

Veterinary Education Status toward ASEAN 2015

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Veterinary education has been established in many ASEAN countries. The curriculums produce thousands of veterinarians each year to meet the demands of each country. Among ASEAN countries, there are veterinary schools in 8 out of 10 countries, and no veterinary school in Brunei Darussalam and Singapore. Since agriculture is one the main industries in the ASEAN countries, the need for veterinary practices in the treatment, prevention and control animal diseases is necessary. The goal is to establish suitable veterinary curriculum to produce well-trained veterinarians and develop advances in veterinary research. Therefore, each country has its own established DVM programs with different curriculums and training. In order to pursue their goal, consideration of each country's current status, government policy and funding are necessary in order to establish a more developed program.

Thailand

Veterinary program in Thailand has been established since the 1930's with Chulalongkorn University as the first veterinary school. At present, there are a total of 6 officially established veterinary schools throughout Thailand and many more in the process of establishment in the near future. The growing of economics and consumers in Thailand demands the production of well-trained veterinarians for companion, livestock, and aquaculture and wildlife animals. Veterinary schools in Thailand offer undergraduate, Master's and Ph.D. programs. Six year course is required for the undergraduate program. The course consists of pre-clinic, paraclinic and clinical training. After graduation, students will receive their Doctorate of Veterinary Medicine degrees and are licensed for veterinary practice under the Veterinary Council of Thailand. For those in search for further education, Thailand veterinary graduate programs consisted of graduated diploma, Master's and Ph.D. degrees. Students will be further trained to practice and research in special field of interests such as veterinary surgery, veterinary pathobiology, animal physiology, theriogenology, veterinary bioscience and veterinary public health.



Other than the academic teaching and training provided by the universities, every veterinary school supports veterinary services for the community such as animal hospital and veterinary technical service laboratory. The small animal hospital in each veterinary school is equipped with facilities to ensure the best possible treatment for the animal and training of veterinary students. Diagnostic laboratory services are established to support veterinarians in their medical practice and provide answers to farmers and animal owners.

Many academic and research collaborations have been made between the Thai veterinary schools and other research-funding units, industries, government and outside countries. Recent work at Chulalongkorn University has been focusing on food security, one Health and food safety.

Areas needed for improvements in veterinary education which Thailand is planning to develop the specialization and residency program.

Malaysia

The Faculty of Veterinary Medicine in Malaysia was established in 1972, as University of Pertanian Malaysia (UPM) and changed the name to University of Putra Malaysia in 1997. Presently, there are two veterinary schools in Malaysia. The veterinary school emphasized the role in meeting the demands of the veterinary and veterinary related industries in

the country. The five-year (10-semester) veterinary curriculum has evolved over the years with each revision every 5 years. In order to ensure relevance of our graduate to the current and future needs of industry and the country. The veterinary curriculum in Malaysia focuses two major aspects; animal science and production, which equips graduates with knowledge required for various livestock industries and, veterinary medicine. The Malaysian Veterinary Council is the regulatory body that evaluates and endorses the curriculum, giving legal recognition to our graduates. The current revision will take into account the concept of one health in disease, health prevention, to ensure day one competency of veterinary graduates. The assessment is continuously passing of final examinations is mandatory. Clinical skills are assessed during clinical rotations and through objective structured clinical exams (OSCEs). In the final year, a comprehensive exam is conducted comprising written exams and a viva with invited faculty assessors and examiners from well-established universities in the world.

The graduate program and researches are done through graduate research programs, MVSc, MSc, and Ph.D. in different areas of veterinary medicine. Future directions of the veterinary education in Malaysia are in the preparation for the future demands of the industry, improving all areas of research, teaching and professional services and strengthen collaborative with veterinary faculties in the region.

Myanmar

Veterinary program in Myanmar was established in 1957. At present, University of Veterinary Science (UVS) is the first and only university teaching veterinary medicine in Myanmar. The school is located in the northeastern part of Nay Pyi Taw, the capital of Myanmar. It has produced up to 250 to 300 veterinary graduate students including Master's and Ph.D. degrees. The six-year veterinary undergraduate course consists of a variety of subjects including veterinary anatomy, epidemiology, immunology, microbiology, parasitology, pathology, pharmacology, poultry and ruminant nutrition, surgery, theriogenology and veterinary public health. In addition to veterinary graduate degrees, the university provides further education in Diploma in livestock production and aquaculture, Master and Doctoral degree of Veterinary Science. The training of undergraduate students is performed in poultry and cattle demonstration farms provided by the university and the veterinary teaching hospital.

The university is interested in many research fields including epidemiology, zoonotic disease, food safety, animal nutrition, poultry and dairy cattle production and diseases. International collaboration is made in attempt to accelerate the research and academic development. Research activities and cooperative projects are made with foreign universities. The university is planning to extend their collaborative research by signing memorandum of understanding and setting up student exchange

programs in the near future.

Laos

Veterinary academic program in Laos is currently under the authorization of Faculty of Agriculture. The program has been established for 4 years with the goal to produce graduates with bachelor of veterinary science degrees to support the urgent demand for veterinarians in the country. However, due to many limitations, the program is not as qualified as it should be. The need for trained staffs, funding, teaching materials and equipment are essential in the development of veterinary program in the country. Future planning on staff training is the highest priority for the veterinary academic training program in Laos. Long-term collaboration has been made between Laos and Khon Kaen University, Thailand in order to provide sufficient knowledge needed for the development of the veterinary education in Laos.

Indonesia

Veterinary medicine education in Indonesia has been pioneered since 1861 in Surabaya and was closed down in 1875. In 1907, school of veterinary medicine was first established in Bogor and located at the Laboratory of Veterinary Medicine. In 1914, its name was changed into *Nederlandsch-Indische Veeartsenijschool* or Veterinary school of the Netherland. In 1955, it was renamed as Faculty of Veterinary Medicine and Animal Science, and in 1961, the Department of Fishery and Marine Science was established, therefore its name was changed into the Faculty of Veterinary Medicine, Animal Science, Fishery and Marine Science, University of Indonesia. Veterinary schools play important roles in animal health, biomedicine, comparative medicine, public health, and environment conservation.

Indonesia veterinary education has long been since established and on its way ahead in implementing the accreditation standard in order to assure the standard of each veterinary school. The seven standards for the assessment are first: vision, mission, objective, outcomes and achievement strategy, second: organization, leadership, management system and quality assurance, third: students and graduates, fourth: human resources; fifth: curriculum, learning process and academic atmosphere; and seventh: research, public extension and/or services and collaboration. Each veterinary school will be scored and graded in 3 levels (Level A, B and C) with the validity period of 5 years.

Cambodia

There are 6 current institutions in Cambodia administered for veterinary education (Table 1). The current education consists of four-year Bachelor of Veterinary Medicine (BVM). The curriculum mainly focuses on animal science than the veterinary medical practice. However, since the introduction of many diseases in animals such as the avian influenza and porcine reproductive and respiratory syndromes,

which caused high public health concerns and impact on animal production, the Royal Government of Cambodia has endorsed the development of veterinary education and practice. Cambodia current plans on the development of their veterinary education on Doctor of Veterinary Medicine (DVM) will be started in the academic year of 2014. The curriculum will offer of a six-year program and the degree will comply with the standard of OIE Day 1 Competencies and Asian Association of Veterinary Schools (AAVS).

Table1 Summary of Veterinary Education in Cambodia (Mom Seng, Cambodia, 2013)

Institution	Department/Faculties	Status
Royal University of Agriculture (RUA)	Animal Science Veterinary Medicine	<ul style="list-style-type: none"> - Is experienced in animal production and health since 1984 - Offers 4-year program - Is Developing 6-year DVM program starting in 2014
Prek Leap National Agriculture College	Animal Science and Veterinary Medicine	<ul style="list-style-type: none"> - Has one department and one curriculum - Offer 4-year program
Kampong Cham National Agriculture School	Animal Science and Veterinary Medicine	<ul style="list-style-type: none"> - Has one department and one curriculum - Offers 4-year program
Mean Chey University	Department of Animal Science and Veterinary Medicine	<ul style="list-style-type: none"> - Was established in the late 2000s - Offers 4-year program
Svay Rieng University	Animal Science and Veterinary Medicine	<ul style="list-style-type: none"> - Is being considered to be established
University of Battambang	Department of Animal Science	<ul style="list-style-type: none"> - Was established in the late 2000s - Offers 4-year program

Vietnam

Veterinary medicine program in Vietnam was found in 1956. Since then, the demands for DVM in Vietnam have been high. There are 6 universities in Vietnam provided five-year DVM training, additionally, Master's and Ph.D. veterinary programs to facilitate country's demands (Table 2). The DVM curriculum consists of at least 175 credits with general education (basic science and elective courses) and professional education (pre-clinic and clinical courses). Students are allowed to train in animal teaching hospitals and research centers. The current major research topic's of interests are emerging infectious diseases, zoonotic and tropical diseases in animals, vaccine research and development, public health and animal welfare, artificial insemination in farm animals, animal waste management, animal products, veterinary drugs and pharmaceutical products and applied veterinary epidemiology.

There are some aspects in the general needs to improve veterinary education in Vietnam. The improvement of laboratory facilities and the revision of current curriculum, appropriate training facilities and staffs training are needed to gain a better skill practice and outcome of students in the veterinary program.

Table 2 Summary of Veterinary Education in Vietnam

Institution	Department/Faculties	Status
Hanoi University of Agriculture (HUA)	Veterinary Medicine	<ul style="list-style-type: none"> - Was established in 2007 - Offers B.Sc, DVM, MS and Ph.D. courses - Has 500-600 students/ year for B.Sc, DVM
Ho Chi Minh Agro-Forestry University (HAFU)	Veterinary Medicine and Animal Science	<ul style="list-style-type: none"> - Was established in 1959 - Offers B.Sc, DVM, MS and Ph.D courses. - Has 80 students/ year for B.Sc, DVM
Hue University	Animal Science and Veterinary Medicine	<ul style="list-style-type: none"> - Offers B.Sc., DVM, MS, (Ph.D. in Animal Science only) course - Has 40 students/ year for B.Sc, DVM
Thai Nguyen University	College of Agriculture and Forestry	<ul style="list-style-type: none"> - Was established in 1996 - Offers B.Sc. and DVM courses - Has 100 students/ year for B.Sc, DVM
Can Tho University	College of Agriculture and Applied Biology	<ul style="list-style-type: none"> - Was established in 2001 - Has 80 students/ year for B.Sc, DVM
Tay Nguyen University		<ul style="list-style-type: none"> - Was established in 2000 - Offers DVM courses

Philippines

The first veterinary education in the Philippines was established in 1908 called the College of Veterinary Science at University of the Philippines (UPCVM). UPCVM was the only vet school in the country until 1960. Nowadays, a total of 20 veterinary schools have been established throughout the country. The veterinary courses in the Philippines offer six-year DVM training. During, the first two years of study, in order to follow the pre-veterinary curriculum, students are required to take general education as pre-requisite courses for veterinary program and non-prescribed general education (arts and humanities, social sciences and philosophy and mathematics, science and technology). Afterwards, students will pursue 4 years of professional veterinary medicine curriculum in the basic, paraclinical and clinical sciences.

In this 21th century, the Philippines' challenges and goals are on four aspects. The first aspect is on the development of its manpower and infrastructures in the areas of animal disease diagnosis and veterinary medical care. Secondly, it is to strengthen the undergraduate and graduate degree programs, especially in the Ph.D. program by providing wider range of study. Thirdly, the Philippines plans to give extension in client education programs to pet owners and livestock farmers especially in terms of animal welfare. Lastly, it is to establish linkage and connection with various institutions worldwide.

Since 2015, ASEAN become one community, that veterinary education should be readiness for the change in many aspects. All the countries need to promote academic collaborations and knowledge's exchange among ASEAN Veterinary Schools to discover the ways of addressing future challenge and preparation how important of Veterinary Education in ASEAN community will be in the near future.

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