

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



23 MAY -9 A8:51

SENATE
S. No. 2152

RECEIVED BY: _____

Introduced by Senator Jinggoy Ejercito Estrada

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

EXPLANATORY NOTE

The Philippines sits in the Pacific Ring of Fire, a region on the fringes of the Pacific basin (from the Andes Mountains in South America, western coast of North America, Japan, Indonesia and Tonga) that is an active belt of earthquake epicenters and volcanoes. Majority of the world's strongest earthquakes and as much as 75% of the world's volcanoes occur in this region. The Ring of Fire is the setting for several of the largest earthquakes in recorded history¹.

The country has 24 active volcanoes, including Taal, Mayon and Pinatubo, whose eruption in 1991 is considered as the largest eruption of the 20th century. Meanwhile, there were around twenty destructive earthquakes with magnitude 6.0 and higher which were recorded in various parts of the archipelago since 1973.

The Philippine Institute of Volcanology and Seismology (PHIVOLCS) is a service institute under the Department of Science and Technology (DOST). It is mandated to mitigate disasters that may arise from volcanic eruptions, earthquakes, tsunami and related events. Since its establishment in 1952, then known as the Commission on Volcanology (COMVOL), up to the present, we relied on their

¹ <https://www.britannica.com/place/Ring-of-Fire>

expertise in keeping communities safe against devastating ground movement, volcanic activities, and enormous sea waves.

In the same vein as Republic Act No. 10692 or the "PAGASA (Philippine Atmospheric, Geophysical and Astronomical Services Administration) Modernization Act of 2015" and Republic Act No. 10867 or the "National Bureau of Investigation Reorganization and Modernization Act" which both mandated the acquisition of state-of-the-art equipment and laboratories as well as human resources capability building, this bill seeks to upgrade the resources and capacities of PHIVOLCS as the country's premier science and technology institution and authority on volcanoes, earthquake, and other related geotectonic phenomena. Enhancing the capacity of PHIVOLCS and providing them with the right and latest instruments mean bolstering our preparedness against disasters and reducing our vulnerabilities against geological hazards.

The immediate passage of this proposed measure is earnestly endorsed.




JINGGOY EJERCITO ESTRADA

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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 known as the "PHIVOLCS
2 *Modernization Act.*"
- 3 Sec. 2. *Declaration of Policy.* – It is the policy of the State to utilize scientific
4 and technical knowledge and information as effective instruments to ensure the
5 safety, well-being and economic security of the people; to safeguard the
6 environment; and to promote national progress and sustainable socioeconomic
7 development through various applications of geology, geophysics, geodetic
8 engineering and allied sciences. The State also recognizes the need to strengthen
9 the capability of government personnel tasked to monitor volcanic and seismological
10 activities and other related services and information to the public. Towards this end,
11 the State shall undertake the modernization of the Philippine Institute of Volcanology
12 and Seismology (PHIVOLCS) to improve its technological operational capacity,
13 strengthen its role as the premier national volcano and earthquake monitoring
14 agency and to attain its vision as a center of excellence for related information
15 services.

1 Sec. 3. *Objectives.* – Pursuant to the foregoing policy, the PHIVOLCS
2 Modernization Program shall be implemented in accordance with the following
3 objectives:

- 4 a) To upgrade physical resources and operational techniques through
5 acquisition and development of state-of-the-art instruments, equipment,
6 facilities and systems to enhance current capabilities in providing useful,
7 timely, accurate and reliable volcanic and seismological data and localized
8 warning and information services for use in decision-making in disaster
9 preparedness, climate change adaptation, water resources management,
10 agriculture and food security, transportation safety, public health, tourism
11 and other sectors;
- 12 b) To enhance research and development capabilities by adopting a
13 rationalized and integrated approach with focus on the improvement of
14 basic operations and specialized services;
- 15 c) To integrate disaster risk reduction and management in the sustainable
16 socioeconomic development planning at the national and local levels in
17 coordination with appropriate government agencies and other entities;
- 18 d) To strengthen linkages and cooperation at the national level among the
19 various providers and users of geological, seismological and other related
20 information, products and services as well as to provide for the
21 appropriate mechanisms for this purpose;
- 22 e) To establish and enhance volcanic and seismological activity monitoring
23 service centers in strategic areas in the country to broaden the agency
24 base for the delivery of service in the countryside;
- 25 f) To strengthen a technology-based data center consistent with
26 international standards to make information available to those involved,
27 whether from the government or private sector in Disaster Risk Reduction
28 and Management Plans, among others;
- 29 g) To enhance public information, education and advocacy on geological
30 activities, as well as their impacts, risks and vulnerability;

1 h) To facilitate the appropriate appreciation and delivery of information,
2 products and services to decision makers, mass media, other users and
3 the general public; and,

4 i) To provide a more competitive base pay and other benefits for its
5 personnel in order to promote professionalism and commitment to the
6 service.

7 *Sec. 4. Definition of Terms.* – The following terms are defined as follows:

8 a) *Seismology* is the scientific study of the sudden, violent movements of the
9 earth connected with earthquakes;

10 b) *Tsunami* is a series of large waves of extremely long wavelength and
11 period usually generated by a violent, impulsive undersea disturbance or
12 activity near the coast or in the ocean;

13 c) *Volcanology* is the study of volcanoes, lava, magma, ash or tephra fall
14 and related geological, geophysical and geochemical phenomena.

15 *Sec. 5. Mandate.* – The PHIVOLCS is mandated to:

16 a) Predict and monitor the occurrence of volcanic eruptions and earthquakes,
17 and their related geotectonic phenomena;

18 b) Determine how volcanic eruptions and earthquakes shall occur and areas
19 likely to be affected;

20 c) Mitigate hazards of volcanic activities through appropriate and scientific
21 detection, forecast and warning system;

22 d) Provide appropriate volcano, earthquake and tsunami products and
23 services for disaster preparedness; and,

24 e) Provide timely, quality and socially-inclusive information and services for
25 warning, disaster preparedness and mitigation.

26 *Sec. 6. Organizational Structure.* – The PHIVOLCS shall be an attached
27 agency of the Department of Science and Technology (DOST) for purposes of policy
28 and program coordination, to ensure alignment in national science and technology
29 policies and priorities.

30 It shall be headed by an Executive Director V with the rank and compensation
31 of a Department Undersecretary who shall be appointed by the President upon
32 recommendation by the Secretary of the DOST.

1 The Executive Director V shall be assisted by three (3) Deputy Executive
2 Director V for Operations Services; Research and Development and S&T Services;
3 and Administration, Finance and General Services, all with the rank and
4 compensation of a Department Assistant Secretary to be appointed by the President.

5 *Sec. 7. Qualifications.* – No person shall be appointed as Executive Director V
6 unless that person is a natural-born citizen and a resident of the Philippines, of good
7 moral character, has an advanced degree in geology, geodetic engineering,
8 volcanology, physics, and other related fields and with at least five (5) years of
9 competence and expertise in volcanology, geophysics, and/or allied sciences.
10 *Provided,* That the Executive Director V and the three (3) Deputy Executive Director
11 V shall be career executive officers.

12 *Sec. 8. Components of Modernization.* – The PHIVOLCS modernization shall
13 have the following components:

- 14 a) Upgrading and Maintenance of Physical Resources and Operational
15 Techniques. – This shall entail the acquisition and/or upgrade of state-of-the-
16 art instruments, equipment, facilities, systems, and operational techniques,
17 with emphasis on volcano, earthquake and tsunami monitoring and warning
18 system: *Provided,* That prior to such acquisition and/or upgrade, an inventory
19 of existing government and private, volcanic and seismological instruments
20 nationwide shall be undertaken: *Provided, further,* That the acquisition of new
21 instruments, equipment and systems shall be harmonized with the phase-out
22 of uneconomical, irreparable, unserviceable and obsolete instruments,
23 equipment and systems in the PHIVOLCS inventory.
- 24 b) Sustained development of volcano monitoring network infrastructure for all
25 active volcanoes of the Philippines that will ensure early warning of volcanic
26 activity, even at volcanoes of long dormancy.
- 27 c) Sustainable development of continually evolving technologies on early-
28 warning systems will help the national government keep abreast with the
29 latest in S&T while maximizing its investment in public safety amidst
30 technology shifts and changes. From state-of-the-art systems to customized
31 off-the-shelf instruments interfaced by the Internet-of-Things, such
32 technologies shall provide quality scientific data while instilling a culture of

1 dynamic technical learning, vital to long-term organizational growth and
2 performance.

3 d) Earthquake Monitoring and Information System Development. – Establish,
4 operate and maintain an advanced infrastructure for earthquake and tsunami
5 monitoring throughout the Philippines that operates with high performance
6 standards, gathers critical technical data, and effectively provides information
7 products and services to meet the needs of the Philippine government and
8 the general public.

9 e) Reliable Monitoring. – Continuously monitor earthquakes and other seismic
10 disturbances throughout the Philippines, including earthquakes that may
11 cause a tsunami or precede a volcanic eruption, with special focus on regions
12 of moderate- to high-hazard and risk.

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

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

26 h) Establishment of permanent PHIVOLCS building including land acquisition to
27 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 i) Enhancement of Research and Development Capability. – This shall involve
32 the enhancement of research and development capability through a more

1 rationalized and integrated approach with established earthquake and volcano
2 research laboratories, focusing on improvement of operations, as well as the
3 strengthening of specialized services with cost recovery measures;

4 j) Enhancement of Public Information and Linkages with Local Government
5 Units (LGUs) and other stakeholders. – This shall include continuous sharing
6 of information to LGUs and other stakeholders that help in the disaster risk
7 planning, assessment, preparation, response, disaster mitigation, recovery
8 and rehabilitation, among others.

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

22 l) Strengthening of the Human Resource Development Program (HRDP). – The
23 HRDP of PHIVOLCS will continue to be aligned with the strategic goals of the
24 Institute. This shall ensure that personnel are provided equal opportunities for
25 self-improvement to be competent, motivated to work and rewarded.
26 Complementation and capacity-building of a wide-range of experts in
27 volcanology and seismology and to efficiently develop, operate and maintain
28 advanced monitoring systems and distill accurate volcano, earthquake and
29 tsunami information for public guidance. Support to continued professional
30 learning will further ensure skills development and motivation that will
31 translate to better S&T services.

1 *Sec. 9. Collaboration or linkages with Local Government Units (LGUs).* – With
2 this institutional modernization of PHIVOLCS, the roles of the local government will
3 also be enhanced to cover the following areas:

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

12 b) Information Dissemination. It is critically important for PHIVOLCS to work
13 closely with the national and local disaster agencies to craft appropriate
14 information messages, to regularly test and evaluate their dissemination
15 communication channels, and to identify gaps and dissemination problems, so
16 that the messages reach the intended users at the appropriate time.

17 c) Awareness and Promotion. Outreach and communication with the public is
18 crucial to their understanding and awareness of the nature of the geotectonic
19 hazards, the risks to personal safety and property, and the steps to reduce
20 those risks including the deployment of sustainable, reliable and effective
21 monitoring and warning systems. With this, the local government is expected
22 to promote in local and international recognition programs, its own interfaces
23 with the enhanced PHIVOLCS system with its increased coverage and explore
24 avenues to enjoy its full benefits.

25 d) Technical Review. The local government shall contribute in the review of
26 local research, exchange information and coordinate local projects during
27 regular meetings to ensure readiness to disasters, such that appropriate
28 guidelines are consistently crafted and refined, and that local support
29 infrastructure to the enhanced systems are adequately funded and utilized.

30 *Sec. 10. Components of the HRDP.* – This component shall include the
31 following:

- 1 a) New Salary Scale for PHIVOLCS Personnel. – The Department of Budget and
2 Management (DBM) shall develop a new salary scale for PHIVOLCS personnel
3 in consonance with Republic Act No. 8439, as amended, otherwise known as
4 the “Magna Carta for Scientists, Engineers, Researchers and other Science
5 and Technology Personnel in Government” with a corresponding increase in
6 the base pay, allowances and other benefits;
- 7 b) PHIVOLCS Personnel Retention Incentive. – An additional incentive to be
8 known as the “Personnel Retention Incentive” shall be provided to qualified
9 PHIVOLCS personnel, to be determined by PHIVOLCS in consultation with
10 DBM, in an amount not exceeding twenty percent (20%) of the monthly basic
11 salary subject to the implementing rules and regulations (IRR) which shall be
12 hereinafter formulated;
- 13 c) Scholarship Program. – Not later than three (3) years from the enactment of
14 this Act, scholarships shall be provided for undergraduate and graduate
15 studies in volcano- and seismology-related fields, as well as for specialized
16 training programs, in coordination with the DOST, Commission on Higher
17 Education (CHED) and Higher Education Institutions (HEIs). Cooperation on
18 human resources upgrading and capability enhancement with regional and
19 international organizations shall also be undertaken; and,
- 20 d) Development of Regional and International Cooperation Program. – This shall
21 entail the development of appropriate collaborative arrangements with
22 relevant regional and international bodies and government institutions to
23 complement the national effort for modernization.

24 Sec. 11. *Disaster Preparedness, Public Information and Dissemination*
25 *Services.* – The institutional modernization of PHIVOLCS shall enhance public
26 information, education and advocacy on earthquake, tsunami and volcano hazards
27 and risks. To facilitate the appropriate appreciation and delivery of science-based
28 information to target stakeholders for proper response actions before and during the
29 occurrence of these hazards, there shall be provision for:

- 30 a) Fully-equipped and well-staffed learning/training center that will serve as a
31 platform for planning, implementing, monitoring, and evaluating capacity
32 development programs for various stakeholders regarding mitigation and

1 preparedness for volcanic eruptions, earthquakes, and tsunami-related
2 hazards.

3 b) A knowledge management system (composed of people, process,
4 infrastructure, and strategy) that will ensure that researches are attuned to
5 the public's needs and that research and development outputs are translated
6 into culturally-relevant, gender-responsive, and disability-inclusive capacity
7 development programs, and warning and risk information products and
8 services for key stakeholders and the public.

9 c) A multi-channel and multi-directional communication strategy and
10 standardized procedures that shall ensure access to and effective
11 dissemination of useful information on volcano, earthquake and tsunami
12 disaster preparedness, risk reduction, and emergency response to intended
13 stakeholders and the public.

14 *Sec. 12. Formulation and Submission of the PHIVOLCS Modernization*
15 *Program.* – The Executive Director of the PHIVOLCS, in coordination with the
16 Secretary of the DBM and the Director-General of the National Economic and
17 Development Authority (NEDA), shall formulate the PHIVOLCS Modernization
18 Program and oversee its implementation based on the policy objectives provided in
19 this Act.

20 The PHIVOLCS Modernization Program shall indicate among others:

21 a) PHIVOLCS requirements in terms of personnel, equipment and facilities
22 during the various stages of modernization;

23 b) The modernization projects, which shall indicate the equipment and
24 technology acquisitions, including major construction or upgrade of facility
25 and the particular objective and component to which such intended
26 acquisition, construction and upgrading belongs to; and,

27 c) The priorities, schedules and estimated cost of each modernization
28 project.

29 *Sec. 13. Period of Implementation.* – The modernization program under this
30 Act shall be implemented for an initial period of three (3) years: *Provided,* That
31 payments for multi-year contract obligations incurred under this Act may extend
32 beyond this period: *Provided, further,* That PHIVOLCS shall continue to modernize

1 and constantly update its operational capabilities to keep pace with best
2 international practices.

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

6 a) The amount of Five billion pesos (P5,000,000,000.00) to be taken from the
7 share of the National Government in the gross income of the Bases
8 Conversion and Development Authority (BCDA). For two (2) years after the
9 effectivity of this Act, an amount of Two billion five hundred million pesos
10 (P2,500,000,000.00) per year shall be released to the PHIVOLCS. The entire
11 amount of Five billion pesos (P5,000,000,000.00), including any interest
12 income thereon, shall be used exclusively for capital outlay.

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

17 The PHIVOLCS Modernization Fund shall be administered by the Executive
18 Director of the PHIVOLCS in accordance with existing government budgeting,
19 accounting and auditing rules and regulations.

20 Sec. 15. *Annual Report.* – The Executive Director of the PHIVOLCS shall
21 prepare an annual report on the status of the implementation of the PHIVOLCS
22 Modernization Program which shall be submitted through the DOST Secretary, to the
23 President and to the Chairpersons of the Committee on Science and Technology of
24 the Senate and the House of Representatives not later than June 30 of the
25 succeeding year.

26 Sec. 16. *Tax Exemptions.* – Donations, grants, gifts, endowments, legacies,
27 and contributions used actually, directly and exclusively for the purpose for
28 PHIVOLCS shall be exempt from donor's tax and the same shall be considered as
29 allowable deduction from gross income for purposes of computing the taxable
30 income of the donor, in accordance with Sec. 34 (H)(2)(a) of the National Internal
31 Revenue Code of 1997, as amended. Likewise, such other transfers of ownership

1 and/or possession of real or personal properties of all kinds shall be exempt from all
2 taxes.

3 *Sec. 17. Procurement of Scientific and Technical Materials, Equipment, and*
4 *Services.* – The PHIVOLCS shall undertake the procurement of scientific and
5 technical materials, equipment, and services in its operation and administration, in
6 the most expeditious manner, and adopt the most suitable or appropriate method of
7 procurement that it deems fit based on its identified needs and requirements
8 depending on the existing conditions and requirements that justify the use of a
9 particular alternative modality provided for by Republic Act No. 9184, otherwise
10 known as the “Government Procurement Reform Act” and its Implementing Rules
11 and Regulations (IRR).

12 *Sec. 18. Exemption from Import Duties, Taxes and Restrictions.* – Importation
13 and consignments of equipment shall benefit from:

- 14 a) Exemption from all duties and taxes;
- 15 b) Waiver of economic prohibitions and restrictions except for categories of
16 special goods and equipment that may be indicated by the PHIVOLCS;
- 17 c) Clearance without regards to the country of origin or the country from
18 which the goods have arrived, subject to monitoring for reasons of public
19 health and security; and,
- 20 d) Immediate release of urgent, necessary monitoring equipment when
21 there is an ongoing volcanic eruption.

22 *Sec. 19. Simplification of Documentation Requirements.* – The requirements
23 for the declaration for all imports of equipment by or on behalf of international
24 collaborative research partners and any supporting documents relating to it, release
25 and clearance shall be simplified and lodged without fee.

26 *Sec. 20. Appropriations.* – The amount necessary to carry out the
27 implementation of this Act shall be initially charged against the current fiscal year
28 appropriations of the DOST – PHIVOLCS. Thereafter, the amount needed for the
29 continued implementation of the modernization program, shall be included in the
30 annual General Appropriations Act.

1 Sec. 21. *Implementing Rules and Regulations (IRR)*. – Within ninety (90) days
2 from the effectivity of this Act, the PHIVOLCS shall issue the IRR for the effective
3 implementation of this Act in consultation with relevant stakeholders.

4 Sec. 22. *Separability Clause*. – If any provision of this Act is declared invalid
5 or unconstitutional, the remaining provision not affected thereby shall continue to be
6 in full force and effect.

7 Sec. 23. *Repealing Clause*. – All laws, decrees, orders or regulations or part
8 thereof inconsistent with this Act are hereby repealed or modified accordingly.

9 Sec. 24. *Effectivity*. – This Act shall take effect fifteen (15) days following the
10 completion of its publication in the *Official Gazette* or in a national newspaper of
11 general circulation.

Approved,