

NINETEENTH CONGRESS OF THE)
REPUBLIC OF THE PHILIPPINES)
First Regular Session)

23 MAY -9 P1 39

RECEIVED BY: _____


SENATE

S.B. No. 2164

Introduced by: **Senator Francis "Tol" N. Tolentino**

AN ACT

PROVIDING FOR THE MODERNIZATION OF THE PHILIPPINE INSTITUTE OF VOLCANOLOGY AND SEISMOLOGY (PHIVOLCS), PROVIDING FUNDS THEREFOR AND FOR OTHER PURPOSES

EXPLANATORY NOTE

In 1951, Mt. Hibok-hibok in Camiguin Island violently erupted which resulted in the death of over 3,000 people. This paved the way for the creation of the Commission on Volcano (COMVOL) on 20 June 1952 when the Philippines realized the necessity of having a government agency in-charge of monitoring and conducting studies on the active volcanoes in the country.¹

On 17 March 1982, the COMVOL was restructured and renamed as Philippine Institute of Volcanology (PHIVOLC). Two years later or on 17 September 1984, Seismology or the science that deals with earthquakes was transferred to the PHIVOLC, thus renaming it as Philippine Institute of Volcanology and Seismology (PHIVOLCS).²

The current structure of the PHIVOLCS was instituted on 30 January 1987 by virtue of Executive Order No. 128. It was placed under the Department of Science and

¹ <https://www.phivolcs.dost.gov.ph/index.php/about-us/history>

² <https://www.phivolcs.dost.gov.ph/index.php/about-us/history>

Technology (DOST) with the mandate to mitigate disasters that may arise from volcanic eruptions, earthquakes, tsunami and other related geotectonic phenomena.³

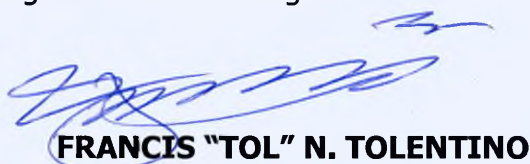
The Philippines is said to have about three hundred (300)⁴ volcanoes throughout the country. Of this number, twenty-four (24) are considered active volcanoes or those which have a recent history of eruptions and are likely to erupt again.⁵

Aside from the existence of a significant number of active volcanoes, the Philippines also lies within the Pacific Ring of Fire, which is a path along the Pacific Ocean characterized by active volcanoes and frequent earthquakes.⁶

The Philippines experienced at least five (5) destructive earthquakes since 1990, and it was only three years ago when we experienced the latest eruption of Taal Volcano which is considered to be the deadliest volcano in the Philippines.⁷

We cannot therefore overemphasize the necessity of modernizing our government agency mandated to study and monitor earthquakes and active volcanoes in order to mitigate the destructive effects they may cause.

It is for this reason that the immediate passage of this bill is sought.



FRANCIS "TOL" N. TOLENTINO

Senator

³ <https://www.phivolcs.dost.gov.ph/index.php/about-us/history>

⁴ <https://guidetothephilippines.ph/articles/ultimate-guides/must-see-volcanoes-philippines>

⁵ [phivolcs.dost.gov.ph/index.php/volcano-hazard/volcanoes-of-the-philippines](https://www.phivolcs.dost.gov.ph/index.php/volcano-hazard/volcanoes-of-the-philippines)

⁶ <https://education.nationalgeographic.org/resource/ring-fire/>

⁷ <https://www.scmp.com/week-asia/explained/article/3045831/taal-volcano-most-deadly-philippines-killing-more-6000-how-big>

NINETEENTH CONGRESS OF THE)
REPUBLIC OF THE PHILIPPINES)
First Regular Session)

23 MAY -9 P1:39

RECEIVED BY: 

SENATE

S.B. No. 2164

Introduced by: **Senator Francis "Tol" N. Tolentino**

AN ACT

PROVIDING FOR THE MODERNIZATION OF THE PHILIPPINE INSTITUTE OF VOLCANOLOGY AND SEISMOLOGY (PHIVOLCS), PROVIDING FUNDS THEREFOR AND FOR OTHER PURPOSES

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

1 SECTION 1. Short Title. – This Act shall be the **"PHIVOLCS Modernization Act."**

2

3 SEC. 2. Declaration of Policy. – It has been the policy of the State to utilize scientific
4 and technical knowledge and information as an effective instrument to ensure the
5 safety, well-being and economic security of the people; to safeguard the environment;
6 and to promote national progress and sustainable socioeconomic development
7 through various applications of geology, geophysics, geodetic engineering and allied
8 sciences. The State also recognizes the need to strengthen the capability of
9 government personnel tasked to monitor volcanic and seismological activities and
10 other related services and information to the public. Towards this end, the State shall
11 undertake the modernization of the Philippine Institute of Volcanology and Seismology

1 (PHIVOLCS) to improve its technological operational capacity, strengthen its role as
2 the premier national volcano and earthquake monitoring agency and to attain its vision
3 as a center of excellence for related information services.
4

5 SEC. 3. Objectives. – Pursuant to the foregoing policy, the PHIVOLCS Modernization
6 Program shall be implemented in accordance with the following objectives:
7

8 (a) To upgrade physical resources and operational techniques through acquisition
9 and development of state-of-the-art instruments, equipment, facilities and
10 systems to enhance current capabilities in providing useful, timely, accurate and
11 reliable volcanic and seismological data and localized warning and information
12 services for use in decision-making in disaster preparedness, climate change
13 adaptation, water resources management, agriculture, transportation, health,
14 tourism and other sectors;
15

16 (b) To enhance research and development capabilities by adopting a rationalized
17 and integrated approach with focus on the improvement of basic operations and
18 specialized services;
19

20 (c) To integrate disaster risk reduction and management in the sustainable
21 socioeconomic development planning at the national and local levels in
22 coordination with appropriate government agencies and other entities;
23

24 (d) To strengthen linkages and cooperation at the national level among the various
25 providers and users of geological, seismological and other services as well as to
26 provide for the appropriate mechanisms for this purpose;
27

28 (e) To establish and enhance volcanic and seismological activity monitoring service
29 centers in strategic areas in the country to broaden the agency base for the
30 delivery of service in the countryside;
31

1 (f) To strengthen a technology-based data center consistent with international
2 standards to make information available to those involved, whether from the
3 government or private sector in Disaster Risk Reduction and Management Plans,
4 among others;

5
6 (g) To enhance public information, education and advocacy on geological activities,
7 as well as their impacts, risks and vulnerability;

8
9 (h) To facilitate the appropriate appreciation and delivery of information, products
10 and services to decision makers, media, other users and the general public; and

11
12 (i) To provide a more competitive base pay and other benefits for its personnel in
13 order to promote professionalism and commitment to the service.
14

15 SEC. 4. Definition of Terms. – the following terms are defined as follows:

16
17 (1) Seismology – the scientific study of the sudden, violent movements of the
18 earth connected with earthquakes

19
20 (2) Tsunami - a series of large waves of extremely long wavelength and period
21 usually generated by a violent, impulsive undersea disturbance or activity
22 near the coast or in the ocean.

23
24 (3) Volcanology – is the study of volcanoes, lava, magma, ash or tephra fall and
25 related geological, geophysical and geochemical phenomena.

26
27 SEC. 5. Mandate. – The PHIVOLCS is mandated to:

28
29 a. Predict the occurrence of volcanic eruptions and earthquakes, and their
30 related geotectonic phenomena,

- 1 b. Determine how volcanic eruptions and earthquakes shall occur and areas
- 2 likely to be affected,
- 3 c. Mitigate hazards of volcanic activities through appropriate detection,
- 4 forecast and warning system,
- 5 d. Provide appropriate volcano, earthquake and tsunami products and
- 6 services for disaster preparedness,

7

8 PHIVOLCS shall provide timely, quality and socially-inclusive information and services

9 for warning, disaster preparedness and mitigation.

10

11 SEC. 6. Organizational Structure. The PHIVOLCS shall be an attached agency of the

12 Department of Science and Technology (DOST) for purposes of policy and program

13 coordination, to ensure alignment in national science and technology policies and

14 priorities.

15

16 It shall be headed by an Executive Director V with the rank and compensation of a

17 Department Undersecretary who shall be appointed by the President upon

18 recommendation by the Secretary of the DOST.

19

20 The Executive Director V shall be assisted by three (3) Deputy Executive Director V

21 for Operations Services; Research and Development and S&T Services; and

22 Administration, Finance and General Services, all with the rank and compensation of

23 a Department Assistant Secretary to be appointed by the President.

24

25 SEC. 7. Qualifications. – No person shall be appointed as Executive Director V unless

26 that person is a natural-born citizen and a resident of the Philippines, of good moral

27 character, has an advanced degree in geology, geodetic engineering, volcanology,

28 physics, and other related fields and with at least five (5) years of competence and

29 expertise in volcanology, geophysics, and or allied sciences. Provided, That the

1 Executive Director V and the three (3) Deputy Executive Director V shall be career
2 executive officers.

3
4 SEC. 8. Components of Modernization. – The PHIVOLCS modernization shall have the
5 following components:

6
7 (a) Upgrading and Maintenance of Physical Resources and Operational
8 Techniques. – This shall entail the acquisition and/or upgrade of state-of-
9 the-art instruments, equipment, facilities, systems, and operational
10 techniques, with emphasis on volcano, earthquake and tsunami monitoring
11 and warning system: Provided, that prior to such acquisition and/or upgrade,
12 an inventory of existing government and private, volcanic and
13 seismological instruments nationwide shall be undertaken: Provided, further,
14 that the acquisition of new instruments, equipment and systems shall be
15 harmonized with the phase-out of uneconomical and obsolete instruments,
16 equipment and systems in the PHIVOLCS inventory;

17
18 (b) Sustained development of Volcano Monitoring network infrastructure for all
19 active volcanoes of the Philippines that will ensure early-warning of volcanic
20 activity even at volcanoes of long dormancy.

21
22 (c) Sustainable development of continually evolving technologies for eruption
23 early-warning will help the national government keep abreast with the latest
24 in S&T while maximizing its investment in public safety amidst technology
25 shifts and changes. From state-of-the-art systems to customized off-the-
26 shelf instruments interfaced by the Internet-of-Things, such technologies
27 provide quality scientific data while instilling a culture of dynamic technical
28 learning, vital to long-term organizational growth and performance.

29
30 (d) Earthquake Monitoring and Information System Development. Establish,
31 operate and maintain an advanced infrastructure for earthquake and

1 tsunami monitoring throughout the Philippines that operates with high
2 performance standards, gathers critical technical data, and effectively
3 provides information products and services to meet the needs of the
4 Philippine government and the public

5
6 (e) Reliable Monitoring. Continuously monitor earthquakes and other seismic
7 disturbances throughout the Philippines, including earthquakes that may
8 cause a tsunami or precede a volcanic eruption, with special focus on regions
9 of moderate to high hazard and risk.

10
11 (f) Long-term Protection/ Conservation of Built Environment. Thoroughly
12 measure strong earthquake shaking at ground sites and in buildings
13 and critical structures. Focus should be in urban areas and near major active
14 fault zones to gather greatly needed data and information for reducing
15 earthquake impacts on buildings and structures.

16
17 (g) Development of Forecasting Capability for Impending Large Earthquakes/
18 Tsunami Events. Develop machine learned capability to determine
19 earthquake parameters and the resulting information will automatically be
20 broadcast to mobile phones and social media accounts whenever a
21 significant earthquake occurs, for immediate assessment of impacts. In
22 areas feasible, for sites at a distance from the epicenter, an early warning
23 will be broadcasted seconds before strong shaking arrives. Provide similar
24 capabilities for automated warning and alert for tsunamis.

25
26 (h) Establishment of permanent PHIVOLCS building including land acquisition
27 to house the Data Receiving/ Operation Centers for real-time volcano,
28 earthquake and tsunami monitoring. This shall ensure stability and
29 protection of government investments on scientific, technical equipment and
30 research laboratories.

31

1 (i) Enhancement of Research and Development Capability. – This shall involve
2 the enhancement of research and development capability through a more
3 rationalized and totally integrated approach with established earthquake and
4 volcano research laboratories, focusing on improvement of operations, as
5 well as the strengthening of specialized services with cost recovery
6 measures;

7
8 (j) Enhancement of Public Information and Linkages with Local Government
9 Units (LGUs) and other stakeholders. -This shall include continuous sharing
10 of information to LGUs and other stakeholders that help in the disaster
11 planning, preparation, disaster mitigation, among others;

12
13 (k) Enhancement of Volcanic and Earthquake Data and Information
14 Dissemination Services. – This shall involve the development and use of
15 communication strategy for ensuring the use of plain and local language,
16 nontechnical terms and familiar graphical presentations, in combination with
17 science-based information that will ensure the delivery of accurate, up-to-
18 date and timely earthquake, tsunami, and volcano-related information to
19 create greater public awareness and draw appropriate response for disaster
20 risk reduction: Provided, that PHIVOLCS shall partner with the Komisyon sa
21 Wikang Filipino (KWF), various Sentro ng Wika at Kultura, Philippine
22 Commission on Women, and other rights-based organizations for the
23 development or enhancement of socially-inclusive products. PHIVOLCS shall
24 collaborate with both public and private organizations to effectively
25 disseminate data and products.

26
27 (l) Strengthening of the Human Resource Development Program (HRDP). - The
28 HRDP of PHIVOLCS will continue to be aligned with the strategic goals of the
29 Institute. This shall ensure that personnel are provided equal opportunities
30 for self-improvement to be competent, motivated to work and rewarded.

31

1 Complementation and capacity-building of a wide-range of experts in
2 volcanology and seismology and to efficiently develop, operate and maintain
3 advanced monitoring systems and distill accurate volcano, earthquake and
4 tsunami information for public guidance. Support to continued professional
5 learning will further ensure skills development and motivation that will translate
6 to better S&T services.

7
8 SEC. 9. Collaboration or linkages with Local Government Units (LGUs). With this
9 institutional modernization of PHIVOLCS, the roles of the local government will also
10 be enhanced to cover the following areas:

11
12 (a) Public Intermediary. The local government, together with national & local
13 news media and the emergency management community, shall frequently
14 act as intermediaries between PHIVOLCS and its complex target audience
15 including the general public, institutional decision makers, and emergency
16 responders, especially in crafting plans attuned to the local needs of its
17 constituents to increase public resilience to earthquakes, tsunami and
18 volcanic eruptions, to reduce or eliminate long-term risk to human life and
19 property and shorten recovery periods based on risk assessments.

20 (b) Information Dissemination. It is critically important for PHIVOLCS to work
21 closely with the national and local disaster agencies to craft appropriate
22 information messages, to regularly test and evaluate their dissemination
23 communication channels, and to identify gaps and dissemination problems,
24 so that the tsunami messages reach the intended users when an event
25 occurs.

26
27 (c) Awareness and Promotion. Outreach and communication with the public is
28 crucial to their understanding and awareness of the nature of the
29 geotectonic hazards, the risks to personal safety and property, and the steps
30 to reduce those risks including the deployment of sustainable, reliable and
31 effective monitoring and warning systems. With this, the local government

1 is expected to promote in local and international recognition programs, its
2 own interfaces with the enhanced PHIVOLCS system with its increased
3 coverage and explore avenues to enjoy its full benefits.
4

5 (d) Technical Review. The local government shall contribute in the review of
6 local research, exchange information and coordinate local projects during
7 regular local meetings to ensure readiness to disasters, that appropriate
8 guidelines are consistently crafted and that local support infrastructure to
9 the enhanced systems are funded;
10

11 SEC. 10. Components of the HRDP. – This component shall include the following:
12

13 (a) New Salary Scale for PHIVOLCS Personnel. – The Department of Budget and
14 Management (DBM) shall develop a new salary scale for PHIVOLCS
15 personnel in consonance with Republic Act No. 8439, as amended otherwise
16 known as the “Magna Carta for Scientists, Engineers, Researchers and other
17 Science and Technology Personnel in Government” with a corresponding
18 increase in the base pay, allowances and other benefits;
19

20 (b) PHIVOLCS Personnel Retention Incentive. – An additional incentive to be
21 known as the “Personnel Retention Incentive” shall be provided to qualified
22 PHIVOLCS personnel, to be determined by PHIVOLCS in consultation with
23 DBM in an amount not exceeding twenty percent (20%) of the monthly basic
24 salary subject to the implementing rules and regulations (IRR) which shall
25 be hereinafter formulated; and
26

27 (c) Scholarship Program. – Not later than three (3) years from the enactment
28 of this Act, scholarships shall be provided for undergraduate and graduate
29 studies in volcano- and seismology-related fields as well as for specialized
30 training programs, in coordination with the DOST, Commission on Higher
31 Education (CHED) and Higher Education Institutions (HEIs). Cooperation on

1 human resources upgrading and capability enhancement with regional and
2 international organizations shall also be undertaken.

3
4 (d) Development of Regional and International Cooperation Program. – This
5 shall entail the development of appropriate collaborative arrangements with
6 relevant regional and international bodies and government institutions to
7 complement the national effort for modernization.

8
9 SEC. 11. Disaster Preparedness, Public Information and Dissemination Services – The
10 institutional modernization of PHIVOLCS shall enhance public information, education
11 and advocacy on earthquake, tsunami and volcano hazards and risks. To facilitate the
12 appropriate appreciation and delivery of science-based information to target
13 stakeholders for proper response actions before and during the occurrence of these
14 hazards, there shall be provision for:

15
16 (a) Fully-equipped and well-staffed learning / training center that will serve as
17 a platform for planning, implementing, monitoring, and evaluating capacity
18 development programs for various stakeholders regarding mitigation and
19 preparedness for volcanic eruptions, earthquakes, and tsunami-related
20 hazards.

21
22 (b) A knowledge management system (composed of people, process,
23 infrastructure, and strategy) that will ensure that researches are attuned to
24 the public's needs and that research and development outputs are translated
25 into culturally-relevant, gender-responsive, and disability-inclusive capacity
26 development programs, and warning and risk information products and
27 services for key stakeholders and the public.

28
29 (c) A multi-channel and multi-directional communication strategy and
30 standardized procedures that shall ensure access to and effective

1 dissemination of useful information on volcano, earthquake and tsunami
2 disaster preparedness, risk reduction, and emergency response to intended
3 stakeholders and the public.
4

5 SEC. 12. Formulation and Submission of the PHIVOLCS Modernization Program. – The
6 Executive Director of the PHIVOLCS in coordination with the Secretary of the DBM and
7 the Director-General of the National Economic and Development Authority (NEDA),
8 shall formulate the PHIVOLCS Modernization Program and oversee its implementation
9 based on the policy objectives provided in this Act.
10

11 The PHIVOLCS Modernization Program shall indicate among others:
12

13 (a) PHIVOLCS requirements in terms of personnel, equipment and facilities
14 during the various stages of modernization;
15

16 (b) The modernization projects, which shall indicate the equipment and
17 technology acquisitions, including major construction or upgrade of facility
18 and the particular objective and component to which such intended
19 acquisition, construction and upgrading belongs to; and
20

21 (c) The priorities, schedules and estimated cost of each modernization project.
22

23 The PHIVOLCS Modernization Fund shall be administered by the Executive Director of
24 the PHIVOLCS in accordance with existing government budgeting, accounting and
25 auditing rules and regulations.
26

27 SEC. 13. Period of Implementation. The modernization program under this Act shall
28 be implemented for an initial period of three (3) years: Provided, that payments for
29 multi-year contract obligations incurred under this Act may extend beyond this period.

1 Provided, further, that PHIVOLCS shall continue to modernize and constantly update
2 its operational capabilities to keep pace with best international practices.

3
4 SEC. 14. PHIVOLCS Modernization Fund. – There is hereby created the PHIVOLCS
5 Modernization Fund to be used exclusively for the PHIVOLCS Modernization Program,
6 which shall be sourced from the following:

7
8 (a) The amount of five billion pesos (P10,000,000,000.00) to be taken from the
9 share of the National Government in the gross income of the Philippine
10 Amusement and Gaming Corporation (PAGCOR) and Bases Conversion and
11 Development Authority (BCDA). For two (2) years after the effectivity of this
12 Act, an amount of five billion pesos (P5,000,000,000.00) per year shall be
13 released to the PHIVOLCS. The entire amount of ten billion pesos
14 (P10,000,000,000.00), including any interest income thereon, shall be used
15 exclusively for capital outlay.

16
17 (b) Loans, grants, bequests, and donations whether from local or foreign sources.
18 The Secretary of the DOST with the approval of the NEDA and subsequently the
19 Department of Finance (DOF) is hereby granted the authority to enter into loan
20 agreements with foreign financial institutions.

21
22 The PHIVOLCS Modernization Fund shall be administered by the Executive Director of
23 the PHIVOLCS in accordance with existing government budgeting, accounting and
24 auditing rules and regulations.

25
26 SEC. 15. Annual Report. – The Executive Director of the PHIVOLCS shall prepare an
27 annual report on the status of the implementation of the PHIVOLCS Modernization
28 Program which shall be submitted through the DOST Secretary, to the President and
29 to the Chairpersons of the Committee on Science and Technology of the Senate and
30 the House of Representatives not later than June 30 of the succeeding year.

1 SEC. 16. Tax Exemptions. - Donations, grants, gifts, endowments, legacies, and
2 contributions used actually, directly and exclusively for the purpose for PHIVOLCS shall
3 be exempt from donor's tax and the same shall be considered as allowable deduction
4 from gross income for purposes of computing the taxable income of the donor, in
5 accordance with Sec. 34 (H)(2)(a) of the National Internal Revenue Code of 1997, as
6 amended. Likewise, such other transfers of ownership and/or possession of real or
7 personal properties of all kinds shall be exempt from all taxes.

8

9 SEC. 17. Procurement of Scientific and Technical Materials, Equipment, and Services.
10 - The PHIVOLCS shall undertake the procurement of scientific and technical materials,
11 equipment, and services in its operation and administration, in the most expeditious
12 manner, and adopt the most suitable or appropriate method of procurement that it
13 deems fit based on its identified needs and requirements depending on the existing
14 conditions and requirements that justify the use of a particular alternative modality
15 provided for by Republic Act No. 9184, otherwise known as the "Government
16 Procurement Reform Act" and its Implementing Rules and Regulations (IRR).

17

18 Sec. 18. Exemption from Import Duties, Taxes and Restrictions - Importation and
19 consignments of equipment shall benefit from:

20

21 (a) Exemption from all duties and taxes;

22

23 (b) Waiver of economic prohibitions and restrictions except for categories of
24 special goods and equipment that may be indicated by the PHIVOLCS;

25

26 (c) Clearance without regards to the country of origin or the country from which
27 the goods have arrived, subject to monitoring for reasons of public health
28 and security and

29

1 (d) Immediate release of urgent, necessary monitoring equipment when there
2 is an ongoing volcanic eruption.

3
4 Sec. 19. A land area equivalent to at least ten (10) hectares out of the vast land which
5 are under the administration of BCDA within the Clark Special Economic Zone in
6 Pampanga and Tarlac, shall be allocated for free exclusively for the PHIVOLCS office
7 and its stations.

8 Sec. 20. Simplification of Documentation Requirements -
9

10 (a) Consignments of equipment sent by international collaborative research
11 partners shall be cleared or released on the basis of a simplified equipment
12 declaration providing the minimum information necessary for the Bureau of
13 Customs to identify the equipment and object, when deemed necessary, to
14 completion of a more complete declaration within a specified period.

15
16 (b) The requirements for the declaration for all imports of equipment by or on
17 behalf of international collaborative research partners and any supporting
18 documents relating to it, release and clearance shall be simplified and lodged
19 without fee.

20
21 SEC. 21. Appropriations. – The amount necessary to carry out the implementation of
22 this Act shall be initially charged against the current fiscal year appropriations of the
23 DOST – PHIVOLCS. Thereafter, the amount needed for the continued implementation
24 of the modernization program, shall be included in the annual General Appropriations
25 Act.

26 SEC. 22. Implementing Rules and Regulations (IRR) – Within ninety (90) days from
27 the effectivity of this Act, the PHIVOLCS shall issue the IRR for the effective
28 implementation of this Act in consultation with relevant stakeholders.

1 SEC. 23. Separability Clause. – If any provision or part of this Act is declared invalid
2 or unconstitutional, the other provisions hereof which are not affected thereby shall
3 continue to be in full force and effect.

4

5 SEC. 24. Repealing Clause. – All laws, orders, proclamations, rules and regulations or
6 parts thereof which are inconsistent with the provisions of this Act are hereby repealed
7 or modified accordingly.

8

9 SEC. 25. Effectivity Clause. – This Act shall take effect fifteen (15) days after its
10 publication in one (1) national newspaper of general circulation.

11

12 Approved,