



SENATE  
S. No. 1990

RECEIVED BY: *J*

Introduced by Senator Miriam Defensor Santiago

EXPLANATORY NOTE

The Constitution, Article 2, Section 15 provides:

The State shall protect and promote the right to health of the people and instill health consciousness among them.

Mercury is a potent neurotoxin of significant ecological and public health concern. When inhaled, mercury vapors can cause neurological and behavioral disorders, and sometimes can lead to death. Even at low doses, these vapors can have harmful effects on the kidneys, and the digestive, respiratory, and immune systems. It is estimated that approximately 410,000 children born each year in the United States are exposed to levels of mercury in the womb that are high enough to impair neurological development. In the Philippines, in February 2006, Saint Andrew's School (SAS), a private Catholic parochial school of the Cathedral Parish of St. Andrew and managed by the Diocese of Parañaque was temporarily closed due to mercury spillage. The 25 students were hospitalized due to mercury poisoning and more than a hundred students and teachers were also exposed to mercury.

Exposure to mercury also occurs largely due to the consumption of contaminated fish. However, fish and shellfish are important sources of dietary protein, and a healthy fishing resource is important to the economy of the Philippines. In many locations, the primary route for mercury input to aquatic ecosystems is atmospheric emissions, transport, and deposition. The existing broad-scale data sets are important but insufficient to track changes in mercury levels in the environment over time. A comprehensive national mercury monitoring network that accurately quantifies regional and national changes in atmospheric deposition, ecosystem contamination, and bioaccumulation of mercury in fish and wildlife in response to changes in mercury emissions would help policy makers, scientists, and the public to better understand the sources, consequences, and trends in mercury pollution.

This bill seeks to prevent exposure to mercury by establishing a comprehensive national mercury monitoring system throughout the county.

*Miriam Defensor Santiago*  
MIRIAM DEFENSOR SANTIAGO



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1 **AN ACT**  
2 **ESTABLISHING A COMPREHENSIVE NATIONAL MERCURY MONITORING**  
3 **PROGRAM**

4  
5 *Be it enacted by the Senate and House of Representatives of the Philippines in Congress*  
6 *assembled:*  
7

8 SECTION 1. *Short Title.*- This Act shall be known as the "Comprehensive National  
9 Mercury Monitoring Act."

10 SECTION 2. *DEFINITIONS.*

11 In this Act:

12 (1) ADMINISTRATOR- The term 'Administrator' means the Administrator of the  
13 Environmental Protection Agency.

14 (2) PROGRAM- The term 'program' means the national mercury monitoring  
15 program established under section 4.

16 (3) ADVISORY COMMITTEE- The term 'Advisory Committee' means the  
17 Mercury Monitoring Advisory Committee established under section 3.

18 (4) ANCILLARY MEASURE- The term 'ancillary measure' means a measure  
19 that is used to understand the impact and interpret results of measurements under  
20 the program.

21 (5) ECOREGION- The term 'ecoregion' means a large area of land and water that  
22 contains a geographically distinct assemblage of natural communities, including  
23 similar land forms, climate, ecological processes, and vegetation.

24 (6) MERCURY EXPORT- The term 'mercury export' means mercury flux from a  
25 watershed to the corresponding water body, or from one water body to another  
26 water body (such as a lake to a river), generally expressed as mass per unit of  
27 time.

28 (7) MERCURY FLUX- The term 'mercury flux' means the rate of transfer of  
29 mercury between ecosystem components (such as between water and air), or  
30 between portions of ecosystem components, expressed in terms of mass per unit  
31 of time or mass per unit of area per time.

1 (8) SURFACE SEDIMENT- The term 'surface sediment' means sediment in the  
2 uppermost 2 centimeters of a lakebed or riverbed.  
3

4 SECTION 3. *ADVISORY COMMITTEE.*

5 (a) Establishment- The Administrator, in consultation with the Director of the  
6 Philippines' Bureau of Fisheries and Aquatic Resources, the Director of the National  
7 Institute of Geological Sciences (NIGS), the Administrator of the Philippine  
8 Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), the  
9 Administrator of National Integrated Protected Areas System (NIPAS) and the heads of  
10 other appropriate local agencies, shall establish a scientific advisory committee, to be  
11 known as the 'Mercury Monitoring Advisory Committee', to advise the Administrator  
12 and those Local agencies on the establishment, site selection, measurement, recording  
13 protocols, and operation of the national mercury monitoring program.

14 (b) Membership - The Advisory Committee shall consist of scientists who are not  
15 employees of the Local Government, including--

16 (1) 3 scientists appointed by the Administrator;

17 (2) 2 scientists appointed by the Director of Philippines'  
18 Bureau of Fisheries and Aquatic Resources;

19 (3) 2 scientists appointed by the Director of the the National Institute of  
20 Geological Sciences (NIGS);

21 (4) 2 scientists appointed by the Director of the National Integrated Protected  
22 Areas System (NIPAS) and

23 (5) 2 scientists appointed by the Administrator of the Philippine Atmospheric,  
24 Geophysical and Astronomical Services Administration (PAGASA).

25 SECTION 4. *Monitoring Program.*

26 (a) Establishment-

27 (1) IN GENERAL- The Administrator, in consultation with the Director of the  
28 Philippines' Bureau of Fisheries and Aquatic Resources, the Regional Director of  
29 Protected Areas and Wildlife Division, the Administrator of the Food and Drug  
30 Administration (FDA), the coordinator of EcoWaste Coalition, the Vice-President  
31 of the Philippine Society of Clinical and Occupational Toxicology (PSCOT) and  
32 the heads of other appropriate local government agencies, shall establish a  
33 National Mercury Monitoring Program.

34 (2) PURPOSE- The purpose of the program is to track--

35 (A) long-term trends in atmospheric mercury concentrations and  
36 deposition; and

1 (B) mercury levels in watersheds, surface water, and fish and wildlife in  
2 terrestrial, freshwater, coastal, and marine ecosystems in response to changing  
3 mercury emissions over time.  
4

5 (3) MONITORING SITES-

6 (A) IN GENERAL- In carrying out paragraph (1), not later than one year  
7 after the date of effectivity of this Act and in coordination with the  
8 Advisory Committee, the Administrator shall select multiple monitoring  
9 sites representing multiple eco regions and associated coastal waters of the  
10 Philippines.

11 (B) LOCATIONS- Locations of monitoring sites shall Sensitive ecological  
12 areas in which substantive changes are expected from reductions in  
13 domestic mercury emissions including Natural Parks, Wildlife Sanctuary,  
14 and Marine Reserves.

15 (C) COLOCATION- Monitoring sites shall be colocated with sites from  
16 other long-term environmental monitoring programs, where practicable,  
17 including sites associated with the National Poison Management and  
18 Control Center, The Natural Sciences Research Institute (NSRI), and the  
19 Department of Science and Technology.

20 (D) MONITORING PROTOCOLS- Not later than 1 year after the date of  
21 effectivity of this Act, the Administrator, in coordination with the  
22 Advisory Committee, shall establish and publish standardized  
23 measurement protocols for the program under this Act.

24 (4) INTERNATIONAL COOPERATION- To the maximum extent practicable,  
25 the program shall be compatible with similar international efforts, including but  
26 not limited to the Global Mercury Observation System and the Global Earth  
27 Observation System of Systems.

28 (5) DATA COLLECTION AND DISTRIBUTION- Not later than one year after  
29 the date of enactment of this Act, the Administrator, in coordination with the  
30 Advisory Committee, shall establish a centralized database for existing and newly  
31 collected environmental mercury data that can be freely accessed on the Internet  
32 once data assurance and quality standards established by the Administrator are  
33 met.

34 (b) Functions-

35 (1) IN GENERAL- Under the program, the Administrator, in consultation with  
36 the appropriate Local agencies and the Advisory Committee, shall at a minimum  
37 carry out monitoring described in paragraphs (2) through (4) at the locations  
38 selected under subsection (a)(3).

1 (2) AIR AND WATERSHEDS- The program shall monitor long-term changes in  
2 mercury levels and important ancillary measures in the air, including--

3 (A) the measurement and recording of wet and estimation of dry mercury  
4 deposition, mercury flux, and mercury export;

5 (B) the measurement and recording of the level of mercury reemitted from  
6 aquatic and terrestrial environments into the atmosphere; and

7 (C) the measurement of sulfur species and ancillary measurements to fully  
8 understand the cycling of mercury through the ecosystem.

9 (3) WATER AND SOIL CHEMISTRY- The program shall monitor long-term  
10 changes in mercury and methyl mercury levels and important ancillary measures  
11 in the water and soil or sediments, including--

12 (A) extraction and analysis of soil and sediment cores;

13 (B) measurement and recording of total mercury and methyl mercury  
14 concentration, and percent methyl mercury in surface sediments;

15 (C) measurement and recording of total mercury and methyl mercury  
16 concentration in surface water; and

17 (D) measurement and recording of total mercury and methyl mercury  
18 concentrations throughout the water column and sediments.

19 (4) AQUATIC AND TERRESTRIAL ORGANISMS- The program shall monitor  
20 long-term changes in mercury and methyl mercury levels and important ancillary  
21 measures in marine, freshwater, and terrestrial organisms, including--

22 (A) measurement and recording of total mercury and methyl mercury  
23 concentrations in--

24 (i) invertebrates;

25 (ii) yearling or lower trophic level fish; and

26 (iii) commercially, recreationally, or conservation relevant fish;  
27 and

28 (B) measurement and recording of total mercury concentrations in--

29 (i) selected insect- and fish-eating birds; and

30 (ii) measurement and recording of total mercury concentrations in  
31 selected insect- and fish-eating mammals.

32 *SECTION 5. Reports and Public Disclosure*

33 (a) Reports- Not later than two years after the date of enactment of this Act and  
34 every two years thereafter, the Administrator shall submit to the Senate  
35 Committees on Health and Demography, and Environmental and Natural  
36 Resources a report on the program, including trend data.

1 (b) Assessment - At least once every four years, the report required under  
2 subsection (a) shall include an assessment of mercury deposition rates that need to  
3 be achieved in order to prevent adverse human and ecological effects.

4 (c) Availability of Data - The Administrator shall make all data obtained under  
5 this Act available to the public through a dedicated website and on written  
6 request.

7  
8 SECTION 6. *Appropriations.* - The necessary amount for the initial implementation of  
9 this Act shall be charged to the appropriations for the Department of Education under the current  
10 General Appropriations Act. Thereafter such sum as may be necessary for its continued  
11 implementation shall be included in the annual General Appropriations Act.

12  
13 SECTION 7. *Separability Clause.* - If any provision or part hereof, is held invalid or  
14 unconstitutional, the remainder of the Act or the provision not otherwise affected shall remain  
15 valid and subsisting.

16  
17 SECTION 8. *Repealing Clause.* - Any law, presidential decree or issuance, executive  
18 order, letter of instruction, administrative order, rule or regulation contrary to, or inconsistent  
19 with the provisions of this Act is hereby repealed, modified or amended accordingly.

20  
21 SECTION 9. *Effectivity Clause.* - This Act shall take effect fifteen (15) days after its  
22 publication in at least two (2) newspapers of general circulation.

Approved,

/jsl