REPUBLIC OF THE PHILIPPINES
HOUSE OF REPRESENTATIVES
Quezon City

EIGHTEENTH CONGRESS
First Regular Session

House Bill No. 933

Introduced by **MAGDALO Party-List Representative**
HON. MANUEL DG. CABOCHAN

EXPLANATORY NOTE

Waste management has become an issue and has posed serious problems in the country. Evidently, we need an approach that can deal with the worsening problem of waste disposal, which at the same time, can also contribute to the conservation of the environment. This does not only mean that waste must be properly disposed of; but this also requires that waste should be disposed of in a manner such that it would not become a significant environmental burden.

Existing technology permits the incineration of waste as a mode of waste disposal while at the same time, generating much needed electric power.Although there are serious environmental concerns about incineration, advances in emission control designs, along with strict standards and monitoring system, have caused large reduction of pollution in the atmosphere. In Japan, concerns over the health effects of Dioxin and furan emissions from incinerators have been proven to be significantly lessened by advances in emission control designs and very stringent new governmental regulations that have resulted in large reductions in the amount of dioxins and furans emissions.

Incineration reduces the volume of waste very effectively and destroys disease-causing bacteria. This is suitable for use in the country since it is difficult to secure final disposal sites due to our becoming limited land space. It is estimated that when incinerated, waste shall be reduced to approximately one-tenth of its weight and one-twentieth of its volume. More importantly, incinerators can be used for generating electricity or to provide energy in other forms such as generating steam for heating. Such a use is known as waste-to-energy (WTE) or energy recovery.

This bill aims to amend Republic Act No. 8749, otherwise known as the "Clean Air Act of 1999", by repealing the original Section 20 thereof and revising the same to take advantage, promote and/or permit the use of recent advances in waste-to-energy (WTE) technology. Through incineration, the most common waste-to-energy implementation, this bill intends to promote WTE technology.

This technology provides for the safe disposal of waste without harmful emissions to the atmosphere, and at the same time, offers maximum benefits from the recovery of the valuable contents of the wastes from our cities.

In view of the foregoing, the immediate approval of this bill is earnestly sought.

MANUEL DG. CABOCHAN III
Representative
Magdalo Para sa Pilipino Party-List

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AN ACT
PROMOTING AND PERMITING THE USE OF WASTE-TO-ENERGY TECHNOLOGY, AMENDING FOR THIS PURPOSE REPUBLIC ACT NUMBERED 8749, OTHERWISE KNOWN AS THE CLEAN AIR ACT OF 1999

Be it enacted by the Senate and the House of Representatives of the Philippines in Congress assembled:

SECTION 1. ***Definition of Terms.*** - Section 5 of Republic Act No. 8749, otherwise known as "The Clean Air Act of 1999", and herein referred to as the Act, is amended to read as follows:

"SEC. 5. Definitions. - As used in this Act:

A. *"Air pollutant"* means any matter found in the atmosphere other than oxygen, nitrogen, water vapor, carbon dioxide, and the inert gases in their natural or normal concentrations, that is detrimental to health or the environment, which includes, but not limited to smoke, dust, soot, cinders, fly ash, solid particles of any kind, gases, fumes, chemical mists, steam and radioactive substances;

B. *"Air pollution"* means any alteration of the physical, chemical and biological properties of the atmospheric air, or any discharge thereto of any liquid, gaseous or solid substances that will, or is likely to, create or to render the air resources of the country harmful, detrimental, or injurious to public health, safety or welfare or which will adversely affect their utilization for domestic, commercial, industrial, agricultural, recreational, or other legitimate purposes;

C. *"Ambient air quality guideline values"* means the concentration of air over specified periods classified as short-term and long-term which are intended to serve as goals or objectives for the protection of health and/or public welfare. These values shall be used for air quality management purposes such as determining time trends, evaluating stages of deterioration or enhancement of the air quality, and in general, used as basis for taking positive action in preventing, controlling, or abating air pollution;

D. *"Ambient air quality"* means the general amount of pollution present in .a broad area; and refers to the atmosphere's average purity as distinguished from discharge measurements taken at the source of pollution;

E. *"Certificate of Conformity"* means a certificate issued by the Department of Environment and Natural Resources to a vehicle manufacturer/ assembler or importer certifying that a particular new vehicle or vehicle type meets the requirements provided under this Act and its rules and regulations;

F. *"Department"* means the Department of Environment and Natural Resources;

G. *"Eco-profile"* means the geographic-based instrument for planners and decision makers which present an evaluation of the environment quality and carrying capacity of an area. It is the result of the integration of primary data and information on natural resources and antropogenic activities on the land which were evaluated by various environmental risk assessment and forecasting methodologies that enable the Department to anticipate the type of development control necessary in the planning area;

H. *"Emission*" means any air contaminant, pollutant, gas stream or unwanted sound from a known source which is passed into the atmosphere;

I. *"Greenhouse gases"* means those gases that can potentially or can reasonably be expected to induce global warming, which include carbon dioxide, oxides of nitrogen, chloroflourocarbons, and the like;

J. *"Hazardous substances"* means those substances which present either: (1) short-term acute hazards such as acute toxicity by ingestion, inhalation, or skin absorption, corrosivity or other skin or eye contact hazard or the risk of fire explosion; or (2) long-term toxicity upon repeated exposure, carcinogecity (which in some cases result in acute exposure but with a long latent period), resistance to detoxification process such as biodegradation, the potential to pollute underground or surface waters;

K. *"Infectious waste"* means that portion of medical waste that could transmit an infectious disease;

L. *"Medical waste"* means the materials generated as a result of patient diagnosis, treatment, or immunization of human beings or animals;

M. *"Mobile source"* means any vehicle propelled by or through combustion of carbon-based or other fuel, constructed and operated principally for the conveyance of persons or the transportation of property goods;

N. *"Motor vehicle"* means any vehicle propelled by a gasoline or diesel engine or by any means other than human or animal power, constructed and operated principally for the conveyance of persons or the transportation of property or goods in a public highway or street open to public use;

O. *"Municipal waste"* means the waste materials generated from communities within a specific locality;

P. *"New vehicle"* means a vehicle constructed entirely from new parts that has never been sold or registered with the DOTC or with the appropriate agency or authority, and operated on the highways of the Philippines, any foreign state or country;

Q. *"Octane Rating or the Anti-Knock Index (AKI)"* means the rating of the antiknock characteristics of a grade or type of automotive gasoline as determined by dividing by two (2) the sum of the Research Octane Number (RON), plus the Motor Octane Number (MON); the octane requirement, with respect to automotive gasoline for use in a motor vehicle or a class thereof, whether imported, manufactured, or assembled by a manufacturer, shall refer to the minimum octane rating of such automotive gasoline which such manufacturer recommends for the efficient operation of such motor vehicle, or a substantial portion of such class, without knocking;

R. *"Ozone Depleting Substances (ODS)"* means those substances that significantly deplete or otherwise modify the ozone layer in a manner that is likely to result in adverse effects of human health and the environment such as, but not limited to, chloroflourocarbons, halons and the like;

S. *"Persistent Organic Pollutants (POPs)"* means the organic compounds that persist in the environment, bioaccumulate through the food web, and pose a risk of causing adverse effects to human health and the environment. These compounds resist photolytic, chemical and biological degradation, which shall include but not be limited to dioxin, furan, Polychlorinated Biphenyls (PCBs), organochlorine pesticides, such as aldrin, dieldrin, DDT, hexachlorobenzene, lindane, toxaphere and chlordane;

T. *"Poisonous and toxic fumes"* means any emissions and fumes which are beyond internationally - accepted standards, including but not limited to the World Health Organization (WHO) guideline values;

U. *"Pollution control device"* means any device or apparatus used to prevent, control or abate the pollution of air caused by emissions from identified pollution sources at levels within the air pollution control standards established by the Department;

V. *"Pollution control technology"* means the pollution control devices, production process, fuel combustion processes or other means that effectively prevent or reduce emissions or effluent;

W. *"Standard of performance"* means a standard for emissions of air pollutant which reflects the degree of emission limitation achievable through the application of the best system of emission reduction, taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirement which the Department determines, and adequately demonstrates; and

X. *"Stationary source"* means any building or immobile structure, facility or installation which emits or may emit any air pollutant;

Y. BIOCHEMICAL PROCESS - CONSISTS OF ANAEROBIC DIGESTION, HYDROLYSIS, AND FERMENTATION USING ENZYMES THAT PRODUCE LOW HEAT IN SLOW REACTION TIMES;

Z. BOILER - A CLOSED VESSEL IN WHICH WATER OR OTHER FLUID IS HEATED. THE HEATED OR VAPORIZED FLUID EXITS THE BOILER FOR USE IN VARIOUS PROCESSES OR HEATING APPLICATIONS;

AA. BOTTOM ASH - ONE OF THE RESIDUES GENERATED IN THE COMBUSTION OF COAL, GENERALLY-CAPTURED FROM THE BOTTOM OF THE FURNACE;

BB. BUBBLING FLUIDIZED-BED - A COMBUSTION TECHNOLOGY USED TO SUSPEND SOLID FUELS ON UPWARD-BLOWING JETS OF AIR DURING THE COMBUSTION PROCESS. THE RESULT IS A TURBULENT MIXING OF GAS AND SOLIDS. THE TUMBLING ACTION, MUCH LIKE A BUBBLING FLUID, PROVIDES MORE EFFECTIVE CHEMICAL REACTIONS AND HEAT TRANSFER;

CC. CAUSTIC SODA - USED TO DRIVE CHEMICAL REACTIONS AND ALSO FOR THE NEUTRALIZATION OF ACIDIC MATERIALS;

DD. ECONOMIZER - MECHANICAL DEVICES INTENDED TO REDUCE ENERGY CONSUMPTION, OR TO PERFORM ANOTHER USEFUL FUNCTION LIKE PREHEATING A FLUID;

EE. FABRIC FILTER BAGHOUSE - FABRIC COLLECTORS USE FILTRATION TO SEPARATE DUST PARTICULATES FROM DUSTY GASES;

FF. FLUE GAS - GAS THAT EXITS TO THE ATMOSPHERE VIA A FLUE, WHICH IS A PIPE OR CHANNEL FOR CONVEYING EXHAUST GASES FROM A FIREPLACE, OVEN, FURNACE, BOILER OR STEAM GENERATOR;

GG. FLY ASH - ONE OF THE RESIDUES GENERATED IN THE COMBUSTION OF COAL. FLY ASH IS GENERALLY CAPTURED FROM THE CHIMNEYS OF COAL-FIRED POWER PLANTS;

HH. GASIFICATION AND MELTING FURNACE - A FACILITY THAT THERMALLY DECOMPOSES WASTE INTO GAS AND CARBIDE INA GASIFICATION FURNACE AND BURNS THESE IN A MELTING FURNACE TO CONVERT THEM INTO WASTE GAS AND SLAG;

II. PARTICULATE MATTER - REFERS TO THE GENERIC TERM USED FOR A TYPE OF AIR POLLUTION THAT CONSISTS OF COMPLEX AND VARYING MIXTURES OF PARTICLES SUSPENDED IN THE AIR;

JJ. ROTARY FURNACE TYPE INCINERATORS (ROTARY KILNS) - A HORIZONTAL CYLINDRICAL INCINERATOR, THE INNER SURFACE OF WHICH IS COVERED WITH REFRACTORY MATERIAL THAT IS ROTATED AND WHERE WASTE IS DRIED AND BURNT;

KK. SELECTIVE CATALYTIC REDUCTION - CATALYTIC OXIDATION USING METAL OXIDE CATALYSTS THAT ARE PRESENTLY COMMONLY USED FOR REDUCING NOx EMISSIONS;

LL. SLAG - THE BY-PRODUCT OF SMELTING ORE TO PURIFY METALS;

MM. SMELTING - A CHEMICAL REDUCTION USED TO PRODUCE A METAL FROM ITS ORE;

NN. SUPERHEATER - A DEVICE THAT HEATS THE STEAM GENERATED BY THE BOILER, INCREASING ITS THERMAL ENERGY AND DECREASING THE LIKELIHOOD THAT IT WILL CONDENSE INSIDE AN ENGINE;

OO. THERMOCHEMICAL TECHNIQUE - CONSISTS OF COMBUSTION, GASIFICATION, AND PYROLYSIS THAT PRODUCE HIGH HEAT IN FAST REACTION TIMES;

PP. WASTE-TO-ENERGY TECHNOLOGY - REFERS TO:

a. **TECHNOLOGY THAT INVOLVES THE CONVERTION OF VARIOUS ELEMENTS OF MUNICIPAL SOLID WASTE SUCH AS PAPER, PLASTICS, AND WOOD TO GENERATE ENERGY BY EITHER THERMOCHEMICAL OR BIOCHEMICAL PROCESSES;**

b. **ANY WASTE TREATMENT THAT IS ABLE TO PRODUCE ENERGY FROM A WASTE;**

c. **TECHNOLOGY WHICH REDUCES OR ELIMINATES WASTE THAT OTHERWISE WOULD BE TRANSFERRED TO A GREENHOUSE GAS;**

QQ. WASTE TREATMENT - ACTIVITIES WHICH SEEK TO ENSURE (NECESSITATE) THAT WASTE HAS THE LEAST PRACTICABLE IMPACT ON THE ENVIRONMENT."

SEC. 2. Section 15 of The Act is hereby amended to read as follows:

"SEC. 15. Air Pollution Research and Development Program.- The Department, in coordination with the Department of Science and Technology (DOST), other agencies, the private sector, the academe, NGO's and PO's, shall establish a National Research and Development Program for the prevention [and], control of air pollution **AS WELL AS WASTE-TO-ENERGY TECHNOLOGY UTILIZATION**. The Department shall give special emphasis to research on and the development of improved methods having industry-wide application for the prevention [and], control of air pollution **AND WASTE-TO-ENERGY TECHNOLOGY UTILIZATION.**

Such a research and development program shall develop air quality guideline values and standards in addition to internationally-accepted standards of maintaining environmentally-sound practices in waste treatment. It shall also consider the socio-cultural, political and economic implications of air quality management [and], pollution control **AND WASTE-TO-ENERGY TECHNOLOGY UTILIZATION."**

SEC. 3. Section 15 of The Act is hereby further amended by adding a sub-section to read as follows:

SEC. 15-A.*WASTE-TO-ENERGY TECHNOLOGY.* - PURSUANT TO SECTION 15 OF THIS ACT, WASTE-TO-ENERGY TECHNOLOGY IS HEREBY PROMOTED WITH THE FOLLOWING OBJECTIVES:

A. **REDUCE THE VOLUME OF ORIGINAL WASTE AND AT THE SAME TIME PRODUCE ENERGY FROM THE SAME;**

B. **CONDUCT WASTE STREAM ANALYSIS THAT AVOIDS A SITUATION WHERE ASH BECOMES HAZARDOUS WASTE;**

C. TREAT ALL TYPES OF WASTE, INCLUDING HAZARDOUS AND TOXIC MATERIALS, WITHOUT LEAVING BEHIND WASTE RESIDUES AND HARMFUL EMISSIONS TO THE ATMOSPHERE;

D. RECOVER ALL VALUABLE CONTENTS OF WASTES AT HIGHLY ECONOMIC CONDITIONS;

E. RECYCLE VALUABLE MATERIALS AND RECOVER MORE ENERGY;

F. CONTINUOUSLY PROMOTE DEVELOPED TECHNOLOGY THAT PRODUCES NO HARMFUL EMISSIONS OR RESIDUES, COMPLYING WITH THE STANDARDS AND REGULATIONS WHICH PROTECT THE ENVIRONMENT."

SEC. 4. The Act is hereby further amended by repealing the original Section 20 of the said Act and amending and revising the same to read as follows:

"SEC. 20. ALLOWING INCINERATION. – INCINERATION SHALL BE ALLOWED FOR THE TREATMENT OF WASTE, AND IN EFFECT, THE CONVERSION OF SUCH WASTE INTO ENERGY. TO CONTROL AIR POLLUTION, THE INCINERATOR SHALL BE DESIGNED IN SUCH A WAY THAT PRODUCT COMBUSTION GASES SHALL BE PROPERLY TREATED AND HARMFUL EMISSIONS SHALL BE REMOVED BEFORE GASES ARE RELEASED INTO THE ATMOSPHERE. ADVANCED EMISSION CONTROL DESIGN AND STRINGENT REGULATION SHALL ENSURE THAT WASTES ARE DISPOSED OF WITHOUT DETRIMENTAL IMPACT TO THE ENVIRONMENT.

(1) ***INCINERATION AS AN INTERMEDIATE TREATMENT TECHNOLOGY.*** **- INCINERATION SHALL BE GENERALLY USED FOR INTERMEDIATE WASTE MANAGEMENT. COLLECTED DOMESTIC WASTE SHALL BE TRANSPORTED DIRECTLY TO AN INTERMEDIATE TREATMENT FACILITY - THE INCINERATION PLANT. AFTER BEING COLLECTED AND TRANSPORTED, WASTE SHALL BE SUBJECTED TO INTERMEDIATE TREATMENT TO BECOME SUITABLE FOR FINAL DISPOSAL.**

THERE SHALL BE AN ENFORCEMENT REGULATION DETERMINED BY THE DEPARTMENT THAT SHALL DEFINE A STRUCTURAL STANDARD FOR INCINERATION PLANTS FOR DOMESTIC WASTE, IN WHICH, IT SHALL BE REQUIRED TO KEEP COMBUSTION GAS TEMPERATURES ABOVE 800°C FOR INCINERATION, TO KEEP THE TEMPERATURE OF GAS

FLOWING IN THE DUST CHAMBER BELOW 200°C AND TO PROVIDE A WASTE GAS TREATMENT FACILITY.

WASTE INCINERATION SHALL BE CLOSELY RELATED TO THE MEASURES ADOPTED AGAINST HAZARDOUS SUBSTANCES CONTAINED IN WASTE GAS, ESPECIALLY DIOXINS, AND THE RECOVERY OF HEAT (THERMAL RECYCLING) FROM INCINERATION PLANTS. TO REDUCE THE GENERATION OF DIOXIN WITH COMPLETE HIGHTEMPERATURE COMBUSTION, GASIFICATION AND MELTING FURNACE SHALL BE INTRODUCED. THIS SHALL ENSURE THAT:

A. THE AMOUNT OF HEAT HELD IN THE WASTE IS UTILIZED TO MELT AND SOLIDIFY ASH AND THEREFORE RENDER THE ASH HARMLESS AND THE MOLTEN SLAG UTILIZED EFFECTIVELY; AND
B. ONLY A SMALL AMOUNT OF AIR IS REQUIRED FOR COMBUSTION SO THAT HIGH-EFFICIENCY HEAT RECOVERY WITH A SMALL AMOUNT OF EXHAUST GAS IS POSSIBLE.

(2) *MODERN INCINERATION.* - THE INCINERATION PLANT SHALL BE EQUIPPED WITH TWO 200 TID ATMOSPHERIC BUBBLING FLUIDIZED BED (BFB) INCINERATION BOILERS. A BFB UNIT SHALL OPERATE BY COMBINING FUEL AND COMBUSTION AIR IN HOT SAND UNDER VIGOROUS MIXING. THERE SHALL BE BASICALLY THREE ZONES IN THE VERTICALLYORIENTED INCINERATOR: THE FLUIDIZED BED, THE FREEBOARD AND THE BOILER. AT THE BOTTOM OF THE VESSEL SHALL BE THE DENSE BED, WHERE FLUIDIZING AIR SHALL ENTER THROUGH A HORIZONTAL TUBING GRID (DISTRIBUTOR) JUST ABOVE THE INCINERATOR FLOOR. AT A HIGHER ELEVATION IN THE FLUIDIZED BED, PRIMARY COMBUSTION AIR (APPROXIMATELY 7,550 NM'/H) SHALL BE INJECTED. TEMPERATURE IN THE BED SHALL BE MAINTAINED AT ABOUT 550-630°C, HOT ENOUGH TO DRIVE OFF VOLATILES AND FULLY COMBUST THE MUNICIPAL SOLID WASTE (MSW), WHICH SHALL BE FED AT THE TOP OF THE BED.

IN CASE THE TEMPERATURE RISES ABOVE 630°C, COOLING WATER SPRAYS SHALL BE ACTIVATED AUTOMATICALLY. ASH AND SAND THAT PERIODICALLY MIGRATE DOWNWARD SHALL BE REMOVED AT THE INCINERATOR BOTTOM. SAND

SHALL BE SEPARATED FROM THE ASH, GRADED, AND RETURNED TO THE TOP OF THE DENSE BED. EACH INCINERATOR SHALL CONTAIN 57 M' OF SAND (90 T), SOME OF WHICH SHALL BE LOST AS FINES THROUGH FLUE GAS STREAM AND WITH FABRIC FILTERS AT A TEMPERATURE LESS THAN 2000°C.

ABOVE THE DENSE BED SHALL BE A TALL REGION KNOWN AS THE FREEBOARD, WHERE SECONDARY COMBUSTION AIR (APPROXIMATELY 28 800 NM3/H) SHALL BE INJECTED AT SEVERAL LEVELS TO COMPLETELY BURN OFF THE VOLATILES. IN THIS REGION, THE TEMPERATURE RISES STEADILY FROM ABOUT 710°C TO 1030°C (AUTOMATIC COOLING WATER SPRAYS ARE ACTIVATED SHOULD THE TEMPERATURE EXCEED 1070°C), AND GAS VELOCITY IS SUCH THAT A RESIDENCE TIME (AT 850°C) OF AT LEAST TWO SECONDS SHALL BE ACHIEVED, FOR DIOXIN DESTRUCTION. IN ADDITION TO FLY ASH, SOME SAND FINES MAY STILL BE CARRIED BY THE GASES IN THE FREEBOARD, BUT THESE ARE MINIMIZED BY PRUDENT VELOCITY CONTROL.

ABOVE THE FREEBOARD IS THE BOILER. WITH NO COMBUSTIBLES REMAINING IN THE GAS, AND WITH THE AID OF COOLER AIR INJECTION, TEMPERATURE SHALL DROP RAPIDLY PRIOR TO CONTACT WITH THE BOILER TUBES (APPROXIMATELY 480-580°C). THIS NATURAL CIRCULATION WATER-TUBE BOILER SHALL BE EQUIPPED WITH A SUPERHEATER. STEAM SHALL BE GENERATED AT A MAXIMUM RATE OF 33.3 T/H FROM EACH UNIT, USUALLY AT 3.14 MPA (ABS) AND 300D C. THE HIGH-PRESSURE STEAM SHALL BE ROUTED TO A HIGH-PRESSURE STEAM HEADER, WHILE THE FLUE GASES SHALL EXIT THE BOILER THROUGH AN ECONOMIZER TO A QUICK-QUENCH COOLING TOWER.

(3) *AIR POLLUTION CONTROL SYSTEM.* - FLUE GAS TREATMENT SHALL BEGIN AT THE EXIT OF THE ECONOMIZER, WHERE A WATER SPRAY COOLING TOWER QUICKLY QUENCHES THE GASES TO ISODC, MINIMIZING DIOXIN FORMATION. AT THE ENTRANCE TO THE FABRIC FILTER BAGHOUSE, SLAKED LIME AND POWDERED ACTIVATED CARBON SHALL BE INJECTED INTO THE FLUE GASES TO REMOVE HEAVY METALS, DIOXINS/FURANS AND NON-COMBUSTED ORGANICS, WHILE THE BAGHOUSE SHALL REMOVE PARTICULATES. THE

DESIGN GAS TREATMENT RATE IN THE BAGHOUSE SHALL BE ABOUT 75,000 -109,000 NM'/H (DRY).

ONCE LEAVING THE BAGHOUSE THROUGH AN INDUCED DRAFT FAN, THE FLUE GASES ENTER A WET CAUSTIC SODA SCRUBBING TOWER WHICH SHALL REMOVE ACID GASES (SULPHURIC AND HYDROCHLORIC ACIDS), AT A GAS TREATMENT RATE SIMILAR TO THE BAGHOUSE.

UPON EXITING THE SCRUBBER, THE FLUE GASES SHALL BE DRIED AND HEATED, BY HEAT EXCHANGE WITH STEAM GENERATED IN THE PLANT, TO 210°C BEFORE ENTERING THE SELECTIVE CATALYTIC REDUCTION (SCR) REACTOR. HERE, AMMONIA SHALL BE INJECTED INTO THE GAS STREAM AS IT PASSES THROUGH A HONEYCOMB CATALYST TO REMOVE NITROGEN OXIDES (NOX).

FROM THE SELECTIVE CATALYTIC REDUCTION (SCR), FLUE GASES ENTER THE STACK CONTAINING TWO FLUES (ONE FOR EACH INCINERATOR) AND AN ELEVATOR (FOR MAINTENANCE). THE INLET TEMPERATURE TO THE SCR SHALL BE CHOSEN FOR TWO REASONS: TO IMPROVE THE RATE OF CATALYTIC CONVERSION OF NOX (ALTHOUGH A TEMPERATURE OF 250-350°C WOULD HAVE BEEN MORE APPROPRIATE); AND TO ENSURE AN INVISIBLE PLUME EMANATING FROM THE STACK.

(4) *LAWS AND ORDINANCES RELATED TO POLLUTION.* - TO TREAT WASTE PROPERLY, IT SHALL BE NECESSARY TO PREVENT SECONDARY POLLUTION FROM WASTE MANAGEMENT FACILITIES. THE TREATMENT OF WASTE MUST THEREFORE COMPLY WITH THE EMISSION STANDARDS, SUCH AS THE NATIONAL EMISSION STANDARDS AND AMBIENT AIR QUALITY STANDARDS, EMISSION STANDARDS INDICATED IN THE IMPLEMENTING RULES AND REGULATIONS OF THE CLEAN AIR ACT OF 1997, AND OTHER EMISSION STANDARDS SET AND MAY BE PRESCRIBED BY THE DEPARTMENT AND/OR BOARD AND/OR THE APPROPRIATE LGU.

WASTE INCINERATORS, MUST, AS FACILITIES WHICH EMIT SOOT AND SMOKE, COMPLY WITH THE EMISSION STANDARDS RELATED TO DUST, NITROGEN OXIDE AND OTHERS.

(5) *MEASURES AGAINST HAZARDOUS SUBSTANCES.* - WASTE CONTAINS A HAZARDOUS SUBSTANCE AND A HAZARDOUS SUBSTANCE MAY BE UNINTENTIONALLY GENERATED IN THE COURSE OF WASTE MANAGEMENT, WHICH MAY RESULT IN SECONDARY POLLUTION. AS SUCH, IT SHALL BE NECESSARY TO REMOVE HAZARDOUS SUBSTANCES CONTAINED IN WASTE DURING DISPOSAL AND TO PREVENT SECONDARY POLLUTION FROM OCCURRING IN THE TREATMENT PROCESS. MEASURES AGAINST HAZARDOUS SUBSTANCES SHALL REQUIRE VARIOUS TECHNOLOGIES, ADAPTED TO INDIVIDUAL HAZARDOUS SUBSTANCES. SUCH MEASURES INCLUDE THE FOLLOWING:

A. WASTE THAT IS EXPLOSIVE, TOXIC OR INFECTIOUS OR THAT MAY BE HARMFUL TO HUMAN HEALTH OR THE LIVING ENVIRONMENT SHALL BE DESIGNATED AS WASTE UNDER SPECIAL CONTROL.

B. CONCRETELY, PARTS FROM HOME ELECTRIC APPLIANCES THAT CONTAIN POLYCHLORINATED BIPHENYLS (PCB), SOOT AND DUST GENERATED IN MUNICIPAL WASTE INCINERATORS AND INFECTIOUS WASTE GENERATED IN MEDICAL INSTITUTIONS SHALL BE DESIGNATED AS GENERAL WASTE UNDER SPECIAL CONTROL.

C. WASTE PCB, PCB-CONTAMINATED MATTER, WASTE ASBESTOS AND MATTER CONTAINING CONCENTRATED HAZARDOUS SUBSTANCES, SUCH AS MERCURY, THE CRITERIA CONCENTRATIONS OF WHICH EXCEED A CERTAIN VALUE, SHALL BE DESIGNATED AS INDUSTRIAL WASTE UNDER SPECIAL CONTROL.

D. COUNTERMEASURE TECHNOLOGIES AGAINST HAZARDOUS SUBSTANCES SHALL BE INTRODUCED, TAKING AS EXAMPLES MERCURY, PCB AND ASBESTOS AS REPRESENTATIVE HAZARDOUS SUBSTANCES CONTAINED IN WASTE; DIOXINS AS SECONDARY POLLUTANT SUBSTANCES GENERATED IN THE WASTE MANAGEMENT PROCESS, AND INFECTIOUS WASTE.

E. VARIOUS TECHNOLOGIES SHALL BE USED AS COUNTERMEASURES AGAINST EXHAUST GAS IN ORDER TO CONTROL SULFUR OXIDES, NITROGEN OXIDES, AND OTHER SUBSTANCES THAT ARE GENERATED BY INCINERATION FACILITIES OR TO TREAT DRAIN WATER FROM INCINERATION FACILITIES AND LANDFILL

SITES, THUS PREVENTING THE OCCURRENCE OF SECONDARY POLLUTION IN THE WASTE MANAGEMENT SYSTEM.

IN ORDER FOR THE SITE SELECTION FOR A WASTE MANAGEMENT FACILITY TO BE ACCEPTED BY THE PEOPLE LIVING IN THE AREA, SECONDARY POLLUTION PREVENTION MEASURES, TO BE DETERMINED BY THE DEPARTMENT, SHALL ALSO BE NEEDED TO BE TAKEN. MEASURES AGAINST HAZARDOUS SUBSTANCES SHALL COMPLY WITH ALL LAWS AND ORDINANCES RELATED TO POLLUTION, AS INDICATED IN SECTION 20-D HEREOF.

(6) *INFECTIOUS WASTE* - FOR INFECTIOUS WASTE, IT SHALL BE REQUIRED TO REMOVE INFECTIOUSNESS WITH AN INCINERATOR AND MELTING FACILITY. IT SHALL ALSO BE MANDATORY TO USE AN INCINERATOR OR A MELTING FACILITY THAT CAN COMPLETELY INCINERATE OR MELT WASTE AND TO PREVENT THE LIVING ENVIRONMENT FROM BEING POLLUTED BY THE EXHAUST GASES OF SUCH FACILITY.

IN ORDER TO APPROPRIATELY TREAT INFECTIOUS WASTE, A ROTARY KILN TYPE INCINERATOR SHALL BE USED, IN WHICH INFECTIOUS WASTE SHALL BE BURNED TOGETHER WITH OTHER INDUSTRIAL WASTE THAT PLAYS THE ROLE OF COMBUSTION IMPROVER, TO DESTROY INFECTIOUS BACTERIA, TO DETOXIFY INFECTIOUS WASTE, AND TO REDUCE ITS VOLUME.

(7) *REINFORCEMENT OF THE RESPONSIBILITY.* - THE WASTE MANAGEMENT ACT, CLEAN AIR ACT AND ITS RELATED LAWS AND ORDINANCES SHALL ACCELERATE THE DEVELOPMENT AND INTRODUCTION OF TECHNOLOGIES RELATED TO THE PROPER TREATMENT OF WASTE BY DEFINING STANDARDS FOR THE INSTALLATION OF TREATMENT FACILITIES FOR GENERAL WASTE AND INDUSTRIAL WASTE TO ENSURE PROPER TREATMENT.

A CLASSIFICATION OF WASTE THAT MAY INFLICT HARM ON HUMAN HEALTH OR THE LIVING ENVIRONMENT DUE TO HAZARDOUS CHARACTERISTICS SUCH AS EXPLOSIVENESS, TOXICITY AND INFECTIOUSNESS AS SPECIAL

MANAGEMENT WASTE SHALL BE PROMOTED FOR THE DEVELOPMENT AND INTRODUCTION OF TECHNOLOGIES FOR THE PROPER TREATMENT OF SPECIAL MANAGEMENT WASTE.

IN ORDER TO PREPARE A SYSTEM FOR THE PROPER TREATMENT OF WASTE AND TO PREVENT IMPROPER TREATMENT, PROHIBITION OF ANY INCINERATION OF WASTE OTHER THAN INCINERATION ACCORDING TO THE WASTE MANAGEMENT STANDARDS SHALL BE PUT FORWARD."

SEC. 5. ***Separability Clause.*** - If any provision of this Act shall at any time be found to be unconstitutional or invalid, the remainder thereof not affected by such declaration shall remain in full force and effect.

SEC. 6. ***Repealing Clause.*** - All laws, decrees, rules or regulations inconsistent with the provisions of this Act are hereby repealed or modified accordingly.

SEC. 7. ***Effectivity Clause.*** - This Act shall take effect after fifteen (15) days following its complete publication in the Official Gazette or in at least two (2) newspapers of general circulation.

Approved,