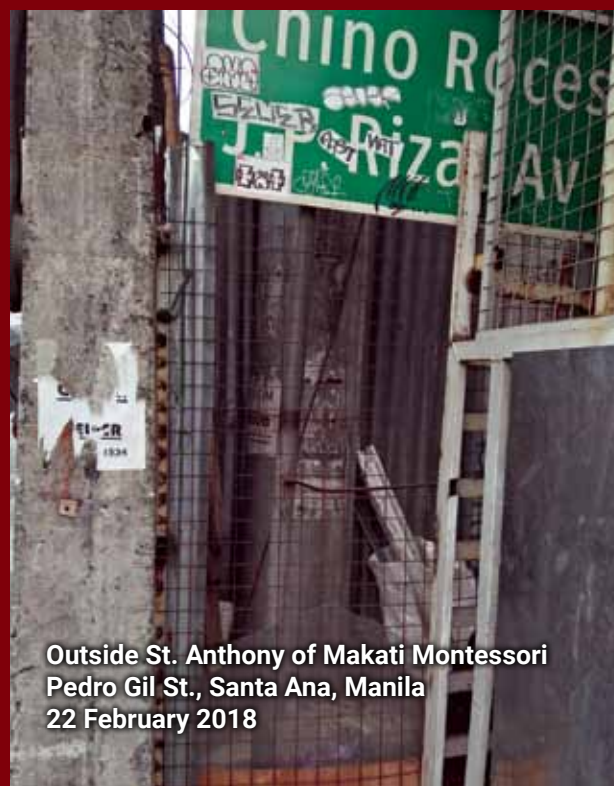
Outside Neighborhood Wholesale Store, Pedro Gil St. near Pasig Line, Manila, 1 February 2018



Outside Royal 2010 Furniture Store, Pedro Gil St., Paco, Manila
13 February 2018



Outside Seven-11, M. Orosa St., Ermita, Manila, 3 February 2018



Outside St. Anthony of Makati Montessori
Pedro Gil St., Santa Ana, Manila
22 February 2018



Outside, Straight Edge Tattoo
R.M. Magsaysay Blvd., Sta. Mesa, Manila
11 February 2018



Pedro Gil St. cor. Penafrancia St., Paco, Manila, 13 February 2018



Queen Rose Bldg., San Gregorio St. Paco, Manila, 13 February 2018



Sidewalk, 923 Padre Faura St., Ermita Manila, 3 February 2018



Manila, Sevilla St. cor. Penarubia St., Manila 18 February 2018



Sidewalk, M. L. Carreon St., Santa Ana, Manila, 7 March 2018



Street signage, T. Mapua St., Manila
18 February 2018



Vacant lot, Rizal Ave. cor. Herrera St., Manila, 12 February 2018



T. Mapua St., Manila, 18 February 2018



Unused building, Leon Guinto St. opp. A. Francisco St., Ermita, Manila
13 February 2018



Unused building, Leon Guinto St. opp.
A. Francisco St., Ermita, Manila
13 February 2018



Supreme Court, Taft Ave., Manila, 16 February 2018



Unused building, Leon Guinto St. opp.
A. Francisco St., Ermita, Manila
13 February 2018



Used lamps on sale, Hypertop Enterprise, Pedro Gil St., Paco, Manila, 3 February 2018



Waste bin, Rizal Ave. cor. Katubusan St., Sta. Cruz, Manila, 8 March 2018



R-10, Manila, 18 February 2018



34 B.G. Molina St., Parang, Marikina City, 11 February 2018



Sidewalk, B.G. Molina St. cor. Victoria St., Parang, Marikina City, 11 February 2018



Rusi Luzonramcycles, J.P. Rizal St.
Marikina City, 11 February 2018



Electric post, J.P. Rizal St., Malanday
Marikina City, 11 February 2018

MUNTINLUPA



LL Nora Auto Supply, National Road, Tunasan, Muntinlupa City, 21 February 2018



Sentrong Pangkalusugan, National Road
Poblacion, Muntinlupa City, 21 February 2018

NAVOTAS



M. Naval St., Navotas City, 21 February 2018

PARANAQUE



614 Quirino Ave., Paranaque City, 16 February 2018



Dr. A. Santos Ave., Paranaque
17 February 2018



Gate next to New Corona Builders,
Quirino Ave., San Dionisio, Paranaque City
16 February 2018



Kenneth Lapida Maker, Dr. A. Santos Ave.,
Paranaque City
17 February 2018



Maty's Restaurant, Quirino Ave., Don Galo,
Paranaque City, 16 February 2018



Sidewalk, Dr. A. Santos Ave., Paranaque City
17 February 2018

PASAY



2272 Taft Ave., Pasay City, 19 February 2018



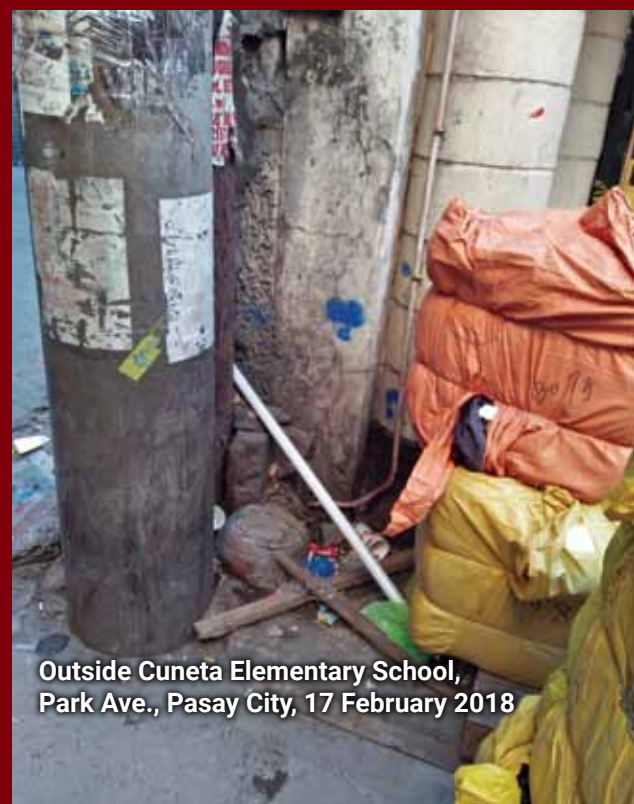
Behind LRT Mall, Capt Ambo St.
Pasay City, 17 February 2018



Electric post, A Arnaiz Ave. cor.
Cuenca St., Pasay City, 19 February 2018



2272 Taft Ave., Pasay City, 19 February 2018



Outside Cuneta Elementary School,
Park Ave., Pasay City, 17 February 2018



Island, Taft Ave. near Buendia Ave., Pasay City, 19 February 2018



Island, Taft Ave. near Buendia Ave.,
Pasay City, 19 February 2018



Pasay, Taft Ave., Pasay City
17 February 2018



Sidewalk, Capt Ambo St.,
Pasay City, 17 February 2018

PASIG



Bulwagan ng Katarungan, Pasig City, 9 February 2018



Electric post, Amang Rodriguez Ave., Ligaya, Pasig City, 9 February 2018

PATEROS



Vacant lot next to RCBC Savings Bank, M. Almeda St., Pateros, 16 February 2018



Outside BPI, M. Almeda St., Pateros, 16 February 2018



Outside National Book Store, M. Almeda St., Pateros St., 16 February 2018



10th St. near Dona Hemady St., New Manila, Quezon City, 20 February 2018



Back of Bagong Pag-asa Elementary School, Road 11
Bagong Pag-asa, Quezon City, 26 March 2018



20 Scout Borromeo St., Quezon City, 20 February 2018



68 Maginoo St., Quezon City, 4 February 2018



APC Bldg., 186 Quezon Ave., Quezon City, 18 February 2018



Dumpster, Mang Inasal Philcoa, Quezon City, 4 February 2018





Back of Tropical Hut Foodmart, Panay Ave., Quezon City, 20 February 2018



EDSA near GMA MRT Station, Quezon City, 25 February 2018



Electric post, Banawe St. cor. N Roxas St., Quezon City, 18 February 2018



Electric post, Banawe St. cor. N Roxas St., Quezon City, 18 February 2018



Electric post, Monte de Piedad St.
Quezon City, 6 March 2018



Jeepney Terminal, Novaliches
Quezon City, 8 February 2018



Kalayaan Ave., Quezon City, 22 February 2018



Kamias St., Quezon City, 25 February 2018



Lotto outlet, Scout Borromeo St. near Mother Ignacia St., Quezon City
20 February 2018



Maamo St., Quezon City
23 February 2018



Maginhawa St., Quezon City
22 February 2018



Maginhawa St., Quezon City
22 February 2018



Matalino St., Quezon City
22 February 2018



Mahiyain St., Quezon City
23 February 2018



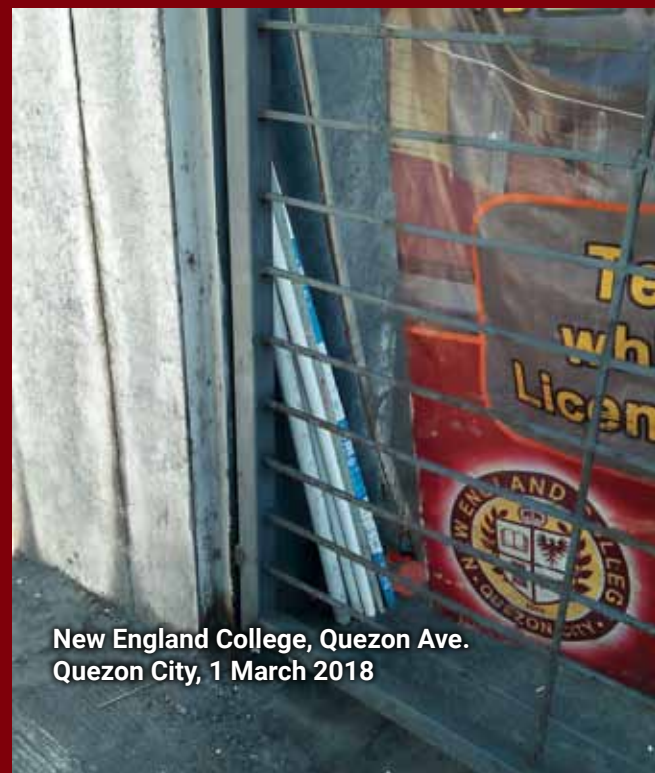
Materials Recovery Facility, Barangay Blue Ridge A, Quezon City, March 2018



Matimtiman St., Quezon City
22 February 2018



Near Plaza Ibarra, Timog Ave., Quezon City, 20 February 2018



New England College, Quezon Ave.
Quezon City, 1 March 2018



Outside Lightforce, Aurora Blvd.
Quezon City, 11 February 2018



Outside Animal House, Aurora Blvd., Quezon City, 6 March 2018



Outside HIFI KTV Bar, Timog Ave., Quezon City, 10 February 2018



Outside Distinctive Light and Design Center, Quezon Ave., Quezon City 4 February 2018



Outside HiTop, Quezon Ave.
Quezon City, 4 February 2018



Outside Ibon Bldg., Timog Ave.,
Quezon City, 20 February 2018



Outside Kamuning Police Station 10,
EDSA, Quezon City, 2 February 2018



Outside Red Planet Hotel, Aurora Blvd. cor. Stanford St.,
Quezon City, 24 February 2018



Outside Metrobank, Aurora Blvd.,
Cubao, Quezon City
74 24 February 2018



Outside old BPI, Quezon Ave.,
Quezon City, 18 February 2018



Outside SEACOM, Aurora Blvd.
Quezon City, 6 March 2018



Outside Sinla Mart, Timog Ave.
Quezon City, 10 February 2018



Outside Tizza Apartelle, Imperial St.,
Quezon City, 2 March 2018



Outside Skin Station, Scout Torillo St., Quezon City, 20 February 2018



Parking lot, Sunshine Boulevard, Quezon Ave., Quezon City, 10 February 2018





Sidewalk, EDSA near GMA MRT Station, Quezon City
28 February 2018



Sidewalk, Matapang St. cor. Matatag St., Quezon City, 2 March 2018



Sikatuna Village, Quezon City
25 February 2018



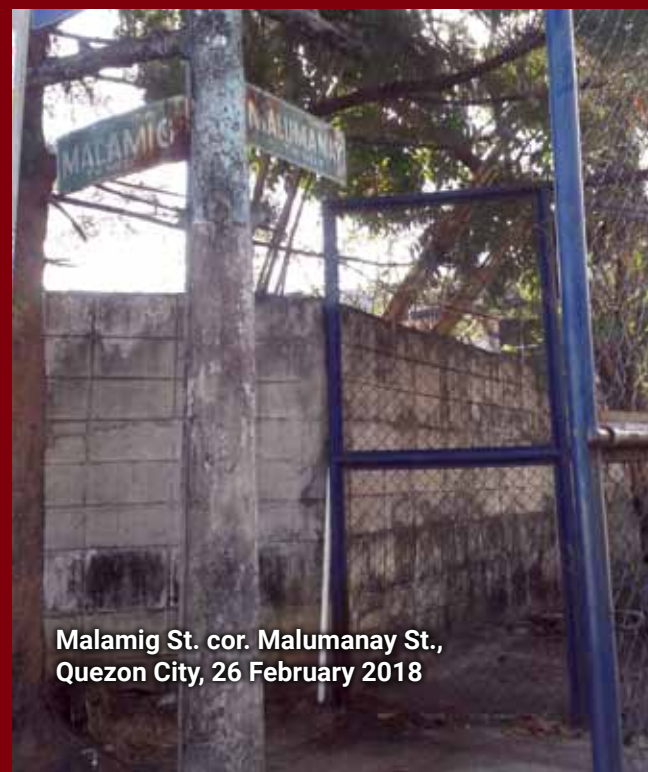
UP Jeepney Parking Lot, Philcoa,
Quezon City, 4 February 2018



Vacant lot next to Immaculate Concepcion Chapel, Gen. Luis St.
Nagkaisang Nayon, Quezon City, 8 February 2018



Vacant lot, Aurora Blvd. near Lauan St.,
Quezon City, 11 February 2018



Malamig St. cor. Malumanay St.,
Quezon City, 26 February 2018



Lamp post, Matalino St., cor. Maginoo St.
Quezon City, 28 February 2018

SAN JUAN



Electric post near Flying V, Pinaglabanan, San Juan City
10 February 2018



Outside Old Western Pancakes, Ortigas Ave., San Juan City
19 February 2018



Tarnate Junkshop, F. Manalo St., San Juan City
10 February 2018



Tarnate Junkshop, F. Manalo St., San Juan City
10 February 2018

SAN PEDRO



Outside San Pedro City Hall, San Pedro City
21 February 2018

SAN JOSE DEL MONTE



Decostone, Quirino Highway, San Manuel
San Jose del Monte City, 24 February 2018

TAGUIG

Rugale St., Barangay Calzada, Taguig City, 21 February 2018



Vacant lot, Bambang ni Peles St., Taguig City, 21 February 2018



Vacant lot, Bambang ni Peles St., Taguig City, 21 February 2018

VALENZUELA

Jasmin St., Marulas, Valenzuela City, 8 March 2018

Outside Max's Restaurant, McArthur Highway, Dalandanan, Valenzuela City, 8 February 2018

McArthur Highway near Hermoso St., Dalandanan, Valenzuela City, 8 February 2018

Outside King's Industrial Supplies, Balubaran, Valenzuela City, 8 February 2018

The background of the entire page is a dark red collage. It features various types of discarded lamps, including fluorescent tubes, compact fluorescent lamps (CFLs), and incandescent bulbs, some of which are broken or bent. Thin, tangled white and purple wires are scattered across the collage, creating a chaotic and visually busy texture.

THE

TOXIC

SILENCE OF THE LAMPS

2018 Edition

A Photo Investigation on Prevailing Disposal Practices
for Mercury-Containing Lamp Waste

 **EcoWaste Coalition**