



WORLD ORGANISATION FOR ANIMAL HEALTH

Protecting animals, preserving our future

OIE Virtual Workshop for Veterinary Education
Establishments (VEEs) and Veterinary Statutory Bodies
(VSBs) in South Asia and Iran

19-20th April 2022

**RAPID DESK REVIEW OF
VETERINARY EDUCATION AND RELATED
REGULATORY SCENARIO WITH ADDITIONAL
REFERENCE TO SITUATION OF VETERINARY
WORKFORCE IN SOUTH ASIA SUB-REGION AND
IRAN**

*A draft document
prepared for reference and review of participants*

Prepared by
Miftahul Islam Barbaruah

APRIL 2022

Contents

| | |
|--|----|
| Background | 4 |
| Methodology..... | 4 |
| Desk review of the country's situation | 4 |
| Afghanistan | 4 |
| Bangladesh..... | 6 |
| Bhutan..... | 9 |
| India | 10 |
| Iran | 14 |
| Maldives..... | 15 |
| Nepal..... | 15 |
| Pakistan | 16 |
| Sri Lanka | 18 |
| Conclusion..... | 20 |
| References: | 21 |

Disclaimer and acknowledgments:

The interpretation of referred literature and views expressed are those of the reviewer and do not reflect the opinions or policies of the OIE. The author acknowledges the contribution of OIE RRAP team members Dr. Maho (Imanishi) Urabe and Dr. Pasang Tshering and particular input from conference resource person Professor Masood Rabbani. In addition, OIE-RRAP provided access to survey data from the 2nd OIE Regional Workshop for VEEs and VSBs, Tokyo, Nov 2018.

Abbreviation

| | |
|---|----|
| B.V.Sc. & AH: Bachelor of Veterinary Science and Animal Husbandry | 15 |
| CAHWs: Community Animal Health Workers | 8 |
| CE: Continuing Education..... | 12 |
| CPD: Continuous Professional Development..... | 7 |
| CVASU: Chattogram Veterinary and Animal Sciences University | 7 |
| CVE: Continued Veterinary Education | 17 |
| DCA: Dutch Committee for Afghanistan | 6 |
| DPAH: The Department of Animal Production and Health..... | 19 |
| DVM: Doctor of Veterinary Medicine | 6 |
| ECTAD: The FAO Emergency Centre for Transboundary Animal Diseases | 7 |
| FAO: Food and Agriculture Organization of United Nations..... | 7 |
| GEC:General Education Council | 12 |
| HEC: Higher Education Commission | 16 |
| HEIs: Higher Educational Institutions..... | 18 |
| NAHEP: National Agricultural Higher Education Project | 13 |
| NEP: National Educational Policy..... | 12 |
| NGOs: Non Governmental Organization..... | 4 |
| NHERC: National Higher Education Regulatory Council | 12 |
| NILERD: National Institute of Labour Economics Research and Development | 13 |
| NVC: Nepal Veterinary Council | 15 |
| OIE: The World Organisation for Animal Health..... | 4 |
| OIE-PVS: OIE -Performance of Veterinary Services..... | 4 |
| OIE-WAHIS: OIE World Animal Health Information System | 6 |
| Ph.D.: Doctor of Philosophy | 10 |
| PPP: Public Private Partnership..... | 8 |
| PVMC: Pakistan Veterinary Medical Council | 16 |
| SVCs: State Veterinary Councils..... | 11 |
| UGC: University Grants Commission..... | 18 |
| UK: United Kingdom..... | 19 |
| US: Unites States..... | 18 |
| VCI: Veterinary Council of India | 11 |
| VEEs: Veterinary Educational Establishments | 4 |
| VFU: Veterinary Field Unit | 5 |
| VPP: Veterinary Paraprofessional | 5 |
| VSBs: Veterinary Statutory Bodies..... | 4 |

Background

In Asia and the Pacific region, the OIE's engagement with stakeholders on Veterinary Education Establishments (VEE) and Veterinary Statutory Body (VSB) activities varies by sub-region. The OIE regional and sub-regional workshops in Southeast Asia have provided a good opportunity for participants to share information and learn from each other and gain a more in-depth understanding of the initiatives and recommendations of the OIE. Considering the experience within Southeast Asia, the OIE is organizing a sub-regional virtual workshop for South Asian Members and Iran to discuss issues related to veterinary education, strengthening of veterinary statutory bodies, and workforce development. The workshop will be held on 19-20 April 2022. As preparation for informed discussion, the workshop organizing team suggested a rapid review of existing literature on VEE and VSB related matters for reference during the workshop and beyond.

Methodology

The objective of the desk review is to support the learning of overall status and documented issues related to Veterinary Educational Establishments (VEEs), Veterinary Statutory Bodies (VSBs), and veterinary workforce development within the countries of the South Asia sub-region and Iran. Reference related to gender in veterinary education and 'One Health' education is also incorporated. The survey findings of the 2nd OIE Regional Workshop for VEEs and VSBs, Tokyo, Nov 2018, were referred to for country institutional structure vis-a-vis related aspects in the case of Afghanistan, Bangladesh, Bhutan, India, Iran, Nepal, and Sri Lanka. The review covers education and related regulatory scenario for Veterinarians only. It intends to provide needed background information to participants to brainstorm for innovative regional collaboration. The references included are both from published and grey literature.

Limitations:

The document is only a rapid review based on a narrow range of readily available recent records in the English language. In addition, it excludes reference to OIE-PVS reports where they are confidential.

Desk review of the country's situation

Afghanistan

Veterinary Education

In his featured article published in 2005 in the Journal of Veterinary Medical Education[1], Sherman David M highlighted poor veterinary educational infrastructure, shortage of skilled educators, and the need to retain people in academia and applied research as a few critical issues confronting war-ravaged Afghanistan. The article also indicated the necessity of assessing veterinary personnel needs and a plan for professional training at the veterinary faculties to meet those needs. As per a report published in 2013[2], the enrolment in Veterinary Science increased by 62.6%, from 430 in 2002 to 699 in 2010. However, the percent enrollment in Veterinary Science among higher education enrolment fell from 1.38% in 2002 to 0.92% in 2010. The same report quoted data of only three female veterinary students in 2002, which increased to 52 (0.07% of the total enrolment of the veterinary student, i.e., 699) in 2010. Interestingly during the period (2002 -2010), the total higher education enrolment increased by 144.75% and that of the female student enrolment by 154.99%, which is indicative of the growing demand for modern education and training for boys and girls in Afghanistan.

The OIE PVS follow-up report (2017) [3] mentioned an increasing number of VEEs (8 in total) providing DVM degrees compared to the PVS report of 2010. However, the report also indicated that none of

the new veterinary faculties have sufficient numbers of adequately trained teaching staff. In addition, they lack the infrastructures and equipment necessary to follow a full Veterinary Degree curriculum based on the OIE defined "Day-One competencies." The report of the OIE 2nd regional workshop for VEEs and VSBs held during the later part of 2018 in Tokyo[4] also mentioned 'too many VEEs not meeting the country's need' as one of the significant challenges for Afghanistan. The same report also mentioned inadequate facilities for practical training, lack of funding for curriculum revision, and poor coordination among VEEs, government, and NGOs as other challenges.

Gender and veterinary education

A policy brief on girls' access to formal agricultural education published in 2021[5] highlighted that once in agriculture-related education; female students demonstrated a strong interest in building careers in the sector. They do this either by pursuing a bachelor's degree and then graduate education or becoming veterinarians, agricultural engineers, or agriculture professors. While comparing both girls' and boys' participation in agriculture-related Technical, Vocational, and Educational Training (TVET), the same policy brief indicated a 55% participation rate for veterinary and 32% for Animal science-related trade. Finally, the policy brief suggested hiring more female teachers in agriculture institutes besides developing career pathways for women with agriculture education.

One Health education

Between 2014 to 2017, Afghanistan benefited from Massey University's One Health capacity building program entitled Integrating Education and Action for One Health, funded by the European Commission under the One Health Programme in Asia[6]. The review could not record any reference on the number of veterinarians trained under the program.

Veterinary Statutory Body and accreditation

The Ministry of Higher Education is responsible for regulation (approval of colleges, curriculum) of veterinary education in Afghanistan[7]. Animal Health Directorate registers/licenses personnel working in public clinics through a written exam and interview¹. Afghanistan notified vide official gazette dated 11 October 2016, the Animal Health (Veterinary) Act.[8] Article 7 of the Act envisages setting up a Veterinary Board to regulate and identify animal health professionals and provide better veterinary services. The mandate of the Veterinary Board doesn't cover regulation of VEEs or veterinary education as such. (Article 9 duties and powers of the Veterinary Board). However, the board is still not operational due to the political situation (February 2022, conversation with Dr. Patrick Raymond Briscoe, OIE VPP Expert).

Veterinary Continuing Education

As per a Dutch Committee for Afghanistan (DCA)-sponsored Veterinary Field Unit (VFU) assessment report[9], there are considerable differences in the performance of VFU staff. However, these differences are not related to the educational background but relate to attitude, skills, and competencies. Therefore, continuing education is essential to bring in the field veterinary staff's desired attitudinal and skill transformation. Unfortunately, the 2017 follow-up report, compared with the 2010 PVS Evaluation report, mentioned no improvement in the level of advancement in continuing education, which is irregular and does not consider needs or new information or understanding.

¹ As per survey data of 2nd Regional Workshop for VEEs and VSBs, Tokyo, Japan 18-20 Nov 2018

Veterinary Workforce

The country is currently producing 120 veterinary graduates². According to a DCA sponsored report of an assessment of 943 Veterinary Field Units conducted in 2019[9], 170 (18%) of the staff were university-trained DVM, 137 (15%) were veterinary assistants, and 636 (67%) were short term trained personnel excluding Basic Veterinary Workers.

In 2019, Afghanistan reported to OIE-WAHIS 942 Veterinarians, 510 Veterinary Paraprofessionals, and 740 Community Animal Health Workers. The majority (88.1%, 830 nos) of Veterinarians are in animal health-related public administration. Interestingly 54% (510 numbers) of private veterinarians are accredited to perform the public function, so the actual number of veterinarians in animal health-related public administration is 34% (320 nos)

Around 8% (75 nos) and 4% (37 nos) of veterinarians are serving in public Health and laboratory administration, respectively. The OIE-WAHIS data indicate that 54% (510 nos) accredited private veterinarians assisting in delivering public functions also contribute as independent private veterinarians. The OIE-WAHIS report is silent about Veterinarians serving in an academic capacity in various training institutes.

The OIE -PVS Evaluation follow-up report (2017) [3]highlighted a pressing need for public and private stakeholders to work jointly to determine the future labor force needs of the public and private Veterinary Services.

Country Institutional Structure

| TOPIC | RESPONSIBLE INSTITUTION |
|---|---|
| Approval of VEEs | Ministry of Higher Education |
| Curriculum related | Ministry of Higher Education |
| National accreditation/Licensing/ Registration/renewal | Quality Assurance & Accreditation Directorate, Ministry of Higher Education |
| Continued Education | Animal Health Directorate, Ministry of Agriculture, Irrigation, and Livestock and NGOs |

Source: Survey findings of 2nd OIE Regional Workshop for VEEs and VSBs, Tokyo, Nov 2018

Bangladesh

Veterinary Education

There are 13 VEEs in Bangladesh, out of which 9 provide a DVM degree and 4 provide a Bachelor of Science (Veterinary Science and Animal Husbandry) degree. The colleges together produce nearly 1000 veterinary graduates in a year. The Bangladesh Veterinary Council Act 2019[10] recognized both degree programs for the registration of veterinarians. Two colleges in Bangladesh also provide a graduate program in Animal Husbandry. Animal husbandry graduates serve the sector in various capacities, but they are not eligible for registration with Bangladesh Veterinary Council.[11]

There are instances of collaboration between VEEs in Bangladesh and India for the internship of DVM students.[12] Chittagong (Chattogram) Veterinary and Animal Science University initiated a student exchange program with US universities.[13] A veterinary education twinning project between Chattogram Veterinary and Animal Sciences University (CVASU) and Tufts Cummings School of

² Collated approximate data provided by Dr Patrick Raymond Briscoe, Director, External Relations at DCA - Dutch Committee for Afghanistan and the OIE expert based on personal consultation with Ministry of Agriculture Irrigation and Livestock, and Ministry of Higher Education

Veterinary Medicine (TCSVM) received support from the World Organisation for Animal Health (OIE) to align CVASU's veterinary curriculum with OIE's recommended Core Curriculum and Day 1 Competencies[14]

Gender and veterinary education

As per the Global gender gap index ranking and scores, 2020, the score of Bangladesh regarding education and skills in terms of Agri., Forestry, Fisheries & Veterinary, attainment (in %) for female Vs. the male is 0.85 / 1.23 [15]

One Health education

The mission report (2016) [16] of joint external evaluation of IHR core capacities recommended priority action in supporting joint training and educational programs and joint risk assessment between the animal health and human health sectors at district and sub-district levels.

Between 2014 to 2017, Bangladesh benefited from Massey University's One Health capacity building program entitled Integrating Education and Action for One Health, funded by the European Commission under the One Health Programme in Asia[6]

Bangladesh AMR Response Alliance (BARA) is involved in training human and veterinary doctors on Antimicrobial usage.[17]

Veterinary Statutory Body and accreditation

Bangladesh Veterinary Council published the standard for Veterinary Education (Criteria and guidance for Bangladesh Veterinary Council (BVC) 's approval of veterinary degree courses in Bangladesh and overseas) in September 2014[18]. The document gives an outline of the curriculum (Section 4.6) and describes essential (Day-One-Skills) competencies expected at graduation (Section 4.7). It also elaborates the process of inspection of VEEs (Section 5) and covers general requirements for recognition of an overseas veterinary degree (Section 6)

The new Bangladesh Veterinary Council Act 2019 empowers Bangladesh Veterinary Council to recognize, regulate veterinary education, implement curriculum, and undertake means for quality improvement of the qualifying degree program for Veterinarians. As per the Act, Bangladesh Veterinary Council is also the nodal authority to decide on the equivalence of foreign veterinary qualifications for registration as a practitioner.

ECTAD unit of FAO- Bangladesh supported national discussion during 2017 and 2019 on veterinary professional accreditation through a national veterinary board examination.[19] FAO also supported Bangladesh Veterinary Council in the evaluation of Bangladesh Standard for Veterinary Education and to practice accreditation site visits to different veterinary schools [20]

Continuing Education

The Bangladesh Veterinary Council Act 2019[10] has no mandatory continuing education requirements for veterinarians and VPPs. However, it mentions that the Council will work for registered veterinarians' skill development or create opportunities. (Section 7 –(h) and (l)). The notified rules under the Act are not available in the public domain and, as such, can be assumed that they are under process. Social media discussion[21] indicates that the Council aims to facilitate Continuous Professional Development (CPD) training of veterinarians and VPPs. The newly constructed Bangladesh Veterinary Council Building has a dedicated floor for continuing education.

Bangladesh College of Veterinary Surgeons (BCVS) was established in 2019 to advance the standard of the veterinary profession in Bangladesh. The college started its journey on 4 September 2019 with five founder honorary fellows nominated by the National Veterinary Dean Council. The college intends to regularly recognize competent veterinarians as the 'Member of the College of Veterinary Surgeons (MCVS) through veterinary board examinations.' The college plans to introduce a fellowship program, FCVS (Fellow of the College of Veterinary Surgeons), on different areas of specialization in veterinary medicine besides continuing education for veterinarians through conferences, seminars, and training programs.[22]

FAO -Bangladesh is working with the Department of Livestock Services of the Government of Bangladesh and supporting various capacity-building training for veterinary personnel. [23] FAO also provided technical assistance to the National Veterinary Dean Council (NVDC), Department of Livestock Services (DLS), Bangladesh Veterinary Council (BVC), Bangladesh Veterinary Association (BVA), and Bangladesh College of Veterinary Surgeons (BCVS) to form a forum for Continuing Education for Veterinarians (CEVET). The CEVET Forum has been organizing annual CEVET conferences since 2017. [24]

The OIE Public-Private Partnership (PPP) regional training workshop held in Nepal in October 2019 [25] discussed a transformative PPP in Bangladesh related to veterinary continuing education. The Ceva Santé Animale³ and the National veterinary school of Alfort (École Nationale vétérinaire d'Alfort) have collaborated with Bangladeshi company ACI Limited and Sher E Bangla Agriculture University to offer post-graduate training in avian pathology for both public and private veterinarians.

Veterinary workforce

In 2019, Bangladesh reported to OIE-WAHIS 8550 Veterinarians and 29474 Veterinary Paraprofessionals (Including 14000 CAHWs). The majority (50.3%, 4300 nos) of Veterinarians are 'private accredited veterinarians' in animal health-related activities. Veterinarians in animal health-related public administration are 20.2% (1720 Veterinarians). Around 4.2% (360 nos) and 2.2% (190 nos) of veterinarians are serving in Public Health and laboratory administration, respectively. The OIE-WAHIS data indicate 3.5% (300 nos) of Veterinarians are working with the industry, and 3.7% (320 nos) are independent private Veterinarians. The number of Veterinarians in an academic institution is 14.6% (1250 nos). The data classified around 1.3% (110) of Veterinarians in to 'others' category.

Country Institutional Structure

| TOPIC | RESPONSIBLE INSTITUTION |
|---|--|
| Approval of VEEs | University Grants Commission (UGC) / Ministry of Fisheries and Livestock (MoFL) in consultation with the Ministry of Education |
| Curriculum related | Academic Council and Syndicate /Board of the University |
| National accreditation/Licensing/Registration/renewal | Bangladesh Veterinary Council |
| Continued Education | Universities, Department of Livestock Services, Different NGOs |

Source: Survey findings of 2nd OIE Regional Workshop for VEEs and VSBs, Tokyo, Nov 2018

³ a multinational animal health company based in Libourne, France

Bhutan

Veterinary Education

As per the State of Higher Education of Bhutan (2020) report[26], the total number of students enrolled (In-country) in Agriculture, Forestry, Fisheries, and Veterinary is 1350 (584 Male and 766 Females). The report provides no break-up of students in veterinary science. However, the report indicates that country does not have any institute offering Doctor of Veterinary Medicine (DVM) or equivalent courses.

The Royal University of Bhutan provides a four-year Bachelor of Science course in Animal Science (with a 2-year diploma exit option). The total enrolment in the Bachelor's study in 2020 was 131 (49 Male and 82 Females)[26]. Out of the 36 modules (480 credits), the program provides veterinary science-related modules such as Basic Anatomy and Physiology of Farm animals, Fundamentals of Veterinary Medicine, Veterinary Surgery, Preventive Veterinary Medicine, Veterinary Public Health and Epidemiology, Clinical Veterinary Medicine, etc. [27]

Gender and veterinary education

According to a study[21], higher education's Gender Parity Index (GPI) indicated a marginal rise from 0.79 to 0.95 between 2015 and 2020.

One Health education

Bhutan One Health Strategic Plan (2018-2023) indicates laboratory staff training in Health and Veterinary. [28] Between 2014 to 2017, Bhutan benefited from Massey University's One Health capacity building program entitled Integrating Education and Action for One Health, funded by the European Commission under the One Health Programme in Asia.[6]

Veterinary Statutory Body and accreditation

As per the information collected during the OIE workshop (2018)⁴, the Royal Civil Service Commission (RCSC) and the Royal University of Bhutan (RUB) are responsible for the approval of Veterinary institutions. Whereas all major authorities such as the Department of Livestock, Bhutan Agriculture and Food Regulatory Authority (BAFRA), and the University of Bhutan (RUB) play a role in curriculum development. The report[4] of the OIE workshop listed the absence of VSB in Bhutan as a significant challenge.

Bhutan has an Accreditation Council (Bhutan Accreditation Council) established as per clause 11 of the Tertiary Education Policy of the Kingdom of Bhutan, 2010. The Council completed the first cycle of institutional accreditation in 2019. It works in collaboration with professional Councils like the Bhutan Medical and Health Council, Bhutan Board of Certified Counsellors, Bhutan Institute of Architects, National Teachers Council, etc. [29]

Continuing Education

The 2015 PVS Follow-up report (as referred to in PVS Laboratory Mission Report 2016) recommended developing and implementing a strategic plan for continuing education and establishing a national budget to coordinate animal health programs.[30]

⁴ 2nd Regional Workshop for VEEs and VSBs, Tokyo, Japan 18-20 Nov 2018

Veterinary workforce

In 2019, Bhutan reported to OIE-WAHIS 86 Veterinarians and 740 Veterinary Paraprofessionals. The majority (55%, 47 nos) of Veterinarians are in animal health-related public administration. Around 4.7% (4 nos) and 12.8% (11 nos) of veterinarians are serving in Public Health and laboratory administration, respectively. The OIE-WAHIS data indicate 18.6% (16 nos) Veterinarians in "others" categories without showing any independent veterinarian in private practice or industry. A total of 11.4% (8 nos) of Veterinarians are serving in an academic capacity in various training institutes.

Country Institutional Structure

| TOPIC | RESPONSIBLE INSTITUTION |
|---|--|
| Approval of VEEs | Royal Civil Service Commission (RCSC) and Royal University of Bhutan (RUB) |
| Curriculum related | Department of Livestock; Bhutan Agriculture and Food Regulatory Authority (BAFRA); Animal Science Faculty, College of Natural Resources (CNR) under University of Bhutan (RUB) |
| National accreditation/Licensing/Registration/renewal | Department of Livestock; Bhutan Agriculture and Food Regulatory Authority (BAFRA) under the Ministry of Agriculture and Forest |
| Continued Education | Universities, Department of Livestock Services, Different NGOs |

Source: Survey findings of 2nd OIE Regional Workshop for VEEs and VSBs, Tokyo, Nov 2018

India

Veterinary Education

As of 2021, there are 54 recognized veterinary colleges in India (42 under 16 Veterinary Universities, ten numbers under ten agricultural Universities, and two under General Universities).[31] Private veterinary colleges are fast emerging in India, with select veterinary universities publishing guidelines for affiliation of private veterinary colleges[32]. The colleges provide a five and half year duration (with a one-year mandatory internship) composite program in Veterinary Science and Animal Husbandry (Bachelor in Veterinary Science and Animal Husbandry) and postgraduate and Ph.D. programs. India also recognized the veterinary qualifications of 13 foreign universities. [33] The recognized qualification list includes seven institutions from the United Kingdom, three from the Union of Soviet Socialist Republic, two from the Republic of Ireland, and one from the Slovak Republic.[34] As per the All India Survey on Higher Education (2019-20)[35], the VEEs in India attracted 40 international students for the Bachelor's program and 17 for the Master of Veterinary Science program.

A blog article published online in 2017 by Agricultural Extension in South Asia (AESA)[36] discussed various dichotomies in veterinary education in India, such as two institutions regulating graduate and postgraduate education separately, a degree program with equal emphasis on animal health and production without increasing the duration of the program, etc.,

OIE PVS report (2018)[33] mentioned a shortage of faculty members against notified standards. The report of the OIE regional workshop for VEEs and VSBs held in Tokyo in November 2018 [4]also documented human resource shortage as a challenge for VEEs.

Sashidhar PVK (2018)[37] assessed the core competencies of veterinarians in three South Indian States and suggested the following policy intervention: adequate hands-on pre-service instruction in

veterinary colleges and assessment of competencies before certification, introducing a veterinary licensing examination, reinforcing competencies through induction training, in-service or continuing veterinary education programs, and improving the institutional mechanisms to assess competencies at regular intervals.

The OIE PVS report (2018) recommended a review of Day 1 competencies of veterinarians to address weaknesses in professional competencies and gaps in the curriculum. It also suggested specialist training in critical skills such as epidemiology and risk analysis.

Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), a prominent VEE of India, recently received OIE Veterinary Education twinning project support with the Faculty of Veterinary Medicine, the University of Calgary as a parent partner. The objective of the twinning project is to build an outcomes-based curriculum specifically focusing on gap analyses, curriculum reform, and revision. It also aims to establish a teaching academy and develop an outcome assessment framework. [38]

Gender and veterinary education

As per the Global gender gap index ranking and scores, 2020, India's score regarding education and skills in Agri., Forestry, Fisheries & Veterinary, attainment (in %) for female Vs. the male is 0.40 / 1.07.[15] As per the All India Survey on Higher Education (2019-20) [35], out of the total 19023 students in the Bachelor of Veterinary Science and Animal Husbandry course, 7509 (39.5%) are female students. For the Master of Veterinary Science course, out of 3952 students, female students are 1628 (41.2%). Similarly, for Ph.D. in Veterinary and Animal Science, out of 1329 students, female students are 521 (39.2%).

One Health education

Few select VEEs established the center of excellence in 'One Health.' For example, the Centre for One Health Education, Advocacy, Research and Training (COHEART) at the Kerala Veterinary and Animal Science University provides training courses in One Health and Food Safety[39]. Similarly, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, upgraded its Public Health and Zoonoses school to the Centre of One Health in 2021.[40]

In 2021, several VEEs joined the 'One Health Consortium' launched by the Department of Biotechnology, Government of India[41]

Veterinary Statutory Body and accreditation

The Veterinary Council of India (VCI) is the premier statutory body within the veterinary domain in India under the provision of the Indian Veterinary Council Act (1984). The Act also has a provision (Section 32) for State Veterinary Councils (SVCs). VCI and SVCs regulate the veterinary practice in India. The Indian Veterinary Council Act has jurisdiction all over the country, and the central government, through the Veterinary Council of India, recognizes VEEs. Various states under the Indian union adopted the Veterinary Council Act (1984) by resolution in its legislative assembly passed pursuant to clause (1) of Article 252 of the Indian Constitution. The VCI conducts periodic inspections of VEEs as per the Veterinary Council of India (Inspectors and visitors) Regulations, 1991[42]

The VEEs in India mandatorily follow the Veterinary Council of India's Minimum Standards of Veterinary Education- (Bachelor of Veterinary Science and Animal Husbandry - Degree Course) Regulations, 2016. Part I to V of regulation has sections on the course of study, admissions, structuring, and organization of course curriculum (with the list of core competencies to be achieved and detailed

course content), examination, and evaluation. Part VI describes minimum standards for a VEE with 80 admissions in the graduate program. It includes a list of departments with space and human resource requirements besides other infrastructure and equipment details. Part VII of the regulation suggests a grading scheme for Veterinary colleges. [43]

Indian Council of Agricultural Research (ICAR) -an autonomous organization under the Department of Agricultural Research and Education (DARE), regulates postgraduate and Ph.D. education in the Veterinary domain in India.[44]

The Indian Council of Agricultural Research (ICAR) maintains an online accreditation system for higher agricultural educational institutions[45]. The Bachelor of Veterinary Science and Animal Husbandry (BVSc & AH) and various related postgraduate and Ph.D. programs are part of approved disciplines for this system.

As per section 20.7 of the new National Education Policy 2020 of the Government of India[46], the Veterinary Council of India (VCI) will be one of the Professional Standard-Setting Bodies (PSSBs). The VCI will receive an invitation to the General Education Council (GEC)—the academic standards-setting independent vertical of the Higher Education Commission of India (HECI) envisioned under the new policy. As a member of GEC, VCI will only specify the curriculum framework against which Veterinary Educational Establishments (VEES) will prepare their independent curricula. As mentioned above, currently, VEE in India requires to follow the VCI Minimum Standards of Veterinary Education- (Bachelor of Veterinary Science and Animal Husbandry - Degree Course) Regulations, 2016. VCI notified this regulation in exercise of the powers conferred by sub-section (1) of section 66 (along with subsection (1) of section 22 and clause (b) of sub-section (1) of section 21) of the Indian Veterinary Council Act, 1984 (52 of 1984). As per the new policy, the regulation of VEEs will be under the National Higher Education Regulatory Council (NHERC) -another independent vertical of the Higher Education Commission of India (HECI).

Section 10, titled "Institutional Restructuring and Consolidation" of NEP 2020, is another vital section that will impact VEEs in India. The section aims at the mandatory transformation of all higher education institutions into large multidisciplinary universities, colleges, and Higher Education Institution (HEI) clusters, each of which will aim to have 3,000 or more students. The section will require VEEs, particularly Universities providing only Veterinary and allied education, to offer multidisciplinary courses. The policy also mentions that a university affiliation will not be necessary for colleges as they will get graded autonomy with time. The policy targets (Refer to section 10.12) that by 2035, all colleges currently affiliated with a university shall secure accreditation and become autonomous degree-granting colleges.

The NEP-2020, however, permitted the regulation of medical and legal education outside the ambit of NHERC. The debate is currently ongoing about keeping veterinary education outside the purview of NHERC.[47]

Continuing Education

The VCI Act and Rules do not yet have any provisions for introducing a mandatory Continuing Education (CE) requirement for the five-early renewal of registration. However, some states are introducing compulsory CE for re-registration. For instance, Punjab has introduced a need for a minimum of 15 credit points equivalent to three or four CE courses for registration renewal.[33]

Under the National Action Plan (2016/17 to 2020/21), the 'Professional Efficiency Program' of the Department of Animal Husbandry and Dairying aims to provide CE to some 27,000 veterinarians with

a budget of more than 60 million INR[33]. The State Animal Husbandry Departments (Veterinary Authority at provincial / state level) often maintain staff training institutions for refresher courses.

Indian Council of Agricultural Research (ICAR) regularly provides summer/winter school and short courses related to the veterinary domain. [48] Since 2017-18, ICAR has been embarking upon an ambitious step in further strengthening the National Agricultural Education system in the country through the National Agricultural Higher Education Project (NAHEP) with the financial assistance of the World Bank. The NAHEP project focuses on investment in infrastructure, competency, and faculty commitment. It also aims at attracting talented students to agriculture. NAHEP supports VEEs to provide international exposure to faculty, undergraduate and postgraduate students through student exchange, twinning, sandwich, and dual degree programs with reputed international universities.[49] and [50]. In recent years Many VEEs in India have started providing need-based postgraduate diplomas and short certificate courses [51] and [52]

Many veterinary pharmaceutical companies actively sponsor and conduct continuing education programs and clinical case management competitions, often collaborating with the various Association of veterinarians.[53] Dedicated social media channels discussion groups are also fast emerging in India to meet the need for continuing education of field veterinarians. [54]

Veterinary workforce

In 2017, India reported to OIE-WAHIS 78821 Veterinarians and 102000 Veterinary Paraprofessionals. The majority (82.8%, 65242 nos) of Veterinarians are in animal health-related public administration. Around 4.5% (3546 nos) and 6.4% (5017 nos) of veterinarians are serving in laboratories and academic and training institutions, respectively. The number of accredited private veterinarians in animal health activities is 5016 (6.4%). The OIE-WAHIS data indicate no reporting of Veterinarians in public health activities or industries.

As per the National Academy of Veterinary Sciences (India) policy paper published in 2015[55], there are around 34,500 veterinarians in the animal health service sector against the requirement of 75,000 on a modest scale. As per a rough estimate, according to the paper, India will require from 1-1.25 lakh professionals in Veterinary, Animal Science, and dairying in the next 20 years. (By 2035)

The annual pass out from the Bachelor of Veterinary Science and Animal Husbandry course during 2019-20 is 2999 (1801 male and 1198 Female). For postgraduate, in Veterinary and Animal Sciences, the annual pass out is 1661 (992 male and 669 Female), and for Ph.D., the pass out is 438 (282 Male and 156 Female).[35] A paper published in the year 2013 [56]projected the requirement of annual outturn from the veterinary science education system at 7,670 graduates

The Veterinary Council of India commissioned the National Institute of Labour Economics Research and Development (NILERD)⁵ to assess human capital needs in the Veterinary Sector. The draft report of the assessment submitted during 2016 is waiting for finalization with input from the competent authority. According to an earlier (2011) NILERD report, the total number of graduates in veterinary sciences from annual supplies was around 40,232 in 2010. The 2011 NILERD report[57] projected that the stock of veterinary undergraduates, postgraduates, and doctorates required would be 68,000 by 2020, i.e., about 2,500 per year from 2010 to 2020.

⁵ Previously know as Institute of Applied Manpower Research (IAMR)

Country Institutional Structure

| TOPIC | RESPONSIBLE INSTITUTION |
|---|--|
| Approval of VEEs | Department of Animal Husbandry and Dairying, Ministry of Animal Husbandry, Dairying and Fisheries, Government of India, on the recommendation of the Veterinary Council of India |
| Curriculum related | <ul style="list-style-type: none"> • Veterinary Council of India • Veterinary/Agricultural Universities having a College/faculty of Veterinary Science and Animal Husbandry • Professional Bodies • Indian Council of Agricultural Research (ICAR) |
| National accreditation/Licensing/Registration/renewal | Veterinary Council of India based on the register prepared by the various State Veterinary Council |
| Continued Education | Not reported |

Source: Survey findings of 2nd OIE Regional Workshop for VEEs and VSBs, Tokyo, Nov 2018

Iran

As per a document published by the American Association of Veterinary Medical Colleges (AAVMC), 22 VEEs in Iran offer six-year DVM courses.[58] As per the survey result of the 2nd OIE Regional Workshop for VEEs and VSBs, Tokyo, Nov 2018, there are 23 VEEs (12 under public-funded and 11 under private sector).

Gender and veterinary education

As per the Global gender gap index ranking and scores, 2020, the score regarding education and skills in terms of Agri., Forestry, Fisheries & Veterinary, attainment (in %) for female Vs. the male is 3.04 / 2.71[15]

As per the survey result of the 2nd OIE Regional Workshop for VEEs and VSBs, Tokyo, Nov 2018, the gender ratio has favored females (60%) at public universities and one private university. The other ten private universities accept only male students.

Veterinary workforce

In 2018, Iran reported to OIE-WAHIS 13189 Veterinarians and 7900 Veterinary Paraprofessionals. The majority (41.7%, 5500 nos) are private accredited practitioners in animal health activities. Veterinarians in public administration include 14.2% (1870 numbers) in animal health and 5% (660 numbers) in public health activities. The number of veterinarians serving in academic and training institutions is 0.8% (110 numbers), and the number of independent private veterinarians is 11.9% (1570 numbers). Around 7.2% (950 number) of veterinarians serve the private industry.

Country Institutional Structure

| TOPIC | RESPONSIBLE INSTITUTION |
|-----------------------------------|---|
| Approval of VEEs | Veterinary Planning and Development Group, Ministry of Science, Research, and Technology (MSRT) |
| Curriculum related | Ministry of Science, Research, and Technology and Level 1&2 Universities |
| National accreditation/Licensing/ | Day one graduates are considered accredited. |

| TOPIC | RESPONSIBLE INSTITUTION |
|----------------------|---|
| Registration/renewal | Iran Veterinary Regulatory council (IRVC) operates licensing, registration, and renewal |
| Continued Education | Universities, Iran Veterinary Organization (IVO), Iran Veterinary Regulatory council (IRVC), Private Sector |

Source: Survey findings of 2nd OIE Regional Workshop for VEEs and VSBs, Tokyo, Nov 2018

Note: The review is incomplete as there is inadequate literature in the English language on veterinary education in the public domain.

Maldives

In the Maldives, veterinary service is not the mandate of any Ministry. However, the Ministry of Fisheries, Marine Resources, and Agriculture in the year 2019 opened its first temporary veterinary clinic. [59] In recent years private veterinary clinics are emerging in the country[60]

The country does not have any Veterinary Educational Establishment[61]. A qualified foreign veterinarian with a work permit must register as a practitioner with the Ministry of Fisheries, Marine Resources, and Agriculture.[62]

Nepal

Veterinary Education

There are four (4) numbers VEEs in Nepal affiliated with 3 Universities providing a 5-year duration of Bachelor of Veterinary Science and Animal Husbandry (BVSc & AH) courses.[63]

Gender and veterinary education

In 2019, there were approximately 1.05 females for every male enrolled in tertiary education in Nepal[64]. The study could not access any specific published data regarding female participation in veterinary education.

One Health education

Between 2014 to 2017, Nepal benefited from Massey University's One Health capacity building program entitled Integrating Education and Action for One Health, funded by the European Commission under the One Health Programme in Asia[6]

Veterinary Statutory Body and accreditation

Nepal Veterinary Council (NVC) [65] is the national veterinary statutory body governed by the Nepal Veterinary Council Act, 2055 (1999) and Nepal Veterinary Council Regulations 2057 (2001). The Council is responsible for the regulation of Veterinarians and VEEs.

The Council published the Minimum Standards for B.V.Sc. & AH Program regulation 2063 (2007), including detailed internship guidelines. Amongst others, the Council maintains two committees, viz. Professional standards, competency assessment committee, and Veterinary Institution Monitoring Committee.

The National Licensure Examination for Veterinarians (NLEV) is a national examination developed by the Nepal Veterinary Council as a prerequisite for NVC registration. This National Licensure Examination for Veterinarians (NLEV) is mandatory for all new graduates of Bachelor of Veterinary Science and Animal Husbandry (B.V.Sc. & AH) or B.V.Sc. or DVM or M.Sc. (Vet.). The examination

tests knowledge and skills for job functions most commonly required by entry-level veterinarians. The examination determines eligibility to earn the title of a registered veterinarian.

Continuing Education

Since 2016, the Nepal Veterinary Council (NVC) has been preparing an annual calendar to conduct "Continue Education (CE)" in several subjects. Nepal Veterinary Association [66]also conducts occasional CE programs.

Veterinary workforce

In 2019, Nepal reported to OIE-WAHIS 805 Veterinarians and 19430 Veterinary Paraprofessionals. The majority (39.3% 316 nos) of Veterinarians are in animal health-related public administration, followed by 14.9% (120 number) private accredited practitioners. The number of Veterinarians in Public Health is only 4 (0.5%). The number of veterinarians serving the animal health industry and independent private veterinarians is 4% (33 nos) and 18.8% (152 nos), respectively. The number of veterinarians in academic or training institutions is 120 (14.9%). The data indicate 80 (9.9%) Veterinarians in laboratories. It categorized 56 (6.9%) veterinarians as serving 'other' areas.

A paper published in 2018 [67] concluded that brain drain is becoming an important issue in Nepal's agriculture and the veterinary sector. More than half of the students from this sector intend to go abroad.

Country Institutional Structure

| TOPIC | RESPONSIBLE INSTITUTION |
|---|---|
| Approval of VEEs | Ministry of Education |
| Curriculum related | University and Nepal Veterinary Council (NVC) |
| National accreditation/Licensing/ Registration/renewal | Nepal Veterinary Council |
| Continued Education | Nepal Veterinary Council |

Source: Survey findings of 2nd OIE Regional Workshop for VEEs and VSBs, Tokyo, Nov 2018

Pakistan

Veterinary Education

Fifteen VEEs provide a five-year DVM degree and other higher veterinary-related qualifications in Pakistan. The five-year DVM course (including six months internships) started in Pakistan in 2002. [68]

Gender and veterinary education

As per data available with Pakistan Veterinary Medical Council (PVMC) percent of female registered veterinary medical practitioner is 7.75% (1363 numbers out of 17592) [69]

One Health education

The DVM students are getting theoretical and practical exposure to courses covering epidemiology and Public Health. The University of Tennessee, USA, assisted PVMC in mapping the existing DVM curricula for 100 percent compliance with the One Health Concept. In 2019, the National Curricula Revision Committee (NCRC) of PVMC opted for the recommendations following the mapping exercise and added the missing contents in courses related to epidemiology and Public Health.[69] In recent years, the University of Veterinary and Animal Sciences, Lahore, has initiated an MPhil degree program on One Health [70]. Some VEEs sign a memorandum of understanding with medical colleges to arrange joint walks, vaccination campaigns, media talks, lectures, workshops, and conferences. [71]

Veterinary Statutory Body and accreditation

The Pakistan Veterinary Medical Council (PVMC) is the national veterinary statutory body under the Pakistan Veterinary Medical Council Act 1996. Administratively PVMC is under the Ministry of Inter-Provincial Coordination and works closely with the Higher Education Commission (HEC) of the Government of Pakistan.

The HEC published Undergraduate Education Policy 2020 (covering professional degrees) focusing on competency-based learning, balanced between breadth and depth of courses, specialization, applied knowledge, emphasis on creativity, etc.[72]

The PVMC is responsible for registering veterinarians for practice and implementing the code of conduct for Veterinarians. The PVMC is also responsible for establishing a uniform standard of entry and higher veterinary education through actions like regular curriculum revisions, regulation of DVM internship program through VEEs, accreditation of VEEs, the equivalence of educational degrees, decision on the number of DVM admissions based on the assessment of future needs of veterinary graduates.[68] and [71]

The DVM graduates do not require to pass any licensing examination to register their name at PVMC.

Pakistan Veterinary Medical Council (Accreditation and Equivalence) Regulations, 2015[73] governs the accreditation of VEEs. The HEC provides development grants to VEEs to strengthen faculty development and conduct research programs, seminars, conferences, training workshops, knowledge exchange, etc. In addition, the HEC quality enhancement cell undertakes regular University rankings to which VEE performance contributes. [71]

Pakistan Veterinary Medical Council: Standards of Education Regulations, 2001 (Amended in 2015) [74] governs the DVM degree and a one-year Deficiency Course leading to DVM Degree. The Deficiency course is for animal Husbandry Graduates with B.Sc (Hons.) Animal Husbandry degree, including those serving in a Livestock and Dairy Development Department. As per the regulation, the Council shall persuade the Provincial Governments to extend maximum support to the said graduates to complete the deficiency course. After the regulations' commencement, animal husbandry graduates who pass the B.Sc (AH) (Hons.) examination are not entitled to employment as Veterinary Officers in the public or private sector or not eligible for registration as veterinary practitioners unless such graduates pass the Deficiency DVM course.

The first and second schedule of the Standards of Education Regulations, 2001 (Amended in 2015) describes the curriculum outline for the DVM and 'Deficiency DVM' course. The Higher Education Commission (HEC) and PVMC in the year 2015, adopted a revised DVM curriculum[75]. The new DVM program of 2015 included veterinary subjects and subjects related to animal science with a ratio of 70:30 [76]. As per an expert opinion[71], 90% of the new DVM curriculum of 2015 aligns with OIE Day 1 competencies with deficiencies related to certifications, local and international veterinary law, and regulations. The country initiated another curriculum revision in 2019 to address identified deficiencies and published the same in 2020 following the curriculum revision committee meeting held in February 2020. [68] PVMC, with support from Sandia National Laboratories, New Mexico, USA, involved various VEEs faculty members in developing a course on Biorisk Management[77]. In addition, PVMC also arranged the training of two faculty members from all 15 VEEs associated with the teaching of the course. PVMC helped its 15 VEEs in the faculty development program by encouraging Higher Education Commission, Islamabad, to provide additional scholarships to faculty for needed areas of veterinary disciplines[78]. Moreover, PVMC has organized over a dozen hands-on training for all VEEs faculty members based on need. The PVMC, in recent years, revised the Animal Welfare course under

the DVM program referring to the OIE standards and introduced a new course on entrepreneurship to increase the employability of graduates.[69]

The second schedule of the Pakistan Veterinary Medical Council Act 1996 describes recognized qualifications granted by veterinary institutions outside Pakistan. The recognized DVM qualifications list includes all state Universities of the US, Australia, and the Provincial University of Canada.[68]

Continuing Education

Continuing Veterinary Education credit is not mandatory for renewal of registration at PVMC.[71]

As per Pakistan Veterinary Medical Council (Accreditation and Equivalence) Regulations, 2015, each VEE needs to establish an independent department of Continued Veterinary Education (CVE). In close liaison with the livestock extension department, research institutes, and the private sector, this department requires to develop an annual program of CVE for each province/area falling under its domain. The regulation requires that appropriate resources are available at the disposal of this department to achieve continuous progress in this activity.

The provincial government of Punjab initiated an in-service Training Facility of Advance Veterinary Education and Professional Development for Veterinary Professionals (IVPD)[79]. Under the project, the University of Veterinary and Animal Sciences, Lahore, established a full-fledge Veterinary Academy on modern lines. Under the same project, many VEE faculty members have attended postgraduate diplomas and MSc in veterinary education from the Royal Veterinary College, London, UK.[80]

Veterinary workforce

As per a presentation made by the registrar of PVMC at the Veterinary Council of Thailand on 12 March 2018,[81] the PVMC registered 12432 Veterinary Medical Practitioners and 500 Animal Husbandry graduates. The number of Veterinarians working in the public and private sectors is 2766 and 550, respectively. As per the presentation, the projected demand for veterinarians by 2025 is 6780

In 2018, Pakistan reported to OIE-WAHIS 13240 Veterinarians and 15122 Veterinary Paraprofessionals. The majority (46.6% 1672 nos) of Veterinarians are in public health activities, followed by animal health activities (33.7% or 4467). Around 19.3% (2550 nos) of veterinarians are in animal health-related public administration. The number of veterinarians working in laboratories and industry is 278 (2.1%) and 136 (1.02%). Around 15% (2011 nos)of veterinarians contribute as independent private veterinarians.

[Sri Lanka](#)

Veterinary Education

Faculty of Veterinary Medicine and Animal Science - the University of Peradeniya is the only VEE in Sri Lanka providing a five-year Bachelor of Veterinary Science Honours' BVSc (Hons)' course. The total intake of the faculty during the academic year 20-21 is 130 only. [82]

The University Grants Commission (UGC), Sri Lanka, is the apex body of the University System in Sri Lanka under the Universities Act No. 16 of 1978. The functions of the UGC are; planning and coordination of university education, allocation of funds to Higher Educational Institutions (HEIs), maintenance of academic standards, regulation of the administration of HEIs, and regulation of admission of students to HEIs. UGC coordinates recognition of veterinary qualification and admission to VEE under the University of Peradeniya.

The OIE-endorsed twinning program between the University of Peradeniya and Massey University, New Zealand (2014-2019) reviewed the BVSc (Hons) curriculum at the University of Peradeniya. A paper [83] published in 2019 reports the curriculum review process and describes the key features of the new curriculum developed through that partnership.

As per Sri Lanka Qualification Framework, [84] BVSc (Hons) is included in level 6 above standard bachelor programs.

Gender and veterinary education

The University Grants Commission of Sri Lanka maintains a gender equity and equality center.[85]

The country gender assessment by Asian Development Bank(ADB)[86] quoting UGC data of undergraduate admission by an academic stream for 2012 indicated 68.24% of female students in Veterinary Science.

One Health education

A 'One Health' intensive field course was offered in Sri Lanka in 2015 and 2017 as a part of a collaborative initiative between the University of Peradeniya in Sri Lanka and the University of California, Davis, US [87]

Veterinary Statutory Body and accreditation

The Veterinary Council of Sri Lanka registers and licenses graduate veterinarians for practice as per Veterinary Surgeons and Practitioners Act. No. 46 of 1956[88]. The Veterinary Council and the Department of Animal Production and Health, Government of Sri Lanka, conduct a six-month internship for provisionally registered graduates before final registration and authorization to practice.

Sri Lanka is working on a new Veterinary Council Act that repeals the Veterinary Surgeons and Practitioners Act. No. 46 of 1956. The draft Act is available in the public domain for comment.[89] The new Act proposes the registration of various categories of VPPs. As per section V of the draft Act, the Council shall have the power to approve and establish new veterinary faculties in universities or veterinary-related courses in education institutes. According to section VII of the draft Act, the Council shall have the power to review and recommend the standards of the foreign universities and institutes providing veterinary education to recognize the Veterinary degree offered by such universities.

Continuing Education

The Department of Animal Production and Health (DPAH) maintains a national Institute of Continuing Education in Animal Production and Health (ICEAPH) at Gannoruwa. It provides in-service training and further training facilities for the department staff. DPAH regularly nominated officers to attend overseas training. In 2019, around 50 Veterinarians got nominations for various types of programs. [90]

Sri Lanka Veterinary Association (SLVA) – an affiliated association of the Federation of Asian Veterinary Association and Commonwealth Veterinary Association, regularly conducts scientific sessions. The Association also maintains an education portal[91]

A paper published in 2020 [66] documented the impact of continuing professional development on Sri Lanka's veterinary sector following a collaborative capacity-building program between Veterinary schools in the UK and Veterinary schools in Sri Lanka.

Veterinary workforce

In 2018, Sri Lanka reported to WAHIS 2452 Veterinarians and 1248 Veterinary Paraprofessionals. The majority (46.7% 1145 nos) of Veterinarians are in animal health-related activities as private accredited practitioners, and 35.5% (870 nos) of veterinarians serve animal health-related public administration. The number of Veterinarians in Public Health is 122 (4.9%). The number of veterinarians serving the animal health industry and independent private veterinarians is 2.1% (52 nos) and 5% (125 nos), respectively. The number of veterinarians in academic or training institutions is 74 (3%). The WAHIS data indicate no reporting of Veterinarians in laboratories but categorized 64 (2.6%) veterinarians as serving 'other' areas.

The National Action Plan for Health Security of Sri Lanka 2019-2023[92] indicated a Joint External Evaluation (JEE) score of 3 for the Veterinary and Animal Health Workforce indicator. It recommended priority actions such as cadre revisions based on realistic projections, retention measures, and career pathways for veterinary staff besides response to workforce-related recommendations of OIE PVS Gap Analysis (2011)

Country Institutional Structure

| TOPIC | RESPONSIBLE INSTITUTION |
|---|--|
| Approval of VEEs | University Grant Commission (UGC) |
| Curriculum related | Veterinary Faculty, University Senate and University Grant Commission (UGC) |
| National accreditation/Licensing/Registration/renewal | Accreditation Council of the UGC and Veterinary Council of Sri Lanka; |
| Continued Education | Department of Animal Production and Health, Sri Lanka Veterinary Council, and Sri Lanka College of Veterinary Surgeons |

Source: Survey findings of 2nd OIE Regional Workshop for VEEs and VSBs, Tokyo, Nov 2018

Conclusion

The desk review indicated 116 VEEs in the sub-region (94 VEEs in South Asia and 22 in Iran). Out of the 09 number member countries in the sub-region, the majority 06 number of countries have functional VSBs. Two countries in the sub-region, Afghanistan, and Bangladesh, have notified new laws related to VSB, whereas Sri Lanka has drafted a new Veterinary Council Act.

Out of 7 countries with VEEs, 04 countries use DVM, 02 countries use BVSc & AH, and 01 countries use BVSc (Hons) to denote the qualifying degree of veterinarians. The length of basic veterinary qualification (inclusive of internship) is five years in the region except in India and Iran, where it is 5.5 and 6 years, respectively. Standard accreditation and equivalence systems exist for VEEs in Bangladesh, India, and Pakistan (Iran?). Three countries in the region viz. Bangladesh, India, and Sri Lanka benefited from the OIE-supported Veterinary Education twinning program focusing on curriculum development.

The review noted that two countries in the sub-region, India and Pakistan, published new education policies in 2020, indicating likely changes to the overall professional education scenario.

Participation of women as a student of veterinary science is increasing in the region. However, data and references are insufficient to comment on the trend of women's participation as faculty members of VEEs.

Initiative related to mainstreaming of One Health in Veterinary Education is fast emerging. Besides curriculum review, some VEEs have set up separate centers of excellence on One Health.

A separate licensing examination under the aegis of VSB for practicing veterinarians is not popular in the region, and CVE credit is not mandatory for the renewal of VSB registration. The desk review recorded only the VSB in Nepal conducting a National Licensure Examination for Veterinarians (NLEV) as a prerequisite for registration.

The review could not record any initiative on real-time data generation on the veterinary workforce in the sub-region, and current data is insufficient for quality workforce planning.

References:

1. Sherman D.M. (2005). – Priority Needs For Veterinary Medicine In Afghanistan. *Journal of Veterinary Medical Education*, **32** (2), 163–168. doi:10.3138/jvme.32.2.163.
2. Samady, Saif R. (2013). – Changing profile of education in Afghanistan. doi:10.25656/01:7798.
3. 201711078_OIE_PVS_Follow-up_Report_final_Afghanistan.pdf Available at: https://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/pdf/201711078_OIE_PVS_Follow-up_Report_final_Afghanistan.pdf (accessed on 11 February 2022).
4. 2nd Regional Workshop on VEE and VSBs *OIE - Asia*. Available at: <https://rr-asia.oie.int/en/events/2nd-regional-workshop-on-vee-and-vsbs/> (accessed on 11 February 2022).
5. Attal N. (2021). – Increasing girls’ access to formal agricultural education in Afghanistan. *Brookings*. Available at: <https://www.brookings.edu/research/increasing-girls-access-to-formal-agricultural-education-in-afghanistan/> (accessed on 12 February 2022).
6. Integrating Education and Action for One Health in South Asia | One Health Network South Asia Available at: <http://www.onehealthnetwork.asia/node/596> (accessed on 1 March 2022).
7. Home | Ministry of Higher Education وزارت تحصیلات عالی Available at: <https://www.mohe.gov.af/en/> (accessed on 3 March 2022).
8. FAO.org : Available at: <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC182390/> (accessed on 11 February 2022).
9. Fakhri D.A.Q., Ansarzai M.M., Geerlings D.E., Bartels D.C. & Briscoe D.R. (2019). – Assessment of Veterinary Field Units in Afghanistan.
10. BVC-Act-2019.pdf Available at: https://mofl.gov.bd/sites/default/files/files/mofl.portal.gov.bd/law/6c1d401f_23e8_42a6_8682_51b76af8bef6/BVC-Act-2019.pdf (accessed on 4 March 2022).
11. Islam M. (2018). – *Animal Husbandry Education in Bangladesh*. Available at: https://www.researchgate.net/publication/323545857_Animal_Husbandry_Education_in_Bangladesh.
12. Samad A. & Islam M.T. (2016). – Comparative Evaluation of the Different Organizations of Bangladesh and India Provided Internship Training to the 13 th Internship Batch of DVM Students of Bangladesh Agricultural University. *Bangladesh Veterinary Medical Record*, **2**, 37–42.

13. Bangladesh-Tertiary-Education-Sector-Review-Skills-and-Innovation-for-Growth.pdf Available at:
<https://documents1.worldbank.org/curated/en/303961553747212653/pdf/Bangladesh-Tertiary-Education-Sector-Review-Skills-and-Innovation-for-Growth.pdf> (accessed on 7 March 2022).
14. Hoque Md.A., Ahad A., Saifuddin A. k. m., Warner A.E., Debnath N.C. & Sawkat Anwer M. (2020). – Improvement of DVM Curriculum to Meet OIE Recommendations at Chattogram Veterinary and Animal Sciences University, Bangladesh. *Journal of Veterinary Medical Education*, **47** (s1), 48–57. doi:10.3138/jvme-2019-0107.
15. Schwab et al. - 2019 - Global gender gap report 2020 insight report..pdf Available at:
https://www3.weforum.org/docs/WEF_GGGR_2020.pdf (accessed on 7 March 2022).
16. JEE Report Bangladesh 2016.pdf Available at:
<https://extranet.who.int/sph/sites/default/files/document-library/document/JEE%20Report%20Bangladesh%202016.pdf> (accessed on 5 March 2022).
17. Bangladesh AMR Progress and updates, 8th Asia Pacific Workshop on Multisectoral Collaboration at the Animal Human-Ecosystem Interface 9-11 April 2019 Available at: <https://rr-asia.oie.int/wp-content/uploads/2020/01/bangladesh-c.pdf> (accessed on 7 March 2022).
18. BVC Standard_of_Veterinary_Education.pdf Available at:
http://bvc.gov.bd/sites/default/files/files/bvc.portal.gov.bd/publications/305321fd_5884_4555_bed6_e272bd111be5/BVC%20Standard_of_Veterinary_Education.pdf (accessed on 4 March 2022).
19. History – Bangladesh College of Veterinary Surgeons Available at: <https://bcvsbd.org/the-college/history/> (accessed on 6 March 2022).
20. Master Plan of Bangladesh Veterinary Council Available at:
<http://bvc.gov.bd/site/page/16423c33-a08c-4442-a8c0-b9fdcc81bf54/http%3A%2F%2Fbvc.gov.bd%2Fsite%2Fpage%2F16423c33-a08c-4442-a8c0-b9fdcc81bf54%2F-> (accessed on 6 March 2022).
21. BangladeshVeterinary Council | Facebook Available at:
<https://www.facebook.com/BangladeshVeterinary-Council-216158572249356> (accessed on 4 March 2022).
22. Bangladesh College of Veterinary Surgeons – Advancing the standard of veterinary profession Available at: <https://bcvsbd.org/> (accessed on 4 March 2022).
23. Strengthening national capacity to prevent and control to emerging and re-emerging pandemic threats including influenza A in Bangladesh : FAO in Emergencies Available at:
<https://www.fao.org/emergencies/fao-in-action/projects/detail/en/c/275202/> (accessed on 6 March 2022).
24. About the Conference – Conference of Continuing Education for the Veterinarians and Animal Husbandry Graduates of Bangladesh Available at: <https://www.cevetbd.org/about/> (accessed on 7 March 2022).
25. presentations_ppp-nepal.pdf Available at: https://rr-asia.oie.int/wp-content/uploads/2019/12/presentations_ppp-nepal.pdf (accessed on 7 March 2022).

26. State-of-TE-2020-30.12.20.pdf Available at: <http://www.education.gov.bt/wp-content/uploads/2021/01/State-of-TE-2020-30.12.20.pdf> (accessed on 23 February 2022).
27. Animal Science – CNR-College of Natural Resources, RUB Available at: https://www.cnr.edu.bt/?page_id=233 (accessed on 23 February 2022).
28. Bhutan_One_Health_Strategy_Plan-1.pdf Available at: http://www.bohnet.bt/boh/wp-content/uploads/2020/11/Bhutan_One_Health_Strategy_Plan-1.pdf (accessed on 23 February 2022).
29. Department of Adult and Higher Education - Bhutan Accreditation Council Available at: <http://www.dahe.gov.bt/index.php/governing-boards/bhutan-accreditation-council> (accessed on 23 February 2022).
30. 20161123_Bhutan_Lab_Final.pdf Available at: https://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/20161123_Bhutan_Lab_Final.pdf (accessed on 23 February 2022).
31. Sharma D.U.C. (2021). – An overview of veterinary Education in India and the National Curriculum for VEEs in India. Available at: https://rr-asia.oie.int/wp-content/uploads/2021/06/2_2-umesh-sharma-ppt.pdf.
32. Guidelines-of-Private-Veterinary-Colleges.pdf Available at: <http://ndvsu.org/images/PDF/Guidelines-of-Private-Veterinary-Colleges.pdf> (accessed on 8 March 2022).
33. 25022019-india-pvs-evaluation-report-final.pdf Available at: <https://www.oie.int/app/uploads/2021/03/25022019-india-pvs-evaluation-report-final.pdf> (accessed on 8 March 2022).
34. Recognized Veterinary Qualifications in India granted by institutions outside India Available at: <https://www.wbvc.in/wp-content/uploads/2016/02/SECOND-SCHEDULE.pdf> (accessed on 8 March 2022).
35. All India Survey on Higher Education 2019-20, Ministry of Education, India Available at: https://www.education.gov.in/sites/upload_files/mhrd/files/statistics-new/aishe_eng.pdf (accessed on 8 March 2022).
36. BLOG-73: Dichotomies in Veterinary Education and Services Delivery – Implications For Policy Decisions in India | | Welcome to AESA Available at: <https://www.aesanetwork.org/dichotomies-in-veterinary-education-and-services-delivery-implications-for-policy-decisions-in-india/> (accessed on 9 March 2022).
37. P.v.k S. & M S. (2018). – Assessment of the core competencies of veterinarians: implications for policy decisions in India. **37** (3), 785. doi:10.20506/37.3.2885.
38. Sethi D.R.S. – OIE Veterinary Education Twinning Projects: GADVASU and University of Calgary. Available at: https://rr-asia.oie.int/wp-content/uploads/2021/06/1_3-sethi-ppt.pdf.
39. COHEART | Centre for One Health Education Advocacy Research and Training Available at: <https://coheart.ac.in/> (accessed on 8 March 2022).

40. Centre of One Health, GADVASU - Guru Angad Dev Veterinary And Animal Sciences University Available at: https://www.gadvasu.in/college/cast_discrimination/401023321/Centre-of-one-health (accessed on 8 March 2022).
41. One Health Consortium Available at: <https://pib.gov.in/pib.gov.in/Pressreleaseshare.aspx?PRID=1779757> (accessed on 9 March 2022).
42. Acts & Rules | VCI Available at: <http://vci.dadf.gov.in/acts-rules> (accessed on 8 March 2022).
43. MSVE-Gazette-2016.pdf Available at: <http://vci.dadf.gov.in/sites/default/files/IVPR/MSVE-Gazette-2016.pdf> (accessed on 8 March 2022).
44. Minimum Standards of Higher Agricultural Education (MSHAE) -for decipline Veterinary and Animal Sciences Available at: <https://icar.org.in/files/MSHAEVAS.pdf> (accessed on 8 March 2022).
45. ICAR-Accreditation System of HAEI Available at: <https://accreditation.icar.gov.in/> (accessed on 8 March 2022).
46. NEP_Final_English_0.pdf Available at: https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf (accessed on 8 March 2022).
47. Minutes of the GC Meeting held on 08.08.2020, National Academy of Veterinary Sciences (India) Available at: <http://www.navsindia.org/downloads/files/n5fe713c26dbf1.pdf> (accessed on 9 March 2022).
48. Welcome to Agricultural Education Portal Available at: https://education.icar.gov.in/summ_win_sch.aspx (accessed on 8 March 2022).
49. National Agricultural Higher Education Project (NAHEP) Available at: <https://nahep.icar.gov.in/Activities.aspx> (accessed on 8 March 2022).
50. International Training Programme Guidelines | NAHEP - IDP Website Available at: <https://nahep-idpuasd.in/guidelines/> (accessed on 4 April 2022).
51. Kerala Veterinary and animal Sciences University Available at: <https://www.kvasu.ac.in/> (accessed on 8 March 2022).
52. GADVASU - Guru Angad Dev Veterinary And Animal Sciences University Available at: <https://www.gadvasu.in/page/postgraduate-diploma-certificate-and-short-courses--college-of-veterinary-science--ludhiana/258/257> (accessed on 8 March 2022).
53. CSR Initiatives: Intas Animal Health Available at: http://www.intasanimalhealth.com/index.php?option=com_content&view=article&id=78&Itemid=69 (accessed on 8 March 2022).
54. Sathya zerograzing - YouTube Available at: <https://www.youtube.com/c/sathyazerograzing> (accessed on 8 March 2022).
55. Human Resource Needs in Veterinary and Animal Sciences , Policy Paper 2, NAVS (I), August 2015 Available at: <http://www.navsindia.org/downloads/files/n593137c054c72.pdf> (accessed on 9 March 2022).

56. Rashmi A., Darapuneni R., Rao B.V.L.N., Nanda S.K. & Kumar I. (2013). – Forecasting manpower requirement in Indian veterinary and animal husbandry sector. *Indian Journal of Animal Sciences*, **83**, 667–672.
57. Assesment of Future Human Capital Requirements in Agriculture and Allied Sectors (2011), NAARM and IAMR Available at: http://iamrindia.gov.in/writereaddata/UploadFile/ChaptersNov18_1994.pdf (accessed on 9 March 2022).
58. Abu-Basha E., Ismail Z.B. & El-Maghraby H.M. – Veterinary Medical Education in the Middle East and North Africa (MENA). *American Association of Veterinary Medical Colleges (AAVMC)*, , 15.
59. Maldives opens veterinary clinic in Vilimale' *The Edition*. Available at: <http://edition.mv/news/8701> (accessed on 10 April 2022).
60. Oases Vet Hospital | Facebook Available at: <https://www.facebook.com/OASESvets/> (accessed on 10 April 2022).
61. The Aspiring Vet | United Nations in Maldives Available at: <https://maldives.un.org/en/114113-aspiring-vet>, <https://maldives.un.org/en/114113-aspiring-vet> (accessed on 10 April 2022).
62. application-form-for-veterinary-practitioners-registration-pahm-vs5.pdf Available at: <https://www.gov.mv/en/files/application-form-for-veterinary-practitioners-registration-pahm-vs5.pdf> (accessed on 10 April 2022).
63. Gautam G. & Dhakal I. (2016). – *Veterinary Education in Nepal*. doi:10.13140/RG.2.2.36818.68808.
64. Nepal: female to male ratio in tertiary education *Statista*. Available at: <https://www.statista.com/statistics/695565/nepal-female-to-male-ratio-in-tertiary-education/> (accessed on 12 March 2022).
65. Nepal Veterinary Council Available at: <http://www.vcn.gov.np/content.php?id=369> (accessed on 12 March 2022).
66. Nepal Veterinary Association Available at: <http://nva.org.np/index.php> (accessed on 12 March 2022).
67. Kattel R.R. & Sapkota M. (2018). – Brain drain of agriculture and veterinary graduates to abroad: evidence from Nepal. *Agriculture & Food Security*, **7** (1), 61. doi:10.1186/s40066-018-0213-1.
68. Pakistan Veterinary Medical Council (PVMC) Available at: <http://pvmc.gov.pk>.
69. Rabbani M. (2022). – Initiative of Pakistan Veterinary Medical Council (PVMC) : An interview with President.
70. UVAS assists health dept on policy framework: VC Available at: <https://www.thenews.com.pk/print/518951-uvassists-health-dept-on-policy-framework-vc> (accessed on 13 April 2022).

71. Presentation of Dr Masood Rabbani (2016) at the conference organized by Asian Association of Veterinary Schools (AAVS) Available at: <https://aavs.jpn.org/wp/wp-content/uploads/2016/11/20161021-Congress-IV.pdf> (accessed on 13 March 2022).
72. Undergraduate Education Policy 2020, Higher Education Commission, Government of Pakistan Available at: [https://hec.gov.pk/english/services/students/UEP/Documents/Undergraduate%20Education%20Policy%202020%20\(UEP\).pdf](https://hec.gov.pk/english/services/students/UEP/Documents/Undergraduate%20Education%20Policy%202020%20(UEP).pdf).
73. Pakistan Veterinary Medical Council (Accreditation and Equivalence) Regulations, 2015 Available at: <http://pvmc.gov.pk/SiteImage/Downloads/PVMC-Accreditation-and-Equivalence-Regulations-2015.pdf>.
74. The Pakistan Veterinary Medical Council: Standards of Education Regulations, 2001 Available at: <http://www.pvmc.gov.pk/SiteImage/Downloads/4.%20standards%20of%20education%20regulation%202001.pdf>.
75. Dr. Muhammad Ammun Bashir (12:18:39 UTC). – Doctor of veterinary Medicine curriculum-2015 (New). Available at: <https://www.slideshare.net/ammanch1/doctor-of-veterinary-medicine-curriculum2015-new> (accessed on 13 March 2022).
76. Farooq U., Idris M., Iqbal M., Khurshid A. & Rehman Z.U. (2018). – Accreditation and evaluation of veterinary medical institutes - a Pakistani perspective. *Rev Sci Tech*, **37** (3), 797–804. doi:10.20506/rst.37.3.2886.
77. Workshop objective and agenda: Advanced Bio Risk Management / Trainer Development Workshop (July 12-14, 2021) organized by Sandia National Lab in collaboration with Pakistan Veterinary Medical Council
78. Hashmi Syed W.S. – Official communication from Higher Education Commission, Government of Pakistan with subject “Recommendations of the Standing Committee on Interprovincial Coordination in the field of Veterinary Sciences” (Letter No.1-1/Adv/HRD/HEC/18/149 dated 26th Jan 2018).
79. University of Veterinary & Animal Sciences Available at: <https://uvas.edu.pk/ivpd/> (accessed on 15 April 2022).
80. VETERINARY ACADEMY Available at: <http://vams.uvas.edu.pk/web/home.php> (accessed on 14 April 2022).
81. Prsentation by Dr Alamdar Hussain Malik, Visit of Pakistan Veterinary Medical Council to Veterinary Council of Thailand (March 2018) Available at: http://www.vetcouncil.or.th/index.php?option=com_content&view=article&id=687:pakistan-veterinary-medical-council-pvmc&catid=23&lang=th (accessed on 13 March 2022).
82. Handbook for Admission to Undergraduate Courses of the Universities in Sri Lanka, University Grants Comission, Sri Lanka 2020-21 Available at: https://www.ugc.ac.lk/downloads/admissions/Handbook_2020_21/HANDBOOK_ENGLISH.pdf (accessed on 10 March 2022).

83. Wijayawardhane N., Rabel C., Ariyaratne S., Abeygunawardena H., McIntyre L. & Parkinson T. (2019). – Veterinary curriculum review and renewal at the University of Peradeniya, Sri Lanka. *Sri Lanka Vet. J.*, **66** (2), 29. doi:10.4038/slvj.v66i2.46.
84. Sri Lanka Qualification Framework (SLQF)-2015 Available at: https://www.ugc.ac.lk/downloads/publications/SLQF/SLQF_Book_2016.pdf (accessed on 11 March 2022).
85. Centre for Gender Equity & Equality Available at: <https://eugc.ac.lk/cgee/index.html> (accessed on 11 March 2022).
86. *Country Gender Assessment, Sri Lanka: An Update* Available at: <https://www.adb.org/sites/default/files/institutional-document/172710/sri-lanka-country-gender-assessment-update.pdf>.
87. One Health in Action: Sri Lanka intensive field course (2017) Available at: http://globalhealth.ucdavis.edu/education/courses/one_health_in_action.html (accessed on 11 March 2022).
88. Veterinary Surgeons & Practitioners Act Available at: http://www.daph.gov.lk/web/index.php?option=com_content&view=article&id=46&Itemid=147&lang=en (accessed on 11 March 2022).
89. Draft Veterinary Council Act - Sri Lanka Available at: <https://www.slvetcouncil.org/legislations> (accessed on 11 March 2022).
90. Annual Report 2019, Department of Animal Production and Health, Sri Lanka Available at: http://www.daph.gov.lk/web/images/content_image/publications/annual_reports/2019/daph_annualReport_9_18_compressed.pdf (accessed on 11 March 2022).
91. SLVA - SLVA Education Portal Available at: <http://www.slva.org/article/slva-education-portal> (accessed on 11 March 2022).
92. National Action Plan for Health Security of Sri Lanka 2019-2023 Available at: <https://extranet.who.int/sph/sites/default/files/document-library/document/NAPHS%20SRI%20LANKA%20-printed%20version.pdf> (accessed on 12 March 2022).