

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



23 MAY -9 A10 :36

SENATE

S. No. 2156

RECEIVED BY:

Introduced by SENATOR RAMON BONG REVILLA, JR.

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 Philippine Institute of Volcanology and Seismology (PHIVOLCS) is a service institute of the Department of Science and Technology (DOST) that is mandated to provide warning, disaster preparedness, and mitigation of events arising from volcanic eruptions, earthquakes, tsunami and other related geotectonic phenomena.

The measure aims to upgrade the agency's capability to provide timely, reliable and quality information and service by upgrading their existing equipment, facilities, and system and providing better incentives for their personnel and creating additional *plantilla* items to expand its pool of experts. The enhancement of human resources includes the creation of a new salary scale, a retention incentive, and an enhanced development program.

PHIVOLCS reported that there are 24 active volcanoes in the country, however only 10 are being monitored. Of the 10 monitored, only two are equipped with the recommended instruments. By enhancing their technical capabilities, the institute will be able to produce more accurate seismological data and improve localized warning and information services to have better decision-making during disaster preparedness.

The measure is an initiative "to bridge the gap between the resources allocated to the agency and the hazard generators that need to be monitored."

This measure has been endorsed by the Department of Science and Technology and PHIVOLCS as part of their Legislative Agenda.

In view of enhancing the technological operational capacity of PHIVOLCS, the immediate approval of this bill is earnestly sought.



RAMON BONG REVILLA, JR.

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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 the “*PHIVOLCS Modernization Act of*
2 *2023.*”

3 Sec. 2. *Declaration of Policy.* – It has been the policy of the State to utilize
4 scientific and technical knowledge and information as an effective instrument to
5 ensure the 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 the
9 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 agency
14 and to attain its vision as a center of excellence for related information services.

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

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

31 *Sec. 4. Definition of Terms.* – the following terms are defined as follows:

- 1 a. "*Seismology*" refers to the scientific study of the sudden, violent movements of
2 the earth connected with earthquakes
- 3 b. "*Tsunami*" refers to a series of large waves of extremely long wavelength and
4 period usually generated by a violent, impulsive undersea disturbance or
5 activity near the coast or in the ocean.
- 6 c. "*Volcanology*" refers to the study of volcanoes, lava, magma, ash or tephra fall
7 and related geological, geophysical and geochemical phenomena.

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

- 9 a. Predict the occurrence of volcanic eruptions and earthquakes, and their related
10 geotectonic phenomena;
- 11 b. Determine how volcanic eruptions and earthquakes shall occur and areas likely
12 to be affected;
- 13 c. Mitigate hazards of volcanic activities through appropriate detection, forecast
14 and warning system; and
- 15 d. Provide appropriate volcano, earthquake and tsunami products and services for
16 disaster preparedness.

17 PHIVOLCS shall provide timely, quality and socially-inclusive information and
18 services for warning, disaster preparedness and mitigation.

19 *Sec. 6. Organizational Structure.* - The PHIVOLCS shall be an attached agency
20 of the Department of Science and Technology (DOST) for purposes of policy and
21 program coordination, to ensure alignment in national science and technology policies
22 and priorities.

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

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

31 *Sec. 7. Qualifications.* – No person shall be appointed as Executive Director V
32 unless that person is a natural-born citizen and a resident of the Philippines, of good

1 moral character, has an advanced degree in geology, geodetic engineering,
2 volcanology, physics, and other related fields and with at least five (5) years of
3 competence and expertise in volcanology, geophysics, and or allied sciences. *Provided,*
4 That the Executive Director V and the three (3) Deputy Executive Director V shall be
5 career executive officers.

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

- 8 a. Upgrading and Maintenance of Physical Resources and Operational Techniques.
9 – This shall entail the acquisition and/or upgrade of state-of-the-art
10 instruments, equipment, facilities, systems, and operational techniques, with
11 emphasis on volcano, earthquake and tsunami monitoring and warning system:
12 *Provided,* That prior to such acquisition and/or upgrade, an inventory of existing
13 government and private, volcanic and seismological instruments nationwide
14 shall be undertaken: *Provided, further,* That the acquisition of new instruments,
15 equipment and systems shall be harmonized with the phase-out of
16 uneconomical and obsolete instruments, equipment and systems in the
17 PHIVOLCS inventory;
- 18 b. Sustained adoption and development of Volcano Monitoring network
19 infrastructure for all active volcanoes of the Philippines that will ensure early-
20 warning of volcanic activity even at volcanoes of long dormancy;
- 21 c. Sustainable development of continually evolving technologies for eruption
22 early-warning. - This will help the national government keep abreast with the
23 latest in S&T while maximizing its investment in public safety amidst technology
24 shifts and changes. From state-of-the-art systems to customized off-the-shelf
25 instruments interfaced by the internet-of-things, such technologies provide
26 quality scientific data while instilling a culture of dynamic technical learning,
27 vital to long-term organizational growth and performance;
- 28 d. Earthquake Monitoring and Information System Development. - Establish,
29 operate and maintain an advanced infrastructure for earthquake and tsunami
30 monitoring throughout the Philippines that operates with high performance
31 standards, gathers critical technical data, and effectively provides information

- 1 products and services to meet the needs of the Philippine government and the
2 public;
- 3 e. Reliable Monitoring. - Continuously monitor earthquakes and other seismic
4 disturbances throughout the Philippines, including earthquakes that may cause
5 a tsunami or precede a volcanic eruption, with special focus on regions of
6 moderate to high hazard and risk;
- 7 f. Long-term Protection and Conservation of the Built Environment. - Thoroughly
8 measure strong earthquake shaking at ground sites and in buildings and critical
9 structures. Focus should be in urban areas and near major active fault zones
10 to gather greatly needed data and information for reducing earthquake impacts
11 on buildings and structures;
- 12 g. Development of Forecasting Capability for Impending Large Earthquakes and
13 Tsunami Events. - Develop machine learning capability to determine
14 earthquake parameters and the resulting information will automatically be
15 broadcast to mobile phones and social media accounts whenever a significant
16 earthquake occurs, for immediate assessment of impacts. In areas feasible, for
17 sites at a distance from the epicenter, an early warning will be broadcasted
18 seconds before strong shaking arrives. Provide similar capabilities for
19 automated warning and alert for tsunamis;
- 20 h. Establishment of permanent PHIVOLCS building. - This includes land acquisition
21 to house the Data Receiving or Operation Centers for real-time volcano,
22 earthquake and tsunami monitoring. This shall ensure stability and protection
23 of government investments on scientific, technical equipment and research
24 laboratories;
- 25 i. Enhancement of Research and Development Capability. – This shall involve the
26 enhancement of research and development capability through a more
27 rationalized and totally integrated approach with established earthquake and
28 volcano research laboratories, focusing on improvement of operations, as well
29 as the strengthening of specialized services with cost recovery measures;
- 30 j. Enhancement of Public Information and Linkages with Local Government Units
31 (LGUs) and other stakeholders. - This shall include continuous sharing of

1 information to LGUs and other stakeholders that help in the disaster planning,
2 preparation, disaster mitigation, among others;

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

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

19 Complementation and capacity-building of a wide-range of experts in
20 volcanology and seismology. - This is to efficiently develop, operate and
21 maintain advanced monitoring systems and distill accurate volcano, earthquake
22 and tsunami information for public guidance. And support to continued
23 professional learning will further ensure skills development and motivation that
24 will translate to better S&T services.

25 Sec. 9. *Whole-of-Government Approach.* - This Act shall be implemented using
26 a whole-of-government approach to ensure proper coordination of various
27 aspects in disaster resilience risk mitigation, and response across all areas of
28 government; namely local governance, education, communication, science and
29 technology.

30

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 news
5 media and the emergency management community, shall frequently act as
6 intermediaries between PHIVOLCS and its complex target audience including
7 the general public, institutional decision makers, and emergency responders,
8 especially in crafting plans attuned to the local needs of its constituents to
9 increase public resilience to earthquakes, tsunami and volcanic eruptions, to
10 reduce or eliminate long-term risk to human life and property and shorten
11 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 tsunami messages reach the intended users when an event occurs.
- 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 local and international recognition programs, its own interfaces with
23 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 local
26 research, exchange information and coordinate local projects during regular
27 local meetings to ensure readiness to disasters, that appropriate guidelines are
28 consistently crafted and that local support infrastructure to the enhanced
29 systems are funded;

30 *Sec. 10. Components of the Human Resource Development Program (HRDP).*

31 – This component shall include the 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 and*
5 *Technology Personnel in Government*” with a corresponding increase in the
6 base pay, allowances and other benefits;
- 7 b. PHIVOLCS Personnel Retention Incentive. – An additional incentive to be known
8 as the “Personnel Retention Incentive” shall be provided to qualified PHIVOLCS
9 personnel, to be determined by PHIVOLCS in consultation with DBM in an
10 amount not exceeding twenty percent (20%) of the monthly basic salary
11 subject to the implementing rules and regulations (IRR) which shall be
12 hereinafter formulated; and
- 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 studies
15 in volcano- and seismology-related fields as well as for specialized training
16 programs, in coordination with the DOST, Commission on Higher Education
17 (CHED) and Higher Education Institutions (HEIs). Cooperation on human
18 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 relevant
22 regional and international bodies and government institutions to complement
23 the national effort for modernization.

24 *Sec. 11. Disaster Preparedness, Public Information and Dissemination Services.*

25 – The institutional modernization of PHIVOLCS shall enhance public information,
26 education and advocacy on earthquake, tsunami and volcano hazards and risks. To
27 facilitate the appropriate appreciation and delivery of science-based information to
28 target stakeholders for proper response actions before and during the occurrence of
29 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 the
5 public's needs and that research and development outputs are translated into
6 culturally-relevant, gender-responsive, and disability-inclusive capacity
7 development programs, and warning and risk information products and services
8 for key stakeholders and the public; and

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

13 *Sec. 12. Formulation and Submission of the PHIVOLCS Modernization Program.*

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

18 The PHIVOLCS Modernization Program shall indicate among others:

19 a. PHIVOLCS requirements in terms of personnel, equipment and facilities during
20 the various stages of modernization;

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

25 c. The priorities, schedules and estimated cost of each modernization project.

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

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

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

3 Sec. 14. *PHIVOLCS Modernization Fund.* – There is hereby created the
4 PHIVOLCS Modernization Fund to be used exclusively for the PHIVOLCS Modernization
5 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 Conversion
8 and Development Authority (BCDA). For two (2) years after the effectivity of
9 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 income
12 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 into
16 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 prepare
21 an annual report on the status of the implementation of the PHIVOLCS Modernization
22 Program which shall be submitted through the DOST Secretary, to the President and
23 to the Chairpersons of the Committee on Science and Technology of the Senate and
24 the House of Representatives not later than June 30 of the succeeding year.

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

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

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

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

20 Sec. 19. *Simplification of Documentation Requirements* -

- 21 a. Consignments of equipment sent by international collaborative research
22 partners shall be cleared or released on the basis of a simplified equipment
23 declaration providing the minimum information necessary for the Bureau of
24 Customs to identify the equipment and object, when deemed necessary, to
25 completion of a more complete declaration within a specified period.
- 26 b. The requirements for the declaration for all imports of equipment by or on
27 behalf of international collaborative research partners and any supporting
28 documents relating to it, release and clearance shall be simplified and lodged
29 without fee.

30 Sec. 19. *Appropriations.* – The amount necessary to carry out the
31 implementation of this Act shall be initially charged against the current fiscal year
32 appropriations of the DOST – PHIVOLCS. Thereafter, the amount needed for the

1 continued implementation of the modernization program, shall be included in the
2 annual General Appropriations Act.

3 *Sec. 20. Implementing Rules and Regulations (IRR)* – Within ninety (90) days
4 from the effectivity of this Act, the PHIVOLCS shall issue the IRR for the effective
5 implementation of this Act in consultation with relevant stakeholders.

6 *Sec. 21. Separability Clause.* – If any provision or part of this Act is declared
7 invalid or unconstitutional, the other provisions hereof which are not affected thereby
8 shall continue to be in full force and effect.

9 *Sec. 22. Repealing Clause.* – All laws, orders, proclamations, rules and
10 regulations or parts thereof which are inconsistent with the provisions of this Act are
11 hereby repealed or modified accordingly.

12 *Sec. 23. Effectivity Clause.* – This Act shall take effect fifteen (15) days after its
13 publication in the Official Gazette or in two (2) newspapers of general circulation in
14 the Philippines.

Approved,