

# OIE educational twinning RVC-JUST

Activity report Year 2 (months 12-24)

## 1 ACCOMPLISHMENTS/NEW FINDINGS

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Of the three components of the project (undergraduate, postgraduate and professional education), the main focus during the second year of implementation has been on the under-graduate and post-graduate education components.

The postgraduate element is an important and ambitious part of the project which has made very good progress during year 2 and is now very advanced and on track for successful completion by October 2017. It should be highlighted that this component of the project involves very intense educational exchange between a large team of more than 20 people including students and supervisors from both UK and Jordan. There have been several country visits, face-to-face meetings and coordinated work on a number of specific research topics that are being used as vehicle for postgraduate education by research. This project component is expected to result in the graduation of 10 students in October 2017 through an innovative program of paired projects involving educational and research activities by UK-Jordan teams of students and supervisors.

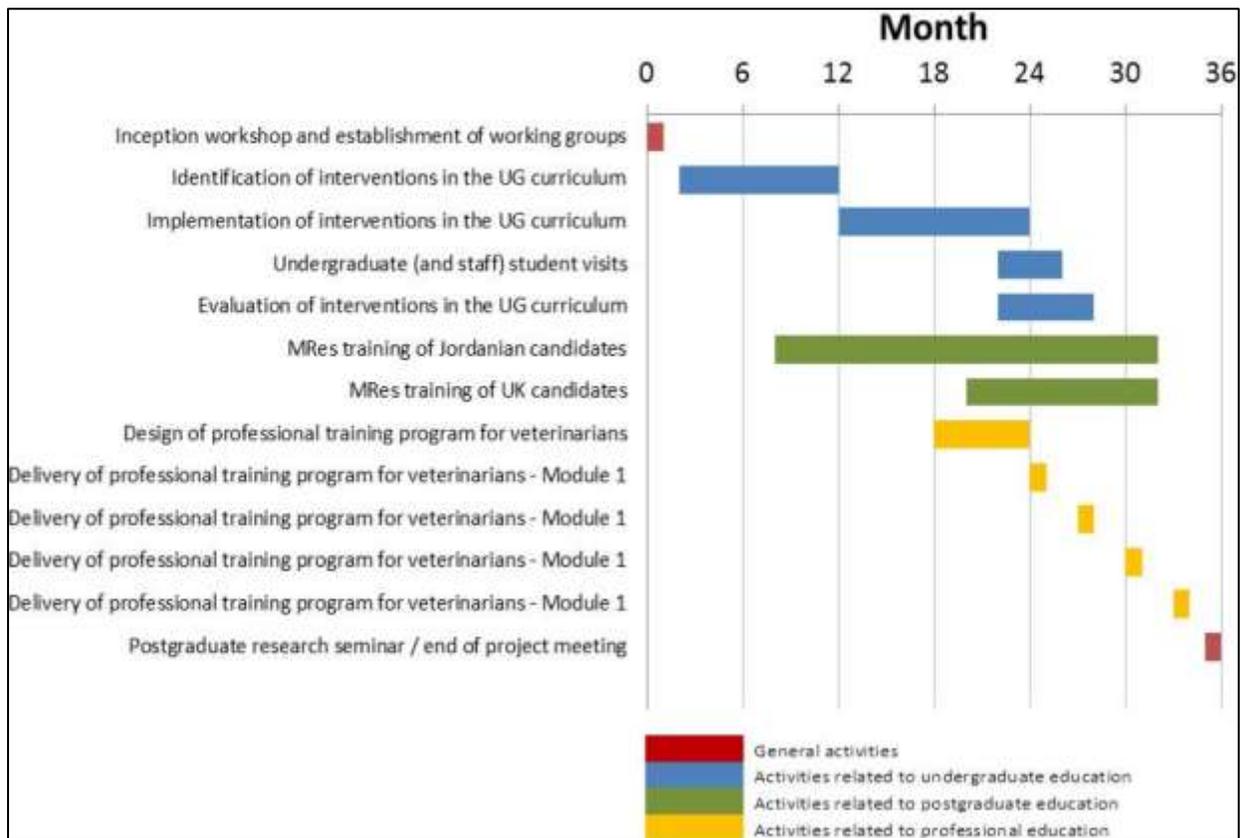
There have also been progress with the undergraduate component. In particular, the project has succeeded at developing a log book for day 1 competences for JUST graduates. The logbook has been finalized and is already being implemented in JUST through the first cohort of 80 students. This is a major achievement with high potential of influencing the future of undergraduate veterinary education at JUST. The logbook is mapped to EAEVE and OIE day 1 competences. The development of the logbook was prioritized during the second year and required considerable effort from JUST and RVC academics as well as RVC educationalists. As a result of prioritizing this activity we have delayed slightly progress with other aspects of the undergraduate component.

The third element of the project is professional education, we have not progressed with this component during the second year as other activities have been prioritized. We expect this component to become the main focus of activity in the final stages of the project.

Finally, another major achievement during the 2<sup>nd</sup> year of the project has been the award to the two organizations of significant additional funding (US\$ 600,000) from the UK's Medical Research Council to carry out collaborative research on MERS-CoV. This is in our view a major success of the twinning initiative as it was through the partnership established under the OIE that the funding has been secured. The additional funding will consolidate the RVC-JUST partnership and greatly contribute to its long-term sustainability. In light of the new developments and of some delays in specific components we would like to request to the OIE and the funders a one year no-cost extension. Activities accomplished and findings are detailed below under the headings used in the work plan section of the project proposal and contract.

**OIE Educational twinning RVC-JUST: highlights from the 2<sup>nd</sup> year of the project**

- Ten post-graduate students progressing through paired (RVC-JUST) projects with shared supervision.
- Jordanian veterinarian being trained in wildlife medicine for future teaching provision at JUST.
- Problem-based teaching successfully introduced in the undergraduate JUST curriculum.
- Logbook for day 1 competences of JUST graduates, mapped on OIE-EAEVE competences introduced.
- Innovative approach to map day 1 skills and competences from accreditation bodies (EAEVE) and OIE developed and shared
- Additional funding for RVC-JUST partnership secured for collaborative work on MERS-CoV.



*Gantt chart showing activities planned during months 12 to 24, namely: i) implementation of curriculum interventions, ii) first stages of student undergraduate student visits and evaluation of interventions, iii) MSc training of JUST students, iv) MRes training of RVC students and v) Design of a professional training program for veterinarians.*

## 1.1. UNDERGRADUATE EDUCATION

### 1.1.1. *Design and implementation of curriculum interventions (months 12-24; ongoing)*

This activity involves the delivery of 3 interventions in the JUST curriculum. The three interventions consist in the introduction of a combination of didactic and problem-based sessions the undergraduate curriculum of JUST. The sessions are delivered during a week and have two aims: i) to promote integration between different elements of the curriculum that have traditionally been addressed independently and ii) to facilitate the introduction of problem-solving teaching methods (recommended by EAEVE) in the undergraduate curriculum of JUST. Once developed, the materials become available for JUST to run in the future so that these novel elements, upon revision based on feedback, become integral components of the JUST curriculum. The activity is still ongoing with some delays with respect to the original plan. The first intervention has already been delivered, the second intervention has been designed and will be delivered in May 2017 and the 3<sup>rd</sup> intervention is expected to be delivered in July 2017. The reason for the delay of this activity is the JUST academic calendar and the opportunity of delivering the interventions to the same cohort of students if they are introduced in consecutive years, as this will enhance their evaluation. The first intervention focused on herd health/livestock medicine, it aimed at highlighting the links between livestock health, livestock welfare and public health and it was designed and delivered by Dr. Steven van Winden (RVC) and Dr. Myassar Alekish (JUST) to 3<sup>rd</sup> year students. A pre and post-questionnaire was used to evaluate the effect on student competence and perceptions of the teaching methods and the learning activity. The results of the questionnaire showed that:

- The teaching intervention was very successful, the students were very interactive and enjoyed learning this way.
- The intervention succeeded at increasing students' knowledge regarding mastitis considering its animal welfare implications.



*Dr. van Winden delivering problem-based session on herd health to 3<sup>rd</sup> year students at JUST.*

The second intervention uses brucellosis control to highlight the interface between animal health, animal production and food safety by means of problem-based learning. The session has been designed by Dr. Steven van Winden, Dr. Imadidden Musallam and Prof. Javier Guitian and will be delivered to the same group of students as the previous intervention in May 2017. A parallel element of this component of the project is the development of video materials on porcine medicine, this activity is still ongoing and expected to be finalized by September 2017.

#### 1.1.2. Evaluation of interventions and reporting (months 12-24; ongoing)

During the second year of the project a formal evaluation of the first intervention was conducted by means of pre- and post- intervention surveys administered to the students. Ethical approval to conduct the surveys was granted and questionnaires have been administered and analysed allowing evaluation of the effectiveness of the educational interventions to enhance student skills in developing and integrating knowledge in the context of public health, animal production and welfare and the students' perception of the interconnectedness (or integration) of the teaching of the three selected topics in this veterinary curriculum. Initial analysis of the results shows that i) when given the opportunity to engage with this type of learning students enjoy and are very interactive and ii) this type of learning is successful at increasing students' knowledge of a specific topic and of its links with other aspects traditionally taught separately. This activity is still ongoing as it is linked to activity 1.1.1 which as explained above is delayed. The final evaluation will be carried out during 2017 once the 3 interventions have been delivered.

#### 1.1.3. Student visits (months 22-26)

This activity is currently being organized. A total of 8 JUST undergraduate students in their final year have been selected to visit RVC in the coming months. They will join RVC final year rotations/Clinical and Animal Husbandry Extra-Mural-Studies (EMS) activities. The planned duration of the visit is 14 days. Five of the JUST students will join the Neurology, Internal Medicine, Emergency and Critical Care and Anaesthesia Services at the RVC. The remaining 3 students will participate in small animal oncology rotations. Students will have the opportunity to improve their medical knowledge, hands-on skills, diagnostic abilities, communication skills, and patient care skills. There are a number of issues associated with student visa and insurance that have to be addressed before the visits actually take place and we are currently addressing them.

#### 1.1.4. Alignment with OIE recommendations on the competencies of graduating veterinarians and OIE guidelines on Veterinary Education Core Curriculum (ongoing across entire duration of the project)

During the second year of the project we have made very significant progress in relation to this component and in fact we have exceeded our initial aspirations. As detailed below, the project has developed:

- i) JUST day 1 competences and a veterinary skills logbook aligned with EAEVE and OIE competences
- ii) An approach to map day 1 skills of a curriculum and competences defined by accreditation bodies

##### 1.1.4.1. JUST day 1 competences and veterinary skills logbook

At the inception of the project, and under the leadership of Dr Abdelsalam Talafha, JUST was developing day 1 competences and a veterinary skills logbook. This was a priority for JUST given its importance for EAEVE accreditation and it was identified by the project team as one of the key areas where the twinning project could assist JUST enhancing their undergraduate curriculum and aligning it with OIE guidelines on

Veterinary Education Core Curriculum. Teams from RVC and JUST under the leadership of Dr. Talafah (JUST) and Dr. Silva-Fletcher (RVC) worked closely together on the development of the logbook, a task that was completed at the end of the 2<sup>nd</sup> year of the project. The logbook is based on Day 1 competences that are expected from a DVM graduate from JUST and is mapped to the OIE and EAEVE day 1 competences. The logbook was reviewed and agreed by the project team and benefitted from educational expertise from Dr. Silva-Fletcher, a renowned expert in veterinary education and pedagogy and member of the RVC's Centre for Excellence in Teaching and Learning, the LIVE center. The logbook contains three sections with 79, 138 and 108 skills in each section that were divided into three expected levels of achievement as follows:

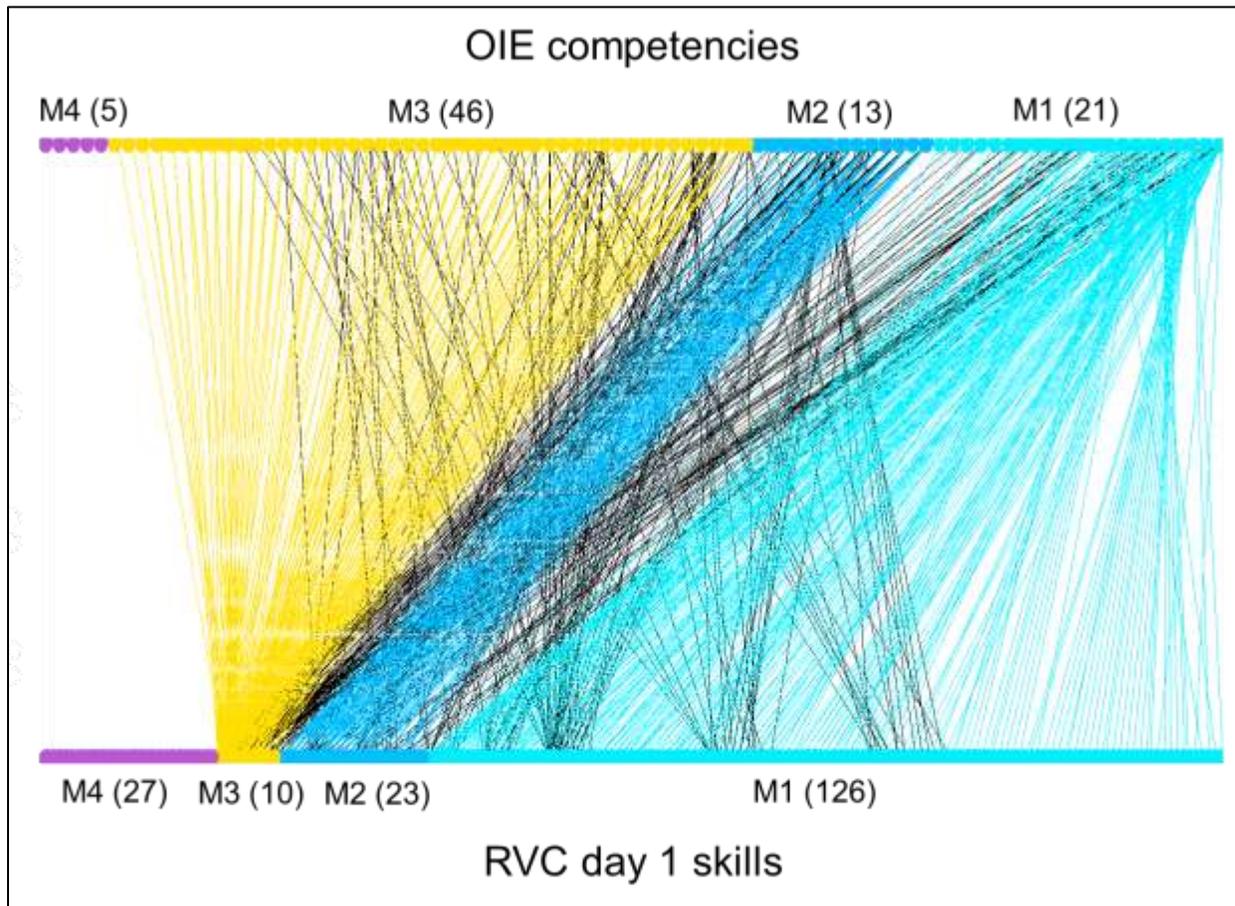
- Category 1. Student is expected to have performed the skill him/herself
- Category 2. Student is expected to have observed the skill performed by faculty course instructors
- Category 3. Student is expected to have knowledge of the skill

A survey based on the logbook was conducted using the 5th year students to get feedback regarding the different categories, their ability to perform category 1 skills and knowledge and understanding regarding skills of categories 2 and 3. The analysis of the survey will enable JUST faculty to identify gaps and strengths in the curriculum of day 1 competency teaching and assessment. A total of 80 students completed the logbook and data analysis has started. An Access-based database was developed by a research assistant at the RVC to enter the data from the logbooks for statistical analysis. The final statistical analysis will be completed in 2017 and the feedback from the survey analysis will be used to update and refine the logbook, which will then be given to the current 4th year students. This will enable to refine the logbook and the new curriculum further. The final objective is to administer the logbook to ALL veterinary students once they get in the faculty of Veterinary Medicine. Students are expected to complete the logbook as they progress through the DVM program. The logbook has a column that shows the assessment method for each skill and the course (s) where each skill might show up in the curriculum. An additional column for tutor signature for each skill level is also included. A tutor signature is compulsory to complete the logbook. At the end of the final year, students are expected to submit the completed logbook before their graduation.

This has been a major outcome of the project with the logbook being finalized and delivered to students. The only outstanding activity is the final statistical analysis of students' feedback.

#### 1.1.4.2. Approach to map day 1 skills of a curriculum and competences defined by accreditation bodies

During the second year of the project we developed an approach to map day 1 skills of a curriculum and competences defined by accreditation bodies. This work was completed and applied to RVC curriculum and the results were presented at the 4th OIE Global Conference on Veterinary Education raising considerable interest by other organizations involved in twinning programs. A manuscript has been written for submission to a peer-review educational journal. We expect this component of the project to have potentially considerable impact for future mapping of sets of competences defined by different accreditation bodies. The mapping of the RVC competences has been completed and a paper has been written and is expected to be submitted by September 2017. The mapping of JUST competences is ongoing and expected to be finished by September 2017.



*Modular layout of the bipartite graph with OIE competencies and RVC day 1 skills as nodes and interactions colored according to the module they belong to with those that take place between modules colored in black.*

## 1.2. POSTGRADUATE EDUCATION

1.2.1. Selection of research projects (months 1-6; achieved – presented in year 1 report)

1.2.2. Implementation of research projects (months 6-30; ongoing - months 6-12 presented in year 1 report)

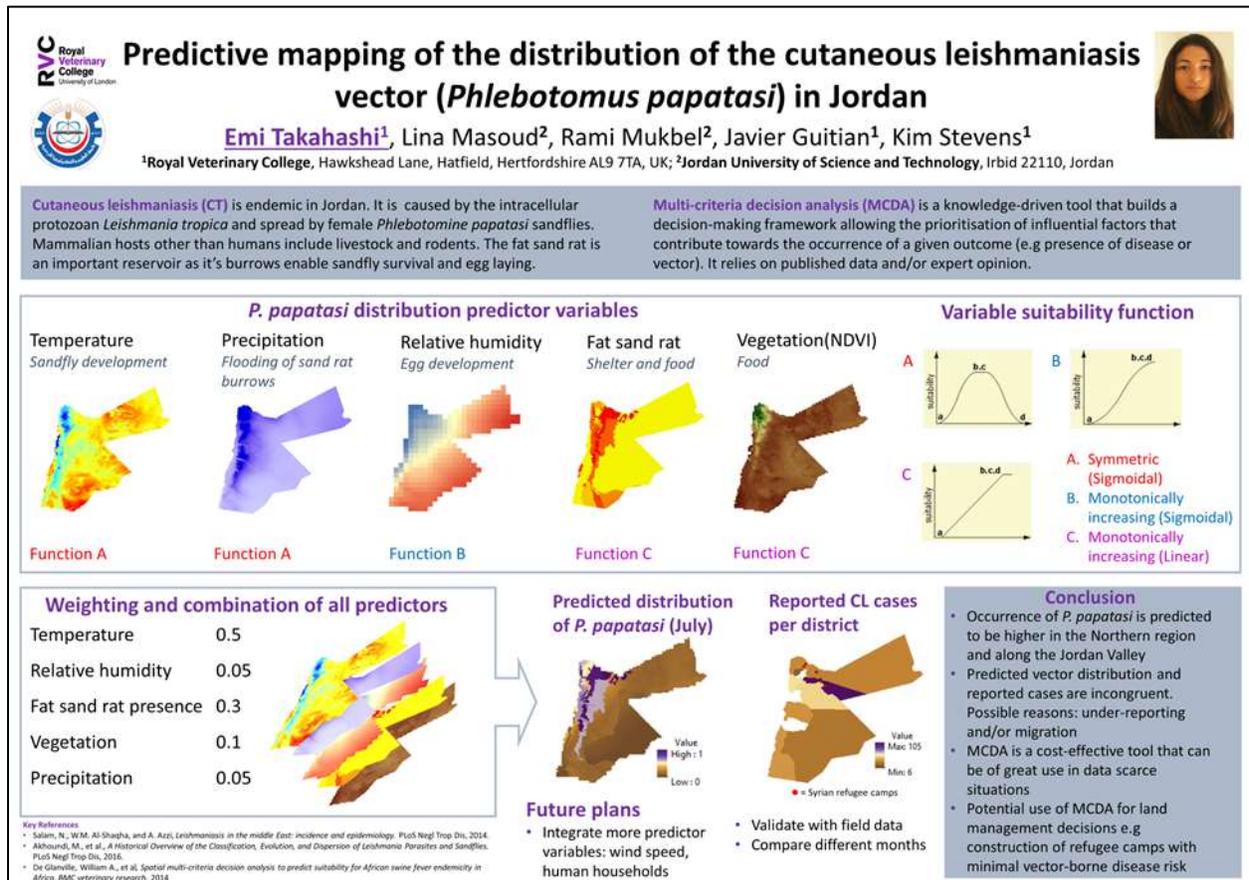
This has been one of the major activities during the 2<sup>nd</sup> year of the project. Five JUST students and five RVC students have progressed with their MSc / MRes studies which are paired and have common co-supervisors. All ten students are progressing well and on track to graduate as planned by October 2017.

The specific topics being addressed by this set of 10 projects are:

1. Infectious causes of abortions and use of abortion records for syndromic surveillance
2. Drug resistant E coli in poultry
3. Predictive mapping of vector-borne diseases
4. Management of meat-borne pathogens
5. Antibiotic resistance in Staphylococcus aureus and mastitis

As part of this component of the project there has been considerable exchange of staff and students as detailed below. This project component is therefore on track for successful completion with the only

departure from original plan being that we have reduced the numbers in the original proposal from 7 RVC and 7 JUST students to 5 RVC and 5 JUST students. The reduction from 7 to 5 JUST students was agreed with OIE to be able to use some resources to train a JUST student in wildlife medicine (see point 1.2.3 below). The number of RVC students has also been reduced from 7 to 5 due to inability to recruit a suitable student for one of the projects on time and another student abandoning the project after the initial months. As detailed below, we request permission to be able to use the resources not spent during an extension year.



Poster summarizing work undertaken by one of the pairs of JUST-RVC students (Takahashi and Masoud) under a joint, JUST-RVC supervisory team (Mukbel, Stevens, Guitian).

### 1.2.3. Training in wildlife medicine

As planned, a Jordanian veterinarian currently working for Princess Alia Foundation and providing teaching support to JUST: Dr. Zein Shaheen enrolled in the RVC's MSc wildlife animal medicine and is progressing towards graduation by October 2017. Dr. Zein's graduation will strengthen the teaching provision at JUST in an area previously identified as deficiently covered.

### 1.2.4. Research seminar (month 36)

No progress to report as this activity will take place at the end of the project.

### 1.3. PROFESSIONAL EDUCATION (months 18-36)

This activity is delayed as it was felt strategic to focus on the undergraduate and postgraduate education components given the opportunities that emerged (e.g. development of the JUST day 1 skills log book).

## 2 INTERACTIONS

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In its second year the project has succeeded at strengthening the links between RVC and JUST academics and students. Since the commencement of the project, 19 people have visited the partner institution at least once and we expect this number to increase to around 30 in the coming months. Exchanges to the partner institution so far have involved 8 staff members from RVC and 5 from JUST and 2 students from RVC and 4 from JUST.

A group of 5 RVC academics carried out a study visit to Jordan during February 2016 to discuss general progress with undergraduate and postgraduate components. The main outcomes from the visit included:

- i) Detailed planning of undergraduate interventions
- ii) Interaction between RVC supervisors and Jordanian students
- iii) Detailed discussions regarding the log book and JUST day 1 skills

The group visit was followed by subsequent visits of Prof. Abu Basha to London for purpose of general follow up and of Drs. van Winden and Musallam to Jordan to deliver the 1<sup>st</sup> intervention and follow-up of postgraduate projects. The 1<sup>st</sup> intervention concerned the topic milk quality and allowed the students to integrate different concepts that have previously been taught independently through problem-solving methods. The introduction in the JUST curriculum of problem solving teaching as a means of delivering more integrated contents, promote problem-solving skills and develop students as lifelong learners is a major achievement of the project. Initial evaluation suggests that students adapted well to this novel teaching and learning setting and that the session was effective at delivering its objectives. Furthermore, this project activity has allowed JUST and RVC academics to work together in the design and delivery of teaching benefiting from each other's experiences. Dr. van Winden is a highly experienced and skilled educator who for many years has been a core member of the RVC teams in charge of curriculum management and delivery in the area of farm animal medicine. By facilitating the sharing of experiences and the establishment of a collaboration between Dr. van Winden and his JUST counterparts such as Dr. Alekish the twinning project can have long-term impact beyond its expected duration. Prof. Abu Basha and Dr. Silva-Fletcher attended the 4th OIE Global Conference on Veterinary Education in Bangkok, where they shared progress being made in the project and approaches being used. Their presentations on the innovative approach used to map day 1 skills of a curriculum and competences defined by accreditation bodies, which was illustrated with the mapping of RVC day 1 skills and OIE competences raised

considerable interest by other organizations involved in twinning programs. A manuscript has been written for submission to a peer-review educational journal.

Interactions have been particularly intensive during the initial months of the 3<sup>rd</sup> year (i.e. after the reporting period) with postgraduate students and supervisors travelling both ways.



*RVC and JUST postgraduate supervisors during JUST visit to RVC-Camden.*



*RVC and JUST supervisors and students during JUST visit to London.*

### 3 PUBLICATIONS AND REPORTS

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During the second year of the project two presentations were delivered by Prof. Abu Basha and Dr. Silva-Fletcher at the 4th OIE Global Conference on Veterinary Education in Bangkok. One of them presented lessons learned through the twinning project including the mechanism to assess the extent to which an existing curriculum is aligned with OIE competences. The second presentation provided an outline of the current situation of Veterinary education in the Middle East.

A manuscript has been written and is ready to be submitted for publication describing in detail the mechanism to assess the extent to which an existing curriculum is aligned with OIE competences: *Using network analysis to characterize correspondence between day one skills of a curriculum and competencies defined by accreditation bodies.*

Beyond the reporting period, during the 3<sup>rd</sup> year of the project, several communications have already been submitted by the postgraduate students to a number of conferences including among others the paper “Predictive mapping of the cutaneous leishmaniasis vector (*Phlebotomus papatasi*) in Jordan using multi-criteria decision analysis” co-authored by one student from JUST and one student from RVC and to be presented at the British Federation of Women Graduates Research Presentations Day and currently being consider for presentation at the International conference on spatial statistics, spatial epidemiology & spatial aspects of public health.

A Weblog for the project has been created: <https://rvcjustoietwinning.wordpress.com/> and is being regularly updated and used to maximize visibility of the project.

## 4 HONORS/AWARDS

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A very significant development has been the award to the RVC-JUST team of a competitive grant by the UK Medical Research Council. The team has secured additional funding of 600,000 \$US to support their collaborative work, specifically in relation to MERS-CoV infection through the project “A one health approach to the investigation and control of MERS-CoV among camel and human populations in Jordan as a potential model for the region”.

## 5 COURSES TAUGHT/TRAINING PROVIDED

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*Undergraduate:* One of the three planned intervention was delivered during the 2<sup>nd</sup> year of the project as described under point 1.1.1 above. A second intervention has been designed and is about to be delivered and a 3<sup>rd</sup> intervention is currently being designed and will be delivered in the next few months. The second intervention will address brucellosis control to highlight the interface between animal health, animal production, and food safety; the third intervention will focus on food safety. Furthermore, some of the video materials for porcine medicine teaching have already been developed and will be available for use by JUST (these materials have not been “formally” endorsed by JUST yet).

*Postgraduate:* The taught component of postgraduate students has been completed. All 10 JUST and RVC students have received extensive training at postgraduate level on a range of topics to enable them to conduct the research component.

## 6 MAJOR EVENTS ANTICIPATED IN THE NEXT 6 MONTHS

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We would like to request a no-cost extension to allow us to focus on the undergraduate and postgraduate components of the project during the remaining months of 2017 and dedicate 2018 to the professional training component. This approach would allow us to capitalize on synergies between this project and the newly-funded project as part of which we are expected to carry out capacity building activities reaching a number of professional stakeholders such as government veterinarians. If this extension is granted the main activities in the next 6 months will involve finalizing the undergraduate and postgraduate components and maximizing project outputs. Specifically, in the next 6 months we aim to:

- Deliver the last 2 undergraduate interventions (i.e., 2<sup>nd</sup> intervention on brucellosis control to highlight the interface between animal health, animal production and food safety and 3<sup>rd</sup> intervention on food safety)
- Finalize the evaluation of the interventions and statistical analysis of feedback on the logbook
- Finalize video teaching materials on porcine medicine
- Carry out undergraduate student visits described in 1.1.3
- Complete postgraduate training component (students to graduate in September – October)
- Plan the professional training component

## 7 CHALLENGES INCURRED AND SOLUTIONS TO OVERCOME THEM

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*Undergraduate component:* the main challenge identified is in relation to study visits by undergraduate students. Travelling to the UK to take part in practical training activities (extra mural studies) that are classified as “work experience” has implications in terms of visa application and insurance status. We are currently trying to solve this problem to be able to receive a group of 8 Jordanian students at the RVC.

*Postgraduate component:* our original plan was to have 7 RVC MRes students in the cohort. However, for one of the proposed topics we were unable to identify a suitable candidate on time and for another project the student was unable to progress with the study program as planned and abandoned his studies after 3 months. As a result the RVC MRes cohort is composed of 5 students as the JUST cohort.

*Professional component:* as explained above, we would like to postpone this component to 2018 if an extension is granted. This will allow us to capitalize on important synergies with the project recently awarded.