

Republic of the Philippines  
**HOUSE OF REPRESENTATIVES**  
Quezon City, Metro Manila

**EIGHTEENTH CONGRESS**  
Third Regular Session

**House Bill No. 9635**



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Introduced by Representative MICAELA S. VIOLAGO

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### **EXPLANATORY NOTE**

Founded in 1907, the Central Luzon State University (CLSU) is a premiere comprehensive university with banner programs in agricultural science and technology and allied fields. The University's sustained commitment to service and excellence is reflected in the quality of instruction it offers and in the viable culture of research for development it continuously nurtures.

The Commission of Higher Education (CHED) identifies CLSU as a university demonstrating excellent performance in the areas of instruction, research and publication, extension and linkages, and institutional qualifications hence declaring it as a Center of Excellence (COE) in agriculture, agricultural engineering, biology, fisheries, teacher education and veterinary medicine.

CLSU's membership to several prestigious international organizations of higher education institutions like the ASEAN University Network (AUN), ASEAN International Mobility for Students (AIMS), Association of Universities in Asia and the Pacific (AUAP), University Mobility for Asia and the Pacific (UMAP), and Southeast Asian University Consortium for Graduate Education in Agriculture and Natural Resources (UC) as well as its inclusion in the Quacquarelli Symonds (QS) World University Rankings 2021: Asia earn the University a global foothold which comes with a challenge to constantly upgrade its processes to meet international standards and to maintain its responsiveness amidst the evolving landscape of higher education in a global perspective.

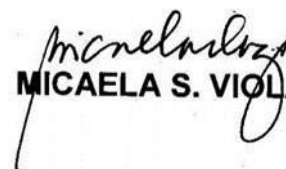
Over the years, CLSU continues to implement research programs of high impact and significance to the agriculture sector which is dubbed as the country's backbone. The CLSU - Tuklas Lunas Development Center (TLDC) is named by the DOSTPhilippine Council for Health Research and Development (PCHRD) as a leading center in developing medicinal solutions through drug discovery using mushrooms. The CLSU Nanotechnology R and D Program and Facility is the first nanotechnology program with the state of the art facility in the country that focuses on agri-fishery. The

Indoor Vertical Farming System for Year-Round Production of High Value Crops in the Lowland Tropics is a cutting edge technology that uses a controlled environment to revolutionize vertical agriculture. This year alone, CLSU received funding support from the Department of Agriculture to establish the Precision and Digital Agriculture Center (PreDiC) and the Center for Transboundary Animal Diseases (CenTrAD), the country's first and only center to handle transboundary animal diseases such as African swine fever and avian flu, among others by developing technologies and tools for accurate disease diagnosis and prevention, hence protecting the animal industry and the health of the local economy.

For the last three years, the collective efforts of CLSU researchers and the University's strong collaborations with its partner institutions yielded a conservative estimate of P952 million worth of funding support for the implementation of cuttingedge research and development projects. The unwavering trust of the partner agencies help translate the institution's vision and mission into reality, thus propelling CLSU to subscribe to an even greater organizational commitment for the people it serves. From 2018-2020, the target of CLSU to generate and disseminate knowledge and technology were translated into fruitful outcomes: 467 researches completed, 234 knowledge products generated, 37 IPR applied, 1 technology patented, 104 technodemo sites established, 36,107 people trained, 56,433 clients provided with technical advisory and consultancy services, and 516 linkages established.

The commitment of CLSU to contribute to the betterment of society remains steadfast. A well-defined and sustainable allocation of resources for research and development projects will put CLSU to be in a better position to fulfill its noble mandates. A sustainable and stable financial funding ensures the sustainability of each of the centers proposed herewith.

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

  
**MICAELA S. VIOLAGO**

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**AN ACT DESIGNATING THE CENTRAL LUZON STATE UNIVERSITY (CLSU)  
AS RESEARCH AND DEVELOPMENT REGIONAL ZONE AND  
APPROPRIATING FUNDS THEREFOR**

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

**Section 1. Title.** This Act shall be known as the “CLSU as Research and Development Regional Zone Act”.

**Section 2. Declaration of Policy.** It is hereby declared the policy of the state to give priority to research and development among others as provided for under Article XIV, Section 10 of the 1987 Philippine Constitution:

*“Science and technology are essential for national development and progress. The State shall give priority to research and development, invention, innovation and their utilization; and to science and technology education, training, and services. It shall support indigenous, appropriate, and self-reliant scientific and technological capabilities, and their application to the country’s productive systems and national life.”*

**Section 3. Establishment of Regional Centers.** The following existing centers of CLSU are hereby declared as Regional Centers:

**1. Regional Center for the Advancement of Mushroom Research and Development**

The Regional Center for the Advancement of Mushroom Research and Development is the only center in the country dedicated exclusively on advanced mushroom research and development which is based in a university. It is manned by academic professionals with advanced degree in Biology with specialization in different areas of mushroom science and biotechnology. The center focuses on both basic and applied research on different aspects of mushroom biology and

biotechnology for technological advancement and community development. It generates rural - based technology which are easily adapted by the rural people it serves.

The center has generated practical and innovative technologies on mushroom and spawn production.

**Generated Technologies:**

1. Zero rice waste technology for mushroom production (utilization of rice straw based substrate formulations for mushroom production)
2. Biotechnological production of schizophyllan from *Schizophyllum commune*
3. Indoor cultivation technology for paddy straw mushroom (*Volvariella volvacea*)
4. Adaptability of exotic mushrooms under Philippine condition

**Goals**

Develop practical and innovative technologies through research and empower community for nation building, global competitiveness and sustainable development.

**Objectives**

1. Encourage community-based participation in the development of rural-based mushroom industry.
2. Provide venue for a stronger linkage between the rural-based industry and the academe while utilizing indigenous resources and practical technologies.

**Specific Programs, Projects and Activities**

1. Research on Drug discovery through the Tuklas Lunas Project
  - a. Ethnomycology, Mycophagy and Mykopharming of Wild Edible and Poisonous Mushrooms
  - b. In Vitro Enzyme-based Screening of Mushrooms and Functional Foods for Anti-pain, Anti-hypertensive, and Anti-diabetic properties
  - c. Molecular Identification, Toxicity Profiling and Anti-Cancer Screening of Wild and Edible Mushrooms in Luzon Island Philippines
  - d. Development of Mushroom-Based Functional Foods
2. Optimization of Culture Conditions for Mycelial Growth of Exotic and Native Species of Mushrooms
3. Utilization of agro industrial wastes for mushroom production
4. Cryobanking of Mushroom Cell Lines for Long Term Storage
5. Mushroom Science Village – A unified extension project of the university
6. Intensive Training on Mushroom and Spawn Production
7. Rescue Center for Wild Edible mushrooms

## 8. Mushroom Cell Line Collection

### **2. Molecular Biology and Biotechnology Resource Center**

The CLSU Biotechnology and Analytical Laboratory, now proposed as the Molecular Biology and Biotechnology Research Center, is the university's key laboratory covering a relatively wide range of basic, applied, and developmental research projects for agricultural and selected non-agricultural concerns anchored on a university, regional, and national research priorities. The center has played a significant role in the advancement of biotechnology in the region. It provides avenues for students to hone their knowledge and views on the current trends in biotechnology by hands-on training using the state-of-the-art equipment; and training to faculty and young researchers to perform molecular works and analytical skills. It becomes an area for the training and seminars on mushroom productions.

The Biotechnology and Analytical Laboratory also provides support to the Biology Department of the Central Luzon State University in biological research to maintain its status as the center of excellence in Biology by the Commission on Higher Education (CHED).

#### **Goals**

Provide expertise and state of the art facilities for students, young researchers and scientists and agriculturists and giving them the opportunity to advance in their knowledge and capacity in the field of biotechnology.

#### **Objectives**

1. Provide access to state-of-the-art scientific expertise and equipment that are too costly for individual scientists and other researchers to have in the laboratories they direct.
2. Facilitate and provides opportunities for educating students and other clientele about the modern techniques used in the field of biotechnology.
3. Develop biotech protocols and products which will cater to the needs of the academe, research and industry.

#### **Specific Programs, Project and Activities**

1. Crop Biotechnology Section: focuses on the application of biotechnology in the improvement of high yielding varieties of vegetables, legumes, and cereals that are pest resistant and stress-tolerant. It also provides training and seminars.
2. Livestock and Fisheries Biotechnology Section: concerns on the development of biotechnological products and applications in animal and fish health and production and provides training and seminars.
3. Microbial Biotechnology Section: focuses on the application of biotechnology for important microbiological processes and its application to the industrial

environment with various innovative methods and facilitates hands-on training and seminars.

4. Agricultural and Bioresources Section: aims to promote practical, innovative, and affordable solutions to existing and emerging issues related to agro-industrial and bioengineering production and environmental quality.

5. Development Based Resources and Systems Section: serves as a technology business incubator for the different research-based products, technologies, and services generated by each laboratory. It is primarily aimed at providing marketing and consultancy to prospective clients.

6. Special Projects and Support Services: caters to special projects handled by different research personnel not covered by the five key laboratories. It also tasks to evaluate the generated technology and technologies for commercialization. It also involves the integration of completed and on-going researches and other developmental outputs as a program-based scientific and popular material to and for different clienteles.

### **3. Regional Center for Nanotechnology in Agri-fishery**

The center plays an important and crucial role in vigorously pursuing nanotechnology R and D in the country. The application of nanotechnology is growing rapidly as its utility has huge importance in the way we live and conduct our lives: the use of nanosensors for monitoring crop-soil-water condition; detection of plant and animal pathogens; water quality monitoring; nanocapsules for effective delivery of biofertilizer, biopesticides as well as vaccines for animals and fishes; nanochips for identity preservation and tracking; single-molecule detection to determine enzyme/substrate interaction. Additionally, in food processing and packaging, the applications of nanotechnology are numerous such as the use of nanoemulsions and particles for greater availability and dispersion of nutrients; nano encapsulated flavor enhancer from natural product/by-products; nanocapsules to improve the bioavailability of nutraceuticals in standard ingredients of food; biodegradable nanosensors for temperature, moisture, and time monitoring; nano smart-packaging for food processed materials; nanoclays and nanofilms as barrier materials to prevent spoilage and oxygen absorption; antimicrobial and antifungal surface coatings with nanoparticles, and lighter, stronger and more heat resistant films with silicate particles, to name a few.

For the past year, the Center for Nanotechnology in Agri-fishery enables to produce Nanotechnology R and D Products for Business Incubation:

1. Silica Nanoparticle
2. Nano Zeolite
3. Copper Oxide Nanoparticle
4. Zinc Oxide Nanoparticle

5. Nano Encapsulated Anthocyanin From Black Fermented Garlic
6. Nano Encapsulated Anthocyanin From Black Rice Bran Oil
7. Colloidal Gold Nanoparticle
8. Nano Gold DNA Probe (Tilapia)
9. Calcium Oxide Nanoparticle
10. Cellulose Nano Crystals (CNC)
11. Nano Coated Vitamins
12. Nano Cellulose
13. Nano Enhanced Sanitizer
14. Nano Structured Alcohol
15. Nano Fiber Filler Face Mask
16. Cur-ALA –n(Si-Zn) composites

Moreover, several significant products have been produced to eradicate COVID 19:

1. Nanostructured Alcohol – contains 70% ethyl alcohol laden with nanoparticles and infused with turmeric extract
2. Nano enhanced Sanitizer – also contains alcohol and nanoparticles infused with turmeric
3. Nanofiber filler Face Mask – a washable mask that makes use of nanofibers as filter, which can inhibit the transmission of viruses

### **Generated Technology for Agri-Fishery**

1. Development of Cost Effective Nano (Zeolite-Silica) Composite for the Removal of Pollutants from Water and Soil for Freshwater Tilapia Aquaculture (DOST-PCAARRD funded project) - zeolite-silica nanocomposites (ZNC) and has been proven effective in cleaning pond water.
2. Development of Colloidal Gold Nanoparticles (AuNPs) Immune Assay for Rapid Detection of Bacterial Pathogens in Freshwater Tilapia Aquaculture (DOST-PCAARRD funded project) – development of rapid diagnostic kit against bacterial pathogens infecting tilapia industry in the Philippines using colloidal gold nanoparticles (AuNPs).

### **Awards and Recognitions**

1. 2019 DOST-PCAARRD Dissemination and Utilization Award
2. *Second Place Winner*, ASTHRDP Graduate Scholars Conference: Agriculture/Fisheries/Environmental Science Category
3. *First Place Winner*, Western Visayas Research Conference

The facility for nanotechnology support the university research agenda that calls for enhanced and efficient use of solid fertilizers, biofertilizers, organic liquid supplement (OLS), and biopesticides using nanocapsules; development of decision guide and diagnostic tools for nutrient, water, soil and pest management using nanosensors; enhancement of the CLSU RM-CARES Tricho Plus as

activator/decomposer through nanotechnology for faster composting process and higher and stable nutrient content as biofertilizer; development of rapid test kits to determine NPK, presence of heavy metals and pathogens; development of rapid test kit for pesticide residue determination of raw materials to ensure food safety; and molecular identification and development of rapid test kit for food-borne pathogens to ensure food safety, and the application of nanotechnology on food processing and packaging.

In the fisheries sector, the university has outlined the following researches that will make use of fish wastes extracts as potassium source for the synthesis of nanoparticles; application of chelating agents through nanotech to enable tilapia increase the ability to digest/assimilate feeds; nanoencapsulation by nano clay for disease prevention in fishes and nanomanipulation of vaccine/antioxidant/micronutrients feeding in fishes.

The Central Luzon State University has initially ventured on undertaking various research on nanotechnology with secured cutting-edge and high-tech equipment and collaborations with established nanotech R and D institutions. The university also has trained personnel to undertake R and D using nanotechnology who are committed in expanding such endeavors to harness many potentials and benefits that nanotechnology can offer in the field of agriculture, fisheries, food processing, and packaging. Three projects have been recently accomplished with funding under the PCAARRD-GIA and PhilRice focusing on the use of nanotechnology in fisheries and agriculture, particularly on the application of nanotechnology in terms of improving water quality for aquaculture, fish disease detection and improving rice productivity resilience to climate change.

## **Goals**

Lead the research undertakings in the region in exploring the wider array of nanotechnology applications towards attaining sustainable development.

## **Objectives**

1. Champion the nanotechnology Research and Development endeavors together with the government institutions in the region in terms of collaborative researches, innovations, shared facility, and capacity building.
2. Strengthen the link between the instruction, research, extension and production endeavors of CLSU, to ultimately benefit farmers, fisherfolks, extension workers, students, and other stakeholders as well.
3. Serve as a common ground to all stakeholders that can be brought together to collectively respond to the challenges of promoting the use of nanotechnology for the advancement in the agriculture and fisheries sectors in Nueva Ecija in particular, the Central Luzon region and the whole country in general, providing Filipino people with cost-effective solutions to current problems in the country.

### **Specific Programs, Projects and Activities**

1. Continue to conduct researches and innovation concerning nanotechnology products
2. Conduct research outputs in Nanotechnology in line with the agenda that can cater and utilize the commodity and its by-product in the Region
3. Extension programs for wider dissemination of the nanotechnology applications through linkages and networking with various stakeholders, government and non-government entities
4. Expand the range of the center to invite students and faculty researchers in championing researches in nanotechnology

### **4. Regional Institute for Climate Change and Environmental Management**

The Institute for Climate Change and Environmental Management (ICCEM) leads the delivery of quality education, research, training and extension services on the causes and consequences of climate change and provide environmental management in the natural and agricultural resources with options for healthy, sustainable and productive environment.

In Central Luzon, the Institute for Climate Change and Environmental Management is the only institute that has a Climate Change Center (CCC) which helps in building resistance to climate change threats using knowledge, tools, technologies and resources that is environmentally friendly and ethical, ecologically sustainable, practical and affordable. This conducts research activities about climate change impacts, vulnerability and risk assessment of various municipalities and cities on the consequences of climate change. It provides environmental education and training regarding climate change science, climate change impacts and climate change adaptation and mitigation strategies. This center also trains the local government units about Local Climate Change Adaptation Plan (LCCAP) in order for the municipalities to be capacitated in the preparation of the documents and make actions for the resiliency of the local communities. Generally, it develops and enhances the knowledge and skills of the faculty, staff, students and all sectors of the society in Central Luzon on Climate Change Science, Climate Risk Management and Disaster Risk Reduction Management.

Through ICCEM's Green Technology Center, the only one in Region III that provides research, extension and training activities on Green Technologies such as Phytoremediation and Botanical Pesticides Technology using indigenous plants in Central Luzon. This one of the promotional strategies of ICCEM for public education and awareness in Central Luzon to protect and conserve soil and water from pollutants such as heavy metals and pesticides for the health and safety of human beings.

Another unique feature of ICCEM is its Monitoring and Training Center for Hazards and Disaster Assessment and Geo-spatial and Photogrammetry and Remote Sensing Studies (MOCHAGERS) which is a monitoring center for hazards and disasters assessment. MOCHAGERS monitors hazards, disasters and climate change impacts in various natural and agricultural resources and all other ecosystems, conducts geospatial, photogrammetry and remote sensing studies in various natural and agricultural resources and all other ecosystems, conducts research, development, training and extension activities and projects for disaster preparedness, prevention and management, and provides a venue for a regional learning center for climate change impacts, adaptation and mitigation and disaster preparedness, prevention and management for public information, education and awareness.

It also provides and enhances public recognition of the importance and relevance of photogrammetry, remote sensing and geospatial information for the sustainability of the environment and for the health and safety of the local communities in Central Luzon and nearby provinces in Region 2 such as Pangasinan, strengthens and supports the capacity enhancement of state colleges and universities for climate change impacts and disaster science and management, and establishes databases for disasters and hazards occurrences, climate change impacts, disaster and hazards prevention technologies, disaster risk reduction management studies, hazards maps, etc. in Central Luzon.

Compared to other universities and agencies, ICCEM is also very distinctive due to the presence of a Biodiversity Center that develops, improves, and packages proper/appropriate technologies and management schemes to conserve the biodiversity of different ecosystems in Region III through its biodiversity assessment studies in various forest ecosystems in Carranglan, Pantabangan, Aurora, Bataan, Zambales and coastal ecosystems in Zambales, Central Luzon. With this center's Conservation Park, BINHI Conservation Park, Biodiversity Museum, and Regional Integrated Coastal Resources Management Learning Center (RIC Learning Center), ICCEM spearheads environmental management and conservation activities in the campus and immediate environs.

Lastly, the institute has an Environmental Educational Technology Center that develops, produces, and distributes reading and information, education and communication (IEC) materials on Biodiversity Conservation, Disaster Risk Reduction Management, Climate Change and Climate Change Adaptation, Green Technology (Phytoremediation, Botanical Pesticides) Remote Sensing/LiDAR Technology and Environmental Management such as pamphlets, brochures, leaflets, posters, digital posters, handbooks, podcast and audio-visual presentations. These materials that serve as tools for effective and efficient instruction and information/ technology transfer are distributed during training, seminar-workshops and fora for public awareness and education. It has also a website to promote the various research technologies, research findings and

information dissemination with regard to ICCEM's activities locally, nationally and internationally.

Together, all of these unique centers of the institute develop and enhance the local communities, local government units, government agencies, private organizations, non-government organizations, and people's organizations in Region III into resilient, safe, healthy, thriving and sustainable units and communities that are empowered, educated and aware. The mentioned services do not only help the target beneficiaries but also their families and the community where they belong. When these undertakings are sustained, more and more people will become knowledgeable about climate change, climate change adaptation, green technology, biodiversity conservation, and environmental education. ICCEM is also able to provide assistance to national agencies through partnerships and collaborations. Specifically, the achievement of a shared responsibility and collective action for environmental management, biodiversity conservation, adaptation to climate change impacts through partnerships among local communities, academe, and government will make Central Luzon prepare, equip and sustainable.

With more sustainable projects, the institute would be able to monitor possible threats and problems in biodiversity and immediately develop solutions, formulate more technologies aside from phytoremediation to address pollution, regularly monitor changes that would be incorporated in various remote sensing studies and LiDAR applications such as production of high value crops, irrigation assessment, aquaculture production, forest protection and discovery of renewable energy sources, continue conducting climate change studies in different parts of Central Luzon, and conduct follow-up activities, seminars, workshops, and training regarding environmental education.

## **Goals**

The Regional Institute for Climate Change and Environmental Management as a dynamic and world class institute dedicated to lead and provide research, development, extension and training services on the causes and consequences of climate change and provide environmental management in the natural and agricultural resources with options for healthy, sustainable and productive environment.

## **Objectives**

1. Develop local community into resilient, thriving and sustainable community that is empowered, educated and aware.
2. Help build resistance to climate change threats using knowledge, tools, technologies and resources that is environmentally friendly and ethical, ecologically sustainable, practical and affordable.
3. Develop partnership from all sectors of the society at the local, national, international levels to address climate change and environmental management.
4. Conduct researches on climate change, biodiversity, green technology

(phytoremediation and botanical pesticides, etc.), remote sensing studies on environmental issues, disaster risk reduction and management and climate change impacts, pollution prevention and other environmental concerns.

5. Conduct training activities on climate change science, climate change impacts, local climate change adaptation plan, disaster preparedness, biodiversity conservation, environmental issues, environmental management, pollution prevention, etc.

6. Offer extension services through promotion and dissemination of environmental information for public understanding and awareness.

7. Spearhead environmental management and conservation activities in the Central Luzon.

8. Develop, improve and package proper/ appropriate technologies or management schemes to conserve the biodiversity of all ecosystems in the region.

9. Prepare, produce and distribute instructional materials on climate change, biodiversity conservation, environmental issues, environmental management, etc. in the region.

10. Establish learning centers and museums on biodiversity, climate change and green technology for public education and awareness.

### **Specific Programs, Projects and Activities**

The Institute for Climate Change and Environmental Management (ICCEM) is dedicated to lead and provide quality education, research and extension services on the causes and consequences of climate change and provide environmental management in the natural and agricultural resources with option for healthy, sustainable and productive environment.

Its four divisions namely, Research Division, Extension and Environmental Education Division, Environmental Conservation Division, and Information Management Division help in the attainment of the institution's goals and objectives through the conduct and implementation of research, development, extension, and training activities.

The Research Division (RD) conducts researches in climate change, biodiversity, green technology (phytoremediation and botanical pesticides, etc.), remote sensing studies on environmental issues and climate change impacts, disaster risk assessment, disaster risk reduction and management, pollution prevention, management and protection of the different ecosystems in Region III and nearby environs, and other environmental concerns. It consists of the following centers:

The Climate Change Center which has the following programs/projects and extension projects (1) Climate Change Impacts, Vulnerability and Disaster Risk Assessment of Ecosystems and Communities to Support Development of Resilient Communities and Livelihoods in Central Luzon ; (2) Training on Local Climate Change Action Plan for LGUs in Nueva Ecija

and other LGUs in Central Luzon; (3) Seminars and Workshops on Climate Change , Climate Change Impacts and Climate Change Adaptation and Mitigation for Agroecosystem (Agriculture), Urban Ecosystems, Freshwater Ecosystems, Coastal Ecosystems and Forest Ecosystems. The Climate Change Center has also two learning centers where students and other stakeholders in Central Luzon can visit for public awareness and information and these are: (1) Climate Change and Disaster Risk Reduction Management Regional Learning Center, and (2) Climate Change and Disaster Risk Reduction Management Digital Viewing Museum.

For the Monitoring and Training Center for Hazards and Disaster Assessment and Geo-spatial and Photogrammetry and Remote Sensing Studies (MOCHAGERS), the research programs, projects, and activities are to undertake monitoring of hazards and disasters thru remote sensing studies such as flood hazard, vulnerability and disaster risk assessment using GIS , LiDAR and remote sensing in Central Luzon and other hazards such as landslide, storm surge, sea level rise, geophysical changes in rivers, coastlines and coastal resources, mapping of air, water and land pollution in urban ecosystems in Central Luzon using GIS and remote sensing etc..

The Biodiversity Center also has a Biotechnology Laboratory which conducts research programs, projects, and activities about biodiversity assessment and conservation in tropical rainforest in Central Luzon, biodiversity assessment and conservation in coastal ecosystems, freshwater ecosystems and other ecosystems in Central Luzon and green technology which is focused on phytoremediation and botanical pesticides research and development projects. While the extension programs and projects include the training and seminars on biodiversity conservation of various ecosystems in Central Luzon and distribution of IEC materials about biodiversity conservation; forest, mangrove, seagrass and coral reef ecosystems conservation and. It has also a Cloning Facility for micropropagation of indigenous plants that can be potential botanical pesticides. Moreover, this center has also a Biodiversity Museum and an Agrobiodiversity Museum for public awareness and information. Meanwhile, the division has also a Green Technology Learning Center which pertains to information regarding phytoremediation, botanical pesticides and LiDAR technology for students and local communities, and other stakeholders for environmental awareness.

The Extension and Environmental Education Division (EEED) is responsible for giving training/ seminar/ workshop regarding climate change, biodiversity conservation, use of remote sensing technology, LiDAR technology, green technologies (phytoremediation, botanical pesticides, etc.), ecosystem conservation and protection, disaster preparedness and disaster risk reduction and management, local climate change adaptation plan (LCCAP) and other environmental issues. It is also responsible to ensure public awareness and

knowledge on environmental issues through community projects and through dissemination and promotion of environmental information for public understanding and awareness and extend services pertaining to environmental management, pollution prevention and resource conservation to the community, climate change adaptation and disaster risk reduction management. It has a particular center which prepares all the IEC materials, the Environmental Education Technology Center.

The Environmental Conservation Division (ECD) is concerned with strengthening the capacity of the off-site conservation facilities thru collection and conservation of biodiversity, educating the public and contributing to sustainable development. The ECD consists of the following units: Biodiversity Learning Nooks (Conservation Park, Biodiversity Museum, Ramet Garden, BINHI Conservation Park/Native Tree Living Museum, Agrobiodiversity Museum and the Regional Integrated Coastal Resources Management (RIC) Learning Center.

The Information Management Division (IMD) is responsible for weather advisory in CLSU and for database management, data science pertaining to climate change, weather, hazard maps and other data relative to disaster damage assessment, biodiversity, and other environmental management related data and maintenance of ICCEM website, promotion and information dissemination regarding the activities of ICCEM locally, nationally and internationally, etc. This department will work in coordination with PAGASA-DOST in CLSU, Region III and National Main Office; Mines and Geosciences Bureau; DENR, PHIVOLCS-DOST; and NAMRIA-DENR and PCIEERD, DOST.

### **Linkages and Networks**

There are several international organizations that helped ICCEM in some of its programs, projects, activities, and other endeavors. These are the World Association of Soil and Water Conservation, World Fish, International Tropical Timber Organizations (ITTO), Center of Nature Conservation, University of Gottingen, Gottingen Germany, and Deutscher Akademischer Austauschdienst (DAAD) – German Academic Exchange Service.

Meanwhile, the institution has also partnered with several national government agencies in the conduct of its research, extension, and training activities. These are the Environmental Management Bureau (EMB), Department of Environment and Natural Resources (DENR), Philippine Association of Tertiary Level Educational Institutions in Environmental Protection and Management, Commission on Higher Education (CHED), Department of Agriculture – Bureau of Agricultural Research (DA-BAR), Department of Science and Technology – Philippine Council for Agricultural, Aquatic and Natural Resources Research and Development (DOST-PCAARRD, Department of Science and Technology – Philippine Council for Industry, Energy and Emerging Technology Research and Development (DOST-PCIEERD), University of the Philippines Diliman, University of the Philippines Los Baños, Protected Area Management Board (PAMB), Bureau

of Fisheries and Aquatic Resources (BFAR), National Museum of the Philippines (NMP), Department of Interior and Local Government (DILG), National Economic and Development Authority (NEDA), National Research Council of the Philippines (NRCP), Marine Science Institute, University of the Philippines (MSI, UP), Biodiversity Management Bureau, DENR, Central Luzon Agriculture and Resources Research and Development Consortium (CLARRDEC), Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAG-ASA – DOST), Philippine Institute of Volcanology and Seismology (PHILVOCS – DOST), Philippines National Mapping and Resource Information Authority (NAMRIA – DENR). ICCEM has also worked together with some non-governmental organizations such as The Oscar M. Lopez Center for Climate Change Adaptation and Disaster Risk Management Foundation, Inc., Energy Development Corporation (EDC), First Gen Hydro Power, Tanggol Kalikasan, Inc, and Weed Science Society of the Philippines, Inc.

Lastly, ICCEM collaborated with various LGUs in Aurora, Bataan, Bulacan, Nueva Ecija, Pampanga, Zambales, and Pangasinan, SUCs in Region III, Department of Agriculture – Provincial, Department of Environment and Natural Resources – Provincial, CENRO, PDRRMC/PPDO, and Bureau of Fisheries and Aquatic Resources (BFAR Region III). It also cooperated with non-governmental organizations such as Farmer's Organization, Fisher folks Association, and Tribe of Dumagat, Magbukon-Aeta and Kalanguya (Indigenous People).

**Section 4. Source of Funds.** For the effective and efficient implementation of this Act, the amount of Twenty Million Pesos (Php 20,000,000.00) is hereby appropriated from the unappropriated funds of the National Treasury.

**Section 5. Separability Clause.** If any provision or part hereof is held invalid or unconstitutional, the remainder of the law or the provision not otherwise affected shall remain in force and effect.

**Section 6. Repealing Clause.** All laws, decrees, orders, rules, and regulations or parts thereof inconsistent with this Act or the rules and regulations promulgated pursuant thereto are hereby repealed or amended accordingly.

**Section 7. Effectivity Clause.** This Act shall take effect fifteen (15) days after its publication in at least two (2) national newspapers of general circulation.