

DICHOTOMIES IN VETERINARY EDUCATION AND SERVICES DELIVERY – IMPLICATIONS FOR POLICY DECISIONS IN INDIA



There are several dichotomies which often interfere in the process of 'making veterinarians' and delivery of services by them. These dichotomies need correction for smooth functioning of veterinary institutions in the country and for producing quality veterinary graduates and postgraduates as per the

requirement of different stakeholders, argue Dr S V N Rao, Dr P V K Sasidhar and Dr D Thammi Raju in this blog post.

CONTEXT

Veterinarians perform several roles including those of field veterinarians, teachers, researchers, extension agents, civil servants, defence personnel, entrepreneurs and so on. The extent to which they are able to perform these roles depends on:

- The way they are groomed in veterinary colleges
- The aptitude of the individual concerned
- The ethos/philosophy of the organisation they serve.

Several dichotomies however interfere in the process of 'making veterinarians' and delivery of services by them.



A distinct division of things or ideas into two contradictory parts is usually referred to as dichotomy. In the academic field, dichotomies are a subject of interest as the contradicting divisions may lead to uncertainty (Box 1).

Box 1. Dichotomy

The term dichotomy is derived from the Greek '*dichotomia*', which means 'dividing in two'. A dichotomy is a partition of a whole or a set into two parts/subsets. In other words, this couple of parts must be jointly exhaustive: everything must belong to one part or the other, and mutually exclusive: nothing can belong simultaneously to both parts. Such a partition is also frequently called a bipartition. The two parts thus formed are complements. In logic, the partitions are opposites if there exists a proposition such that it holds over one and not the other.

<https://en.wikipedia.org/wiki/Dichotomy>

Discussed below are some of the dichotomies that need correction for smooth functioning of veterinary institutions in the country and for producing quality veterinary graduates and postgraduates as per the requirement of different stakeholders.

1. Two Regulatory Bodies - Veterinary Council of India and Indian Council of Agricultural Research

There are two regulatory bodies for veterinary education in India: the Veterinary Council of India (VCI) and the Indian Council of Agricultural Research (ICAR) (Boxes 2 & 3) for graduate and postgraduate education, respectively. The VCI enforces minimum standards of veterinary education; i.e. 2016 regulations for the degree course Bachelor of Veterinary Science and Animal Husbandry (BVSc & AH) which include faculty, infrastructure needed, course curriculum, syllabus etc. to be adopted by all the veterinary colleges in the country. It deputed veterinary inspectors consisting of veterinary academicians of repute to inspect the veterinary colleges to see if they have the required facilities to impart graduate veterinary education as envisaged by the VCI. Based on inspection reports, the VCI either accords recognition or suggests improvements or provides conditional recognition to the colleges. The VCI also prescribes the number of students to be admitted to a college based on availability of faculty and infrastructure. It has the authority to derecognise a college if prescribed minimum standards are not adopted. As of today, there are 48 veterinary colleges recognised by the VCI, including three colleges (in the states of Punjab and Rajasthan) in the private sector. In addition, the Indian Veterinary Research Institute has also started offering an undergraduate programme (UG) from the academic year 2015-16 with an idea to develop a model veterinary college in the country. In India, except for two institutions – the Rajiv Gandhi Institute of Veterinary Education and Research, wholly funded by the Govt. of Puducherry and affiliated to Central University, Pondicherry; and the College of Veterinary Science and Animal Husbandry, Agartala, affiliated to Tripura Central University – all veterinary colleges are either affiliated to the State Agricultural Universities (SAUs), State Veterinary Universities (SVUs) or Central Agricultural Universities (CAUs). There are 13 SVUs in the country today catering to the educational, research and extension requirements in the domain of Veterinary, Animal Husbandry, Dairy and Fishery Sciences.

The VCI also selects candidates based on the All India Common Entrance Examination conducted by it to fill 15 % of the total seats in recognised colleges. However, during the

current academic year the VCI quota is being filled with the candidates based on their NEET score. The rest of the 85 % seats are filled by state entrance tests and/or marks in higher secondary examination or equivalent. Although the VCI has full authority to streamline veterinary education at graduate level in the country, it is not empowered to sanction grants or aid to the colleges.

Box 2. Veterinary Council of India

Indian Veterinary Council Act, 1984 (52 of 1984) was enacted in 1984 and was published in the Extraordinary Gazette of India dated 21st August, 1984 to regulate veterinary practice and to provide for that purpose, for the establishment of Veterinary Council of India and State Veterinary Councils and maintenance of Registers of veterinary practitioners and for matters connected therewith.

Subsequent to enactment of the Indian Veterinary Council Act, 1984, the Central Government (Ministry of Agriculture) vide Gazette Notification dated 2nd August, 1989 for the first time constituted the Veterinary Council of India by nominating the Members as per the provisions of section 4 read with section 3 of the Act. Further, nominations were made by the Central Government from time to time, to fill up the vacancies (www.vci.nic.in).

The ICAR is the apex body for coordinating, guiding and managing research and education in agriculture, including veterinary and animal sciences, dairy, horticulture, home science and fisheries in the entire country (ICAR, 2009). SAUs, SVUs and CAUs are accredited by the ICAR based on self-evaluation reports submitted by the respective colleges and also on the recommendations of accreditation committees deputed by the ICAR. The ICAR conducts entrance examinations for Junior and Senior Research Fellowships to select talented candidates to pursue Masters and Doctoral research in the selected disciplines in ICAR institutes or SAUs, SVUs and CAUs. Although agriculture education falls under the state subject, ICAR has the authority to prescribe the syllabus, and faculty and infrastructure requirements for postgraduate (PG) courses. The ICAR sanctions grants for the development of veterinary colleges in addition to financing various schemes in SAUs/SVUs.

Box 3 : Indian Council of Agricultural Research

The ICAR is an autonomous organisation under the Department of Agricultural Research and Education (DARE), Ministry of Agriculture and Farmers Welfare, Government of India. Formerly known as Imperial Council of Agricultural Research, it was established on 16 July 1929 as a registered society under the Societies Registration Act, 1860 in pursuance of the report of the Royal Commission on Agriculture. The ICAR is the apex body for co-ordinating, guiding and managing research and education in agriculture including horticulture, fisheries and animal sciences in the entire country. The ICAR has its headquarters at New Delhi. With 101 ICAR institutes and 71 agricultural universities spread across the country, this is one of the largest national agricultural systems in the world (www.icar.org).

The dichotomy here is that veterinary colleges have to get recognition from VCI for the undergraduate (UG) programme and from ICAR for the PG programme. Also, the bone of contention between the VCI and the ICAR is on who should conduct the common entrance examination for filling up 15% seats for BVSc & AH programme in the veterinary colleges and for formulating syllabus and curriculum for the UG and PG programmes. Another dichotomy in the pipeline is that although currently ICAR is regulating veterinary PG programmes, in 2015, VCI also revised minimum standards of PG veterinary education regulations, which are yet to be notified (VCI, 2015).

2. Animal Health Vs Animal Production

Dichotomy in this context means two major facets of the subject are dealt with at the undergraduate level. The first is veterinary sciences and the second is animal sciences. The third minor facet is social sciences (Box 4).

Box 4: Subjects Covered in BVSc & AH Degree Course

Veterinary Sciences

Veterinary Anatomy
Veterinary Physiology
Veterinary Biochemistry
Veterinary Pharmacology and Toxicology
Veterinary Parasitology
Veterinary Microbiology
Veterinary Pathology
Veterinary Public Health and Epidemiology
Veterinary Gynaecology and Obstetrics
Veterinary Surgery and Radiology
Veterinary Medicine
Veterinary Clinical Practices

Animal Sciences

Animal Nutrition
Animal Genetics and Breeding
Livestock Production Management
Livestock Products Technology
Livestock Farm Practices.

Social Sciences

Veterinary and Animal Husbandry Extension
Education

The degree awarded to the graduates is BVSc & AH as the focus is on both animal health as well as animal production. The course is very comprehensive, covering several aspects of livestock production and management, preparation of livestock products, disease diagnosis and veterinary health care in addition to livestock extension and economics of livestock



farms with an idea to develop a vet into a “Jack of all trades and master of none”. This five-and-a-half-year course (including internship programme) is basically to develop skills in both animal production and animal health as the country cannot afford to have two streams of graduates, one for production and the other for animal health, as is in vogue in many developed nations.

Unlike human medicine, where productive life is not the deciding factor while giving treatment, in the case of animals being maintained mostly for production (other than pet animals) the animal owners certainly look for economics before proceeding to get their animals treated. Animal owners, barring a few with emotional attachment to animals, would

like to maintain productive animals and dispose of the animals when their production is zero or very low as in the case of cows with mastitis (all teats are blind); old animals not in production; very sick animal with grave prognosis; animals suffering from chronic diseases such as tuberculosis (TB) and Johne's disease (JD) ; and recumbent animals due to accidents or injuries etc. Hence, the productivity of the animal is a very important consideration; animal owners are prepared to spend on treatment of diseases only when they perceive that their sick animals are likely to recover and regain production capacity.

The rate of knowledge explosion in veterinary and animal sciences is making it difficult to incorporate all the emerging aspects in the five-and-a-half-year-long programme during curricular revisions.

The dichotomy here is to continue offering the BVSc & AH degree programme with equal emphasis on animal health and production without increasing the duration of the programme.

3. Establishing New Veterinary Universities/Colleges Vs Strengthening Established Veterinary Universities/Colleges

In the recent past, many state governments have either established new veterinary colleges or converted the established veterinary colleges into veterinary universities without concomitant increase in the faculty, infrastructure or budgets. The new veterinary universities were carved out of existing agricultural universities. Some of the new colleges are yet to get recognition from VCI for want of faculty, deficiencies in infrastructure or both. There were instances where temporary transfers of the faculty and equipment from the old colleges (already recognised by the VCI) to new colleges were attempted in a bid to satisfy the observers of the VCI and to get recognition by the VCI. Due to paucity of funds, some of the colleges are unable to fill the required posts with qualified teachers. This spurt in the new universities and colleges is mostly at the cost of the old or established colleges which led to the dilution of the standards and compromised the quality of the students coming out of the portals of these academic institutions.

The dichotomy here is whether to strengthen the existing colleges instead of diverting the limited funds for the establishment of new colleges or establish new colleges (mostly out of political considerations) at the cost of the old colleges.

4. Public or Private Sector Veterinary Colleges

Although there is no ban on establishing private veterinary colleges, there is very little interest shown by the entrepreneurs in setting up veterinary colleges in the private sector. Many entrepreneurs are of the opinion that it may not be economically sound to set up veterinary colleges in the private sector as it becomes very expensive to satisfy the VCI minimum requirements prescribed (VCI, 2017). As a result there are only three veterinary colleges under private sector as against 45 colleges in public sector. Ironically, some of the veterinary colleges/SVUs (RIVER, TANUVAS, KVASU etc) admit students under NRI/NRI sponsored quota by charging from Rs. 8 lakhs to Rs. 30 lakhs for the entire course in

addition to regular fee and other charges. This NRI quota for every college is fixed at a maximum of 5 % of the total seats approved by the VCI and is permitted in order to encourage colleges to generate revenue for improving their infrastructure.



Private colleges have a grouse that VCI is soft on public sector veterinary colleges in enforcing the standards, compared to private colleges, indirectly indicting the VCI that the latter is discouraging privatisation of veterinary education in the country, although there is a lot of scope for privatisation. There is a severe shortage of veterinarians in the country. India needs about 72,000 veterinarians as against the availability of 43,000. It was suggested that the intake of students in existing colleges be increased and establishment of veterinary colleges under public-private partnership be encouraged (Rao et al., 2015). The situation demands that, as in the case of medical, technical and management education, private entrepreneurs need to be motivated to participate in veterinary education (Chaudhary, 2009).

The dichotomy here is that on the one hand, several reports recommend private sector participation, while on the other, prescribe very expensive conditions to satisfy the VCI minimum requirements, which are summarised in Box 5.

Box 5: Requirements to Establish a Veterinary College

- * Resources to establish and maintain College and Teaching Veterinary Hospital (in single contiguous plot of land) & Instructional Livestock Farm Complex (within a 20-km radius) as per VCI 2016 regulations.
- * Recruit teaching & non-teaching staff for the first academic year and prepare a manpower programme for implementation after receipt of the letter of permission.
- * Fixed deposit proof for an amount equivalent to salaries payable to the teaching staff for the second academic year.
- * Bank guarantee for Rs. 5 crores in favour of VCI.
- * Recommendation from an advisory committee comprising a member from ICAR, VCs of two

Universities, Dean or Associate Dean of a recognized Veterinary College and Principal Secretary , AHD of the concerned state.

* 15 acres of land (owned/on 30-year lease) for college of which 5 acres for fodder production.

* Administrative block, departments, labs and equipment (phased manner), lecture halls, hostels, play ground, transport vehicles, and manpower as per VCI 2016 standards.

(VCI, 2017)

5. Theory Vs. Practice

Instructive lectures in veterinary colleges provide knowledge relating to both veterinary and animal sciences, whereas the practical/clinical cases and field exposure provide from day-one the skills needed for jobs, primarily in AHDs. Students, with assistance from faculty, are expected to make links between these two and develop the ability to apply their knowledge and skills to job needs. The VCI curriculum no doubt provides good theoretical knowledge, but technical skills relating to veterinary and animal sciences vary across 48 colleges across the country due to several reasons.



The dichotomy in this context is that the veterinary colleges have been devoting time to the technical content of the curriculum rather than providing adequate practical hands-on experiences needed for entry-level job and self-employment ventures. This is resulting in another dichotomy of job preference by the graduates towards government jobs compared to private jobs.

6. Government Jobs vs Private Enterprises

It is a common observation that a majority of veterinary graduates want to be 'job seekers' rather than 'job givers'. Most graduates join AHDs as field veterinarians for reasons of job security, no risk of investment, stable income and the scope of working in the same state/district to which they belong. As there are lot of vacancies in the AHDs, the prospects of getting the graduates employed in the departments without much of a waiting period (maximum of two to three years) are high.

On the contrary, the number of graduates venturing to establish their own enterprises (livestock farms, processing units, private clinics, manufacturing units etc.) is negligible. This is due to lack of confidence among fresh graduates owing to lack of proper exposure in the

colleges. Although, 'earn while you learn' projects are made compulsory in the course curriculum, the scale of operation (number of animals, number of cases attended, quantum of product processed, etc.) is so small that the experience with such small-scale projects fail to develop the required confidence among the students. It is unfortunate that many colleges fail to establish the livestock farm complex with large number of animals of different species as prescribed by the VCI. Similarly, the Teaching Veterinary Clinical Complex is also deficient in getting more number of different types of cases of both large and small animals required for providing good exposure to the students.

Unless students get good initial exposure to management practices being followed in the livestock farm of the college (from egg to layer bird; from calf to cow) and to different cases in the teaching hospital of the college, they cannot acquire skills during the one-year internship programme (Earlier the internship was of six months' duration, which has now been raised to one year



under the new regulations). This problem is accentuated where teaching hospitals located in urban areas do not get many large animal cases (as opposed to pet animal cases) resulting in poor exposure to large animal cases, including animals in heat for Artificial Insemination (AI) and for pregnancy diagnosis. Realising this, VCI introduced a course 'Livestock Entrepreneurship' in the 2008 regulations and the same is continued in 2016 as well in order to orient the UG students towards various aspects of entrepreneurship (Box 6).

Hence, it is necessary to provide an option to the interns going for the one-year internship programme to choose between farm training and veterinary hospital training, so as to enable them to opt for production jobs (farm manager, advisor etc.) or veterinary health jobs (disease diagnosis, clinician etc.). This long duration of internship also helps the graduates develop confidence in establishing livestock farms or animal health centres as entrepreneurs.

This one-year mandatory internship programme needs to be reoriented, taking into consideration the aptitude of the students and the infrastructure facilities available in the colleges and nearby organised farms.

Box 6 : Entrepreneurship Orientation in Veterinary and Animal Science Education

The changing nature of livestock service delivery, manpower requirements and opportunities in the private sector provide both push and pull dynamics for veterinary graduates to engage in entrepreneurial, public and private service activities. Unfortunately, the support given by veterinary colleges is inadequate in this transition by integrating entrepreneurship and private service orientation in the curriculum.

Examples:

1. Clinical subjects are taught, but not how to establish a private veterinary clinic.
2. Students are taught how to manage and improve the production of livestock, but not how to establish a poultry/dairy farm.
3. Biochemistry and para-clinical subjects are taught, but not how to establish a veterinary disease diagnostic laboratory.

This transition is a quite challenging task, as the core content of the VCI curriculum consists of basic, production, para-clinical and clinical subjects with little emphasis on entrepreneurship aspects. Merely introducing a one-off intervention such as a semester course on entrepreneurship may not be sufficient. What is required is a two-pronged integrative approach: i) introduce the functional entrepreneurship discipline into curriculum; and ii) integrate the entrepreneurial and private service philosophy into each of the production, para-clinical and clinical courses. This integrative approach is expected to produce graduates as job givers rather than job seekers by mastering both the science of veterinary and animal husbandry and the art of entrepreneurship (Sasidhar and Van den ban, 2006).

The dichotomy here is that in spite of several entrepreneurial opportunities, the majority of veterinary graduates are trained as job seekers rather than job givers because instructional design and curriculum transaction is more on theoretical aspects than practical hands-on experiences.

7. Producer (Veterinary Colleges/Universities) vs Consumer (AHDs)



Veterinary Colleges/Universities are responsible for producing quality veterinary graduates by adopting the minimum standards of veterinary education and the syllabus of VCI. All the colleges put together produce about 1707 graduates in a year whereas the demand for graduates is about 2500/year – a shortfall of 31.72 % (Sasidhar and Reddy, 2013). A majority of these graduates are absorbed as field veterinarians in

the AHDs. The AHDs perceive the training given to veterinary graduates in colleges/universities is not in tune with the job responsibilities of the field veterinarians (Rao *et al.*, 2015). The field vets are involved in implementation of various Central-/State-sponsored schemes to promote animal production as well as helping the livestock owners

improve their income through increased production. The field vets lack enough knowledge and skill in these areas. Likewise, they are likely to face emergency situations during natural calamities such as drought and floods which have a serious negative impact on animal health and production; unfortunately, they have little or no knowledge/skills in such cases (Box 7).

Box 7: Perception of Field Veterinarians on Course Curriculum

There was a general perception amongst many stakeholders in the livestock sector that fresh graduates emerging from veterinary colleges do not have opportunities to understand many of the important challenges in the livestock sector such as disease control and eradication, quarantine, certification and veterinary public health. The education is believed to be more geared towards “securing government jobs and for clinical practice”. Important topics such as livestock-environment interactions, participatory processes, gender-balanced development, farmers' traditional wisdom, herbal medicine and the role as extension agents for small livestock farmers are also not covered adequately. The need to establish a well-balanced livestock service delivery system through a combination of public and private actors and the efforts to equip them to deliver effective services to the farmers also deserve an enhanced attention (Rao *et al.*, 2008).

The colleges argue that the graduates will be trained as per the VCI syllabus and guidelines. If need arises, the graduates need to attend refresher courses on specific topics. Unfortunately both colleges and AHDs lack the desired coordination which is affecting the delivery of services to the livestock owners, the common target group for both these institutions. Several of the contentious issues between them could be sorted out through open discussion across the table by (Box 8).

Box 8 : Collaboration – The Missing Link in Refresher Trainings

The Planning Commission (Now NITI Aayog) emphasized that re-training of the field veterinarians to brace for the recent developments is paramount and they should attend mandatory refresher courses every five years during their career (Planning Commission, 2012). To impart refresher training in technical areas to field veterinarians, the AHDs have regional training centres in each state. In addition, veterinary colleges/animal science research institutes of ICAR also impart refresher technical trainings. Therefore, proper coordination is required between AHDs, Veterinary Colleges and ICAR Animal Science Institutes in capacity building of field veterinarians. To strengthen refresher training, there is a need to establish regional academic staff colleges exclusively to build up the skills and competence of field veterinarians, which was also recommended in an earlier study (Rao *et al.*, 2015).

The VCI curriculum was first formulated in 1992 and was revised two times – in 2008 (VCI, 2008) and latter in 2016 (VCI, 2016) but the revision did not serve its purpose adequately. The revision was done by organising meetings with academicians (mostly researchers) who were not associated with UG teaching. It was done without taking into consideration the views of other stakeholders. As per the new regulations the duration of the course is five-and-a-half complete professional years (earlier it was five years) including a compulsory internship of one year duration undertaken after successful completion of all credits as prescribed in the syllabus. Curriculum and syllabus revision is a professional job and it needs to be handled by professionals who have expertise in such areas.

The dichotomy here is that training given to the veterinary graduates in the colleges is not in tune with the job responsibilities of the field veterinarians due to inadequate reflection of AHD's requirements during curriculum revisions.

8. Field Veterinarians Vs Para-veterinarians

Veterinarians are the product of veterinary colleges whereas the para-veterinarians are trained by the AHDs. There is uniformity in the duration and course content/syllabus for veterinary graduates; however, training duration for para-veterinarians ranges from six months (Gopalmitras/Lay inseminators working under State Livestock Development Agencies) to 2 years (Veterinary Assistants). There is always conflict between the field veterinarians and para-veterinarians in attending to the cases. The para-veterinarians are basically trained to perform AI and vaccinations, and to provide first aid to the animals. Para-veterinarians are introduced in the field to provide these services to mitigate the problem arising out of the severe shortage of field veterinarians and also to assist the latter in delivery of cases. The Para-veterinarians are usually posted in their respective or nearby villages to enable them to provide the basic services and charge from the livestock owners. They are not supposed to handle any other cases which need the attention of the qualified veterinarian. Unfortunately, reports indicate that the para-veterinarians do attend to all the cases, including complex cases like dystokia, mastitis, retention of placenta etc resulting in spoiling the cases and sometimes the death of the animals (Ravikumar 2017). This is mainly because para-veterinarians cannot sustain by charging for only AI and first aid cases.

Para-veterinarians being from the same locality are accessible to the livestock owners on all the days (24 x7) and their charges are less compared to the veterinarians for treatment of cases. There is a conflict of interest in attending to cases other than AI and first aid. Amidst this conflict, there is a severe shortage of para-veterinarians as well, which is hampering the delivery of veterinary services in the country and also increasing the cost of veterinary health care to the animal owners. This calls for improving the number and quality of veterinarians as well as para-veterinarians to enhance the coverage and effectiveness in the delivery of veterinary services.

The dichotomy here is conflict between veterinarians and para-veterinarians on attending cases based on qualifications and availability or non-availability of them in villages during need of the hour.

9. Gender Dichotomy

Livestock services are generally provided by men for men, despite key roles that women play in livestock farming (Matthewman and Ashley, 1996). A few decades ago there were hardly any women opting for the veterinary science course, and thus, the focus was on men, resulting in producing mostly male veterinarians whose access to women livestock owners was very weak. Training programmes were designed for male livestock owners although most of the livestock-related activities are generally performed by women. Nowadays, in most veterinary colleges, the number of women students is more than their male counterparts and this is a welcome sign as the accessibility to women veterinarians to

interact with the women livestock owners is very high. For this reason, in many places the women veterinarians turn out to be good livestock advisors. But the AHD administration in many states are finding it difficult to post women veterinarians in the rural centres for a variety of reasons such as lack of basic amenities for women in the villages, family obligations forcing the women to prefer urban centres, difficulty for women veterinarians to attend emergency calls in odd hours of the day, etc. It is also not possible for the administration to provide jobs for all the women veterinarians in the urban centres (Disease diagnostic labs, Polyclinics etc.). For these reasons, many women veterinarians prefer to opt for teaching faculty positions in the colleges which are located in urban areas.



The dichotomy here is that on one side, there is lot of scope for women veterinarians to become effective livestock advisors in the rural areas, while on the other side neither the administration nor the women veterinarians (with few exceptions) wish to work in the rural areas for the above-mentioned reasons. Hence, it is suggested to take an undertaking from the students (irrespective of the gender) before joining the veterinary course that they need to serve in the rural areas at least for three years after their graduation and this needs to be adhered without succumbing to pulls and pressures.

10. Veterinary Services Free or Paid

In India, veterinary services delivery have been traditionally funded, managed and delivered by the public sector till the early 1990s. However, the veterinary service delivery system promoted by public sector often provides a limited support to large majority of smallholder livestock farmers, with the latter seeking alternatives for rescuing them from hardships. This assumes more significance in the prevailing scenario of globalization and liberalization, with the consequence of opened economy. Of late private or public-private partnership interventions were found effective in providing these services, prompting Governments to encourage, legalize and regularize these service providers. Also, several studies conducted in different states clearly indicated that farmers were not satisfied with the services provided by the public sector and they are willing to pay for effective and timely services.

Dichotomy in this context means that, in the years to come the government sector presence in the veterinary service delivery is inevitable in India in view of the social welfare obligations and interests of the millions of small and landless livestock keepers. On the other hand, private sector's participation is equally important in view of economic and operational

reasons. Therefore, the technical framework for rational delivery of services under public, private and public-private partnerships should take into account this dichotomy.

WAY FORWARD AND IMPLICATIONS FOR POLICY DECISIONS

Some of the important dichotomies plaguing veterinary colleges/universities are discussed with a view to focus the attention of policy makers to take appropriate decisions for the smooth functioning of these institutions. A few suggestions have been put forth for their consideration which, if accepted and implemented, may help in resolving dichotomies concerning veterinary education and service delivery in the country.

1. The Ministry of Agriculture, GOI, may entrust the total responsibility of ensuring quality standards in veterinary education to the Veterinary Council of India as is the case with Medical Council of India. Indian Council of Agricultural Research (ICAR) must focus on providing guidance on research and extend financial support to veterinary colleges and universities in strengthening the infrastructure. It is necessary to strengthen the VCI to enable it to enforce standards in veterinary education and veterinary practice in the country.
2. The scores of NEET may be considered for admitting students to UG programme under VCI quota in future also.
3. It is necessary to constitute a committee of professionals to recommend whether to “develop a jack-of-all-trades and master-of-none veterinarian” giving equal emphasis on both animal production and health, or to separate the two streams at the graduation level as electives.
4. As there is severe shortage of veterinarians in the country, it is time for the GOI to encourage private sector participation in veterinary education without compromising the standards of education. As establishing veterinary colleges involve huge expenditure in terms of land, animals and building and equipment etc., in addition to maintenance of the required staff, the Government may consider PPP mode in establishing new colleges.
5. It is easier and better to strengthen old colleges by infusing more human resources and material, instead of diverting the funds for the establishment of new institutions as the development of the latter will take a lot of time and resources (land, labour and capital). Once the old institutions are strengthened, the intake of the students could be increased; this would help in reducing the gap between the demand and supply of the veterinary graduates.
6. The curriculum and syllabus of the BVSc & AH course must match the job requirements of field veterinarians. Designing an appropriate course curriculum is a challenging and time-consuming process and must be assigned to a professional group well versed with such tasks. It does not serve purpose in simply revising the course curriculum and syllabus in a hurried manner without taking into consideration the views of all the concerned stakeholders.
7. Although, the VCI emphasizes on practice rather than theory, the fact is that the new regulations diluted standards, resulting in producing graduates with theoretical knowledge (classroom teaching, the easiest one) but poor in skills which require competent teachers, better infrastructural facilities in terms of good labs, better

livestock farm complex with more number of animals and more cases in the teaching veterinary hospitals. It is advisable to provide liberal grants to veterinary colleges to improve the existing infrastructure in terms of both human and material resources.

8. One idea worth trying out is of providing an option to interns before the start of one-year internship programme to choose between farm training and veterinary hospital training, so as to enable them to opt for production jobs (farm manager, advisor etc.) or veterinary health (disease diagnosis, clinician etc.). This one-year duration of internship (newly introduced) also helps in satisfying the aptitude of the graduates and also in developing confidence in establishing livestock farms or vet clinics/ diagnostic centres as entrepreneurs.
9. Need-based refresher training programmes including continuing veterinary education, must be organised by the colleges at regular intervals to improve the capacity of the working veterinarians and enable them to face the emerging challenges in livestock sector. Similarly, there must be a good coordination between the AHDs and the Veterinary Universities in identifying areas of collaboration and to improve the delivery of veterinary services to the livestock owners, the ultimate objective of these two important veterinary institutions.

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Dr S V N Rao retired as Professor and Head, Department of Veterinary and Animal Husbandry Extension Education, Rajiv Gandhi Institute of Veterinary Education and Research, Puducherry. (svnrao1953@gmail.com). Dr P V K Sasidhar is Director, School of Extension and Development Studies, Indira Gandhi National Open University (IGNOU), New Delhi-110068. (pvksasidhar@ignou.ac.in). Dr D Thammi Raju is Principal Scientist, Education Systems Management Division, ICAR-National Academy of Agricultural Research Management (NAARM), Rajendranagar, Hyderabad-500 030. (dtraju@naarm.org.in)

**AESA Secretariat: Centre for Research on Innovation and Science Policy (CRISP),
Road No 10, Banjara Hills, Hyderabad 500034, India
www.aesa-gfras.net Email: aesanetwork@gmail.com**