

**OIE RVC-JUST Veterinary Education Twinning Project**

**The Road Toward Accreditation with Emphasis on Curriculum Development-  
Regional Workshop**

**Cairo-Egypt**

**5-6 December 2018**

**Report**

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## Background

The OIE Veterinary Education Twinning between The Royal Veterinary College (RVC) and Jordan University of Science and Technology (JUST) was initiated in January 2015 with overall aim of establishing a knowledge exchange platform to share best academic practice in the broad field of Veterinary Public Health between RVC and JUST. The project has among its objectives to facilitate and implement critical changes in the veterinary education curriculum in accordance to OIE, European Association of Establishments for Veterinary Education (EAEVE) and other international accreditation bodies.

This workshop intends to share Jordan's experience and disseminate our findings concerning recent veterinary curriculum revisions that were undertaken in response to RVC experts' suggestions under the RVC-JUST twinning project.

## Participants

1. Deans of Veterinary Schools from Egypt, Sudan, Iraq, Tunisia, Morocco, Turkey and Lebanon
2. RVC representatives
3. OIE representative
4. JUST representatives



Photo 1. Participants from regional workshop.

## Workshop Activities

### Registration

Registration was commenced on December 5 at 9 am.

### Opening Session

Opening session involved several welcoming speeches from the following distinctive participants:

1. JUST Project Coordinator
2. Dean of the Faculty of Veterinary Medicine at Cairo University, Egypt
3. OIE Representative
4. Vice Dean Faculty of Veterinary Medicine at Jordan University of Science and Technology
5. RVC Educational Twinning representative

### Overview of the Twinning Project

Dr. Ehab Abu Basha, project country coordinator of Jordan presented a historical view of the Veterinary Education Twinning Program between the Royal Veterinary College and Jordan University of Science and Technology is making huge impact on JUST veterinary graduates and Jordan's veterinary and public health sectors. The program has established a platform for exchange of knowledge and best educational and research practices in the field of veterinary education and veterinary public health. We hope that this platform will transform veterinary education and improve veterinary public health not just in Jordan, but in the entire Middle East and the Arab world.

The OIE Veterinary Education Twinning Program between the Royal Veterinary College (RVC) and Jordan University of Science and Technology (JUST) was established in January 2015. It is one of the first of its kind in the Middle East that was endorsed by the World Organization for Animal Health (OIE).

The RVC-JUST were successfully engaged in a long term veterinary training and research programs that can serve as a model in the entire Middle East and the Arab World. The program has achieved several milestones in building capacity of the Faculty of Veterinary Medicine undergraduate and postgraduate educational programs, and professional development program.

This educational twinning program is a great example of a successful collaborative international partnership between Jordan and the UK. This partnership aligns with the strategic goals of JUST in achieving effective international collaboration with world class higher education institutions such as The Royal Veterinary College in London.

In the post graduate component of the project, 11 postgraduate students (6 JUST students and 5 RVC students) conducted their MSc/MRs projects on complementary topics of relevance to Jordan and the UK. Research topics included major new emerging infectious diseases and public health issues such as antimicrobial resistance, scanning surveillance for livestock diseases and spatial modelling of leishmaniasis, a neglected vector-borne disease in the region.

In the undergraduate component of the project, the progress made in terms of improving the current JUT veterinary curriculum to match recommendations by OIE, EAEVE and RVC experts was presented. The project has succeeded at developing a log book for day 1 competences for JUST graduates. This is a major achievement with high potential of influencing the future of undergraduate veterinary education at JUST. The log book is designed to match specific educational requirements of EAEVE and the OIE day 1 competences. The steps that needed to be taken to implement problem based learning and the integration of basic knowledge in the clinical setting were outlined. A list of courses was suggested to be added to the program to fulfil these requirements.

#### [OIE Recommendations Regarding Modern Veterinary Education \(Dr. Ghazi Yehia, OIE\)](#)

Dr. Ghazi Yehia, OIE Regional Representative presented the OIE vision to the improvement of veterinary curriculum. He provided participants with a clear overview of the OIE recommendations regarding modern veterinary education and the OIE recommendations on day 1 competencies. He explained that the OIE developed these

Guidelines for a Model Core Veterinary Curriculum to serve as a companion to its recommendations regarding the competencies of graduating veterinarians ('Day 1 graduates') to assure the quality of the public and private components of National Veterinary Services ('Day 1 Competencies'). The Day 1 Competencies were published in May 2012 ([www.oie.int/en/support-to-oie-members/veterinary-education/](http://www.oie.int/en/support-to-oie-members/veterinary-education/)). It is proposed that the following Guidelines serve as a tool for Veterinary Education Establishments (VEE) in OIE Member Countries to use when developing curricula to educate veterinary students to the expected level of competency.

As stated in the Day 1 Competencies document, veterinarians in every nation are responsible for the delivery of Veterinary Services of public interest—that is, services provided under the legislative framework and the auspices of the governmental authority of a given country to implement animal health to assure the health and wellbeing of animals, people and ecosystems. Because the OIE definition of Veterinary Services covers both government and private sector veterinarians, these OIE Guidelines on Veterinary Education Core Curriculum apply equally to those working in the private and public sectors. It must be noted, however, that the OIE is not recommending the adoption of a single global curriculum. Indeed, the OIE recognizes the autonomy of universities and veterinary faculties in its Member Countries, particularly with regard to development and delivery of the curriculum. Further, given the vast societal, economic, and political differences among OIE Member Countries, the Model Core Veterinary Curriculum Guidelines described here are primarily offered for those developing and in transition countries seeking tools that can be used to improve the quality of veterinary medical education as an initial step in enhancing the delivery of National Veterinary Services and public and private support for Veterinary Education Establishments.

The guidelines represent a basis on which national needs and circumstances could be added. The OIE indeed recognizes that these Guidelines refer to one model core curriculum. In addition, this model is intended to accommodate a variety of veterinary educational systems that occur over a four-, five- or six-year curriculum. For example, in the USA, students typically complete at least two years of undergraduate university education to fulfil minimum educational prerequisites prior to being admitted to a

Veterinary Education Establishment with a four-year curriculum leading to the professional degree of DVM (or VMD). In many other countries, veterinary schools accept students directly following successful completion of secondary (high) school, and the Veterinary Education Establishment curriculum is five or six years leading to a variety of degrees (BVM, BVSc, MV, MVS, MVSc). Furthermore, in some countries, secondary school curricula may include courses more commonly taught in undergraduate university level curricula in other countries. As such, the recommended sequencing of the courses in this Model Core Veterinary Curriculum must be adjusted to reflect the length of the veterinary degree program and the pre-veterinary course requirements.

#### [OIE Competencies of 'Day 1 Graduates \(Dr. Ghazi Yehia, OIE\)](#)

All veterinarians, regardless of their professional area of practice after graduation, are responsible for promoting animal health, animal welfare, veterinary public health, and food safety. As such, veterinary education is a cornerstone to assure that the graduating veterinarian ("Day 1 veterinary graduate") not only has received a sufficient level of education and training that ensures sound overall competencies, but also has the required knowledge, skills, attitudes and aptitudes to understand and be able to perform entry-level national Veterinary Service tasks that relate to the promotion of animal and public health. The OIE Recommendations on the Competencies of graduating veterinarians ("Day 1 graduates") to assure high quality of National Veterinary Services has been developed to provide the minimum competencies required by graduating veterinarians wishing to pursue a career in the public or private components of National Veterinary Services.

#### [The Association Mediterranean Network of Establishment for Veterinary Medicine \(REEV-Med\)](#)

The establishment of REEV-Med and its role in improving veterinary education in members' countries in the region was presented by Dr. Noursaid Tilgui. He explained that the REEV-Med network creation was the result of a process initiated in October 2010 in Paris (Workshop at the National Veterinary School of Alfort in collaboration

with the TAIEX Office of the European Commission) and continued in March 2012 during a meeting held in the premises of the Veterinary faculty of Cordoba in Spain. He added that the objectives of this organization were:

- To set up a process of harmonization and standardization of the veterinary curriculum in the Mediterranean region in accordance with international standards and guidelines of the OIE on the veterinary curriculum (Day 1 Graduates);
- To facilitate twinning between veterinary education establishments, the OIE may finance some of them;
- To undergo a process of evaluation of member institutions of the REEV-Med similar to the European system of evaluation of veterinary education establishments, with the objective to train competent veterinarians both in public and private fields, in accordance with the international standards applied in the fight against animal diseases, including zoonosis;
- To encourage the exchanges of information, educational and research experiences and the facilitation of academic members and students mobility between the network institutions and between the member institutions and those of other parts of the world;
- To develop and disseminate educational materials for veterinary education at all levels: initial, specialized and continuing education.

To achieve its objectives, the REEV-Med will use the tools and materials developed by the OIE, including:

- The OIE recommendations on minimum competencies expected of graduating veterinarians ('Day 1 graduates') to ensure the high quality of national Veterinary Services;
- Guidelines on the basic veterinary curriculum;
- The guide for twinning projects between establishments for veterinary education.
- The REEV-Med received the moral and material support of the OIE, which provides among others, support of its permanent Secretariat entrusted to the Sub-Regional Representation of the OIE in North Africa located in Tunis (Tunisia).



- The network also received the support of the European Association of Establishments for Veterinary Education (EAEVE), which is willing to actively participate in the evaluating process of the Establishments for Veterinary Education in the Mediterranean region, as well as financial support from Italy.

#### Council on International Veterinary Medical Education (CIVME)

Dr. Ehab Abu Basha, CIVME regional core principle representative of the Middle East and North Africa presented a brief of CIVME and its roles in promoting veterinary education and research. He explained that CIVME was an initiative of the American Association of Veterinary Medical Colleges which is keen to promote and share best practices in veterinary medical education around the world. The council will provide a means for:

- Communication and collaboration that advances veterinary medical education around the world
- Collaboration amongst educational researchers
- Dissemination of innovations and other educational advances, to magnify the impact of projects by outreach to educators and their respective organizations
- Propose initiatives for funding consideration by the AAVMC and other organizations.

He also introduced the CIVME Funding Program that supports initiatives that align with (one of) the CIVME goals.

#### Modern Veterinary Education and Curriculum Design and Mapping (Ayona Silva-Fletcher, RVC)

Dr, Ayona Siva-Fletscher of the RVC presented an overview of the curriculum design in the RVC. She explained that modern curriculum is an ideological, social and aspirational document that must reflect local circumstances and needs. A curriculum should simply be fit for the purpose and context of its place and day. In the past, most veterinary schools used some kind of syllabus based curriculum, but now a-days schools started to think of what students able to do not what they know. This is what is called now outcome-based curriculum. She also presented a chronological overview

of the expectations of graduating veterinarians and how these expectations changed over the years. She explained that 'Doctors must practise good standards of clinical care, practise within the limits of their competence, and make sure that patients are not put at unnecessary risk'. She also explained the methodology used to design an outcome based curriculum using the spiral curriculum based on Jerome Bruner's constructivist theory (Figure 1). In Figure 2, Dr. Ayona presented an example of the steps that must be followed during the process of designing a spiral curriculum.

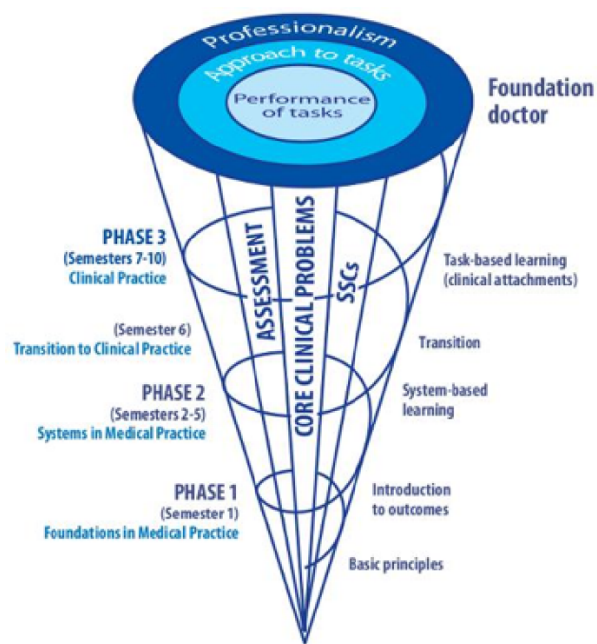


Figure 1. Curriculum design- Spiral curriculum



Figure 2. Steps in designing spiral curriculum.

### Veterinary Medicine at RVC and Interventions at JUST (Steven Van Winden, RVC)

Dr. Steven Van Winden of the RVC started his presentation by explaining the current structure of the curriculum being implemented at the RVC (Figure 3). He explained that the curriculum is based on teaching both whole animal and organ systems based learning and he gave examples on how to implement such a program. He also explained the makeup of the clinical year at the RVC which is made of 14 months of which 28 weeks in house rotations, 22 core rotations, 6 weeks tracking rotations, 16 weeks extra mural studies, 8 weeks research project, and 3 weeks taught electives. He explained the method of delivery that is used at the RCV that is based on higher levels of evaluation using the Blooms Taxonomy (Figure 4). Then Dr. Steven discussed the intervention sessions that the RVC has carried out with the 4<sup>th</sup> and 5<sup>th</sup> veterinary student at JUST as part of the OIE RVC-JUST Twinning Project. He explained that 3 methods of learning were practiced which included problem solving interventions (Steven), risk analysis in animal health (Matteo), and on-line pig husbandry teaching (Troy) (Photo 2, 3). As a conclusion of his experience at JUST interventions, Steven has stated that:

- Learning by 'doing' using experiential learning approaches is a powerful driver for student engagement and learning.
- We made available a collection of teaching tools that we have developed via the Shiny package in R. In-class demonstrations with Shiny results in a much more fluid and dynamic presentation (no interruptions due to script-changing).
- Students can use these applications to better understand probability concepts via a point-and-click user-interface that does not require any code compilation by the user.
- While thought for Veterinary students, the app covers topics that are relevant for undergraduate/postgraduate of other disciplines.



Figure 3. Curriculum structure at RVC.

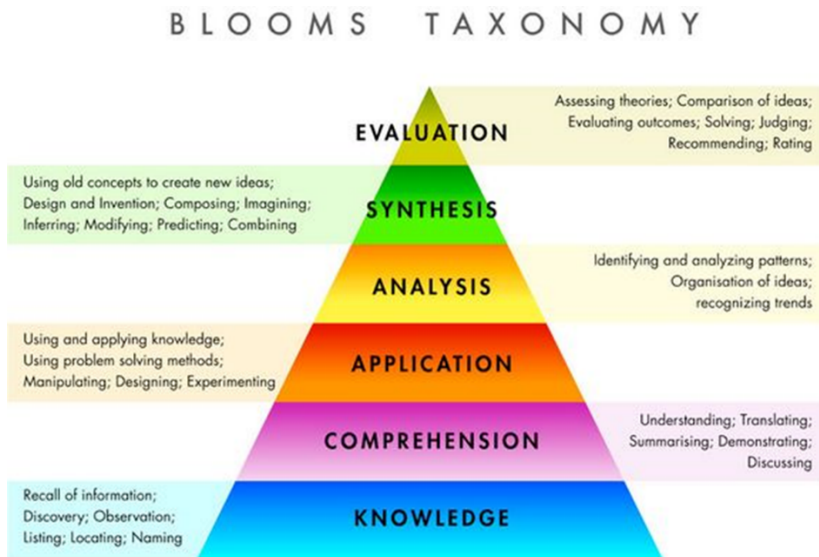


Figure 4. Blooms Taxonomy.



Photo 2. RVC-JUST teaching intervention practice



Photo 3. RVC-JUST students teaching intervention practice

### Status of Veterinary Education in the Middle East and North Africa

Participants from Egypt, Morocco, Tunisia, Turkey, Sudan, and Iraq presented an overview of the status of veterinary medicine education each in their countries. In general, the Veterinary schools in the region except for Tunisia and Morocco follow a 5-year program with large variation in their entrance criteria. In most of these institutions, students enter directly after successfully completing high school by random selection methods. In most countries entrance depends on the high school diploma GPA and the number of seats in each school. However, most of the school in the region accept high numbers of students each year and this can inversely affect the quality of students.

In the Middle East, almost all veterinary schools are public and fall under the umbrella of a public University. While governmental contribution to veterinary education is limited, funding for school activities is paid by student's fees which vary, according to each institution, but they are around US \$500 to 1400 per year.

The number of students entering each veterinary institute in the region varies according to country but generally it has increased tremendously in recent years. In Jordan for example, since the establishment of the school in 1989 up until 2012, the number of students accepted was around 25 to 45. After 2012 the number has increased to over 60 in average. In other countries such as Egypt and Algeria, the number of students in each school varies from 200 and up to 700 per year. Although, the new specialized programs in Egypt have limited number of students (ranging between 30-50 students per year). In Tunisia, there is only one veterinary school with limited number of students allowed to enter the program. The decreased number of enrolled students in some veterinary institutions in the region is rather considered an advantage to avoid unemployment.

After the completion of a program, graduation is usually granted following completion of all graduation requirements including final exams, research projects or seminars and clinical training. Although the number of female students is increasing every year, there are still less female veterinary students than their male counter parts when compared to the USA, UK and European countries.

The veterinary schools in the region follow a 5-year program except few that implement a 6-year program (i.e Tunisia and Morocco). The veterinary program usually starts with basic science courses including biology, mathematics and physics. The veterinary basic sciences including anatomy, histology, cell biology, and biochemistry and physiology are then administered in the second year. In the third year, para-clinical courses are administered including microbiology, immunology, parasitology, pharmacology, pathology, genetics, animal nutrition, foods and feedstuffs, economics and administration of animal production. In the fourth year clinical science courses begin which include general and systemic medicine, surgery, and theriogenology. In the last year, clinical training commences and different clinical rotations are implemented. In some schools, fish, bee, and rabbit, medicine and production courses are offered. Unfortunately, most veterinary schools in the region lack in-patient teaching hospitals and instead rely on out-patient clinics to train graduates. Except of Turkey and Tunisia, advanced clinical training programs such as internships and residency programs are not offered. In Tunisia, the residency program allowed advanced training leading to specialization of veterinarians, which added strength to the program.

#### Accreditation and Quality Assurance

Dr. Hussein El-Maghraby presented the status of accreditation and quality assurance in the region. He said that since 2004, most of the countries in the Middle East and North Africa began to establish Quality Assurance Systems and/or Accreditation in higher education. Some of the countries such as Egypt, Jordan and Saudi Arabia launched national agencies to review the system of higher education including the veterinary programs. For example, in Egypt, in the period between 2004-2008, Quality Assurance and Accreditation Project (QAAP, Ministry of Higher Education), conducted site visits to eight of the Veterinary Medical Colleges in the country (62%). According to their standards, the effectiveness of quality management and enhancement, academic standards of educational programs, quality of learning opportunities, research and other scholarly activity and community involvement were all evaluated. Similar national accreditation visits and criteria have been carried out in Jordan and Saudi Arabia.



There are no standardized procedures to ensure high quality veterinary education in the region except for few schools that are accredited by European Association of Establishments for Veterinary Education (EAEVE) in Turkey. The veterinary education in the region faces a lot of challenges including reduced governmental support. The admission criteria and student numbers, in many of the programs, are controlled by ministries of higher education and therefore some schools will accept as low as 50 students while others may accept up to 700 students/year.

Except few accredited schools (in Turkey) and few other schools that are scattered in the region, there is a lack of appropriate distribution of the basic vs clinical courses in the curricula (3 years basic vs 2 years clinical), and even in the clinical years, there are more theoretical sessions than practical training. This fact highlights the need to harmonize veterinary education in the region.

Unfortunately, some schools have little continuing education. This problem is intensified by the inadequate regulation of the veterinary profession by Veterinary Statutory bodies (VSB) since in these countries the VSB either is absent or of reduced effectiveness.

Progress has already been made in some cases. In a regional conference for improving veterinary education for the Arab veterinary faculties that was held in April, 2016 in Jordan, participants from 30 VEEs discussed various current veterinary curricula, teaching methods, and numbers of students admitted to their schools. The need for complying with OIE and EAEVE guidelines on core veterinary curriculum and day 1 competencies was addressed. The Deans agreed that there is a lot of work to be done and pledged to work toward improving veterinary education in the region according to international standards.

According to the OIE and EAEVE standards, providing high quality veterinary education is necessary to equip graduating veterinarians with the basic knowledge and skills to perform well, and to support national veterinary services effectively in their countries. It is the opinion of these international organizations that in many developing countries, the quality of veterinary education could be improved by establishing and

implementing minimum day 1 competencies and harmonizing key curriculum elements to fit with international standards.

## RVC-JUST Millstone Achievements

### Curriculum Revision

The goals of this revision were to implement or address:

1. Problem-Based Learning (PBL)
2. Clinical Applications and Integration of Basic Veterinary Sciences
3. Day One Clinical Skills
4. Early Introduction to Clinics
5. Online Self-Learning
6. Animal Welfare
7. Ethics, Laws and Economics

Some of the courses that were proposed to be added to the curriculum to achieve these goals were:

1. Introduction to clinics
2. Animal behaviour
3. Veterinary Economic
4. Veterinary practice management and professional communication
5. Clinical application and integration of basic veterinary sciences
6. Swine production medicine
7. Food technology
8. Laboratory animal husbandry and medicine
9. Exotic and marine animal medicine and surgery
10. Camelid medicine and surgery
11. Veterinary Legislation

### Establishment of Veterinary Clinical Skills Laboratory

The Veterinary Clinical Skills Laboratory at the Faculty of Veterinary Medicine at JUST was established in 2012. The mission of this laboratory was to provide a setting in which veterinary students can gain competence and confidence in essential clinical skills through independent and group learning, repetitive practice, and outcome-based assessment. The objectives of this laboratory were:

1. Learn and practice clinical skills using non-living models, mannequins, and simulators in a safe stress-free environment
2. Become familiar with veterinary equipment before being expected to use it in clinics
3. Optimize the use of teaching animals by shifting the learning from live animals to the clinical skills laboratory
4. Enhance clinical relevancy of basic veterinary science subjects by incorporating learning of relevant clinical skills
5. Incorporate new technologies and training tools to enhance learning
6. Ensure consistent opportunity for students to acquire and practice essential clinical skills independent of clinical caseload
7. Enable objective, outcomes-based assessment of essential clinical skills

### The Creation of Veterinary Skills Logbook

This logbook was mapped to OIE and EAEVE day 1 competences. The logbook will serve as a template for learning and a map for students to identify skills that they have mastered and the skills that are yet to master. The lists of skills are what staff of FVM–JUST consider minimum that a new graduate must have. These skills were aligned with expectations of veterinary profession and accreditations bodies that FVM-JUST will request to join. The skills logbook is organized in 3 major categories according to the expected level of achievement of these skills:

Category 1: Student is expected to have performed the skill

Category 2: Student is expected to have observed the skill performed by faculty course instructor(s)

Category 3: Student is expected to have knowledge of the skill

### Priorities to Improve Veterinary Education in the MENA Region

Participants have identified 3 major categories of priorities to improve veterinary education in the MENA region. These categories were:

1. Curriculum contents
  - a. Remove redundancy/duplication
  - b. Integration of contents
  - c. Add newer topics; international organizations roles, legislations
  - d. Introduce induction-orientation modules
  - e. Maximize use of technology
2. Harmonization of curriculum
  - a. Define credits or contact hours (theory and practical, clinical) vs notional study hours (self-reading, revision, group study)
  - b. Number of hours (great variation)
  - c. Maximize use of technology
3. Improve clinical training
  - a. Inpatient clinics
  - b. Increase caseloads
  - c. Training hours
  - d. Clinical staff-student ratios
  - e. Residency programs
  - f. Maximize use of technology

### Recommendations to Improve Veterinary Education in the MENA region

1. Establish committee on department level to review course descriptions, contents, objectives etc.
2. Adopt module based learning such as system based modules and problem based modules
3. Revise curriculum to include roles of international organizations
4. Introduce induction-orientation modules- Adopt courses early in the curriculum that motivate students, orientation rotations
5. Form committee on Faculty level to determine and clearly define the credit system the faculty wishes to apply (European system vs American system)
6. Make sure all important subjects are covered, use integrated modules to reduce credit hours, notional study will increase integrated hours of study
7. Use hospital management modules
8. Increase caseload by offering adequate trained staffing, mobile clinics, collaboration with private clinics and hospitals, student externships
9. Increase training hours by having veterinary campaigns or free medical days in local communities, emergency services
10. Recruit well trained staff to improve clinical staff-student ratios
11. Establish paid or incentive based residency systems
12. Maximize use of technology in teaching
  - a. Creation of virtual learning environment courses and laboratories
  - b. Establishment of online courses and apply problem oriented approach
  - c. Use online platforms to discuss problems and share ideas
  - d. Establishment of an online case discussion groups – for example CPD online courses
13. Activate the role of Council on International Veterinary Medical Education (CIVME) and the network of establishments for veterinary education of the countries around the Mediterranean (REEV-Med) in the region and encourage Veterinary Schools to participate in the activities of the two organization.
14. Encourage the OIE sub-regional office in the Middle East and Africa to continue their efforts to support promoting Veterinary Education in the region and to follow up on regional meetings.