



Emerging Pandemic Threats Program
PREDICT RESPOND PREVENT IDENTIFY



Strengthening and Expansion of One Health Central and Eastern Africa Network

Agreement No: **G-DAIKLA-005**

Organization Name: **One Health Central and Eastern Africa**

End of Project Report



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LIST OF ACRONYMS

AAVMC	Association of American Veterinary Medical Colleges
AMREF	African Medical and Research Foundation
AU	Africa Union
AU-IBAR	Africa Union Inter-Africa Bureau for Animal Resources
BEHEP	Bachelor of Environmental Health and Epidemiology
BLPTD	Bachelor of Livestock Production and Technology Development
BRM	Bio-Risk Management
BVM	Bachelor of Veterinary Medicine & Surgery
BWARM	Bachelor of Wildlife and Aquatic Resources Management
CCC	One Health Country Coordination Committee
CDC	Centers for Disease Control and Prevention
CELT	Centre for Enhancement of Learning and Teaching
COVAB	Makerere University College of Veterinary Medicine, Animal Resources and Bio-security
DAI	Development Alternatives Incorporated
DFID	Department for International Development
DTRA	Defense Threat Reduction Agency
DRC	Democratic Republic of Congo
DSW	Deutsche Stiftung Weltbevoelkerung
EU	European Union
FAO	Food and Agriculture Organization
FDO	Fund Development Officer
GIS	Geographical Information System
GIZ	Germany Society for International Cooperation
HED	Higher Education for Development
IDRC	International Development Research Center
MakSPH	Makerere University School of Public Health
MoH	Ministry of Health
MPH	Master of Public Health
MSc	Master of Science
MUHAS	Muhimbili University of Health and Allied Sciences
MVPM	Master of Veterinary Preventive Medicine
M&E	Monitoring and Evaluation
OH	One Health
OHCEA	One Health Central and Eastern Africa
ORIP	OHCEA Research Innovations Project
PHI	Public Health Institute
PPD	Partners in Population and Development
QA	Quality Assurance
SOW	Statement of Work
SUA	Sokoine University of Agriculture
TELI	Tufts Environmental Literacy Institute
TUSK	Tufts University Sciences Knowledgebase

UMN	University of Minnesota
UNIKIN	University of Kinshasa
UNILU	University of Lumumbashi
UON	University of Nairobi
URNC	University of Rwanda Nyagatare Campus
URSPH	University of Rwanda School of Public Health
USAID	United States Agency for International Development
VSF	Veterinaires Sans Frontieres
WHO	World Health Organization

EXECUTIVE SUMMARY

The One Health Central and Eastern Africa (OHCEA) network is composed of 14 schools of Public Health and Veterinary Medicine. OHCEA was established in 2010 when members of the HEALTH Alliance, an existing network of seven schools of public health from six countries in Central and Eastern Africa, namely: the DRC, Ethiopia, Rwanda, Tanzania, Uganda and Kenya; working to strengthen public health education and systems, including: emergency preparedness and response; agreed with the proposal to collaborate with seven Schools of Veterinary Medicine in the region to implement the One Health approach.

In June 2012, the USAID-funded RESPOND Project made a sub-award to OHCEA to implement the Strengthening and Expansion of One Health Central and Eastern Africa Project. The funds obligated for this project are USD 5,299, 285.85. The objectives of the 2-year project are:

- i. Expand the human resource base needed to detect and respond to potential pandemic disease outbreaks
- ii. Increase integration of animal, wildlife and human disease surveillance and outbreak response systems

This report highlights the activities implemented over the project life, outcomes from the implemented activities, lessons learned and recommendations.

Key activities implemented are given in section I. They are summarized as follows:

- In order to strengthen the network, OHCEA held regular management and country team management meetings, launched One Health in 3 countries, had a business improvement and financial systems assessment which identified areas of improvement that OHCEA is addressing, and implemented resource mobilization measures aimed at sustaining the network beyond the current project.
- Conducted curriculum reviews in 5 countries that saw One Health modules incorporated in university curricula.
- Trained 231 in-service professionals on One Health leadership from all the OHCEA counties
- The two innovative programs i.e. the One Health Residency program and the Master of Veterinary Preventive Medicine (MVPM) are being implemented at COVAB.
- Conducted faculty exchanges within Africa and with US universities involving 30 faculty from OHCEA institutions
- Strengthened the e-learning infrastructure at OHCEA institutions through installation of e-learning equipment and training
- Implemented One Health demonstration sites in three countries and had 127 students from various disciplines undertake experiential learning at the demonstration sites
- Held face to face meetings for CCCs at regional and country levels
- Engaged a number of international organizations and donors to support One Health activities.

Results of the implemented project activities are provided in section II of the report. They are summarized as follows:

- A strengthened OHCEA network with functional secretariat and country offices; additional funding to support One Health activities
- Students, faculty and practitioners implementing One Health
- Improved relationship between faculty within the OHCEA network

- Improved delivery of training through TUSK e-learning infrastructure
- Functional CCCs in all countries
- Increasing support for One Health approaches by governments

Recommendations are provided under section IV and are summarized as follows:-

- Develop a One Health module that each institution can customize to their needs
- Implement cost-saving innovations for field-based student activities
- Conduct country level retreats to further break the disciplinary silos among faculty members
- Promote use of ICT to facilitate learning. This would involve development of video conferencing and e-learning capabilities at all OHCEA institutions.
- Scale up One Health demonstration sites to cover all countries
- Continue collaborating with US university partners in curriculum development, teaching, research, resource mobilization, and documentation
- Conduct an in-depth organizational capacity assessment to facilitate a review of the project during the next phase

SECTION I: ACTIVITIES IMPLEMENTED OVER THE PROJECT LIFE

Building and Strengthening OHCEA

In order to build its network so that it can sustain itself, OHCEA implemented a number of activities. These included meetings, One Health launches at country level, and recruitment of staff. Additionally, with direct support from RESPOND, a business improvement and financial assessment was conducted that identified areas that OHCEA needed to address so as to strengthen itself.

Management and Country Team Meetings

OHCEA held regular meetings of its management and country teams (Deans' Summit, Board, Secretariat, CCCs and University Focal Persons) to formalize and institutionalize OHCEA's guiding principles, policies, rules and procedures, as well as to promote professional standards of practice. During the project period, OHCEA held 8 Board of Directors meetings, 4 Deans' Summits, 3 regional meetings for Focal Persons and Country Administrators, 1 regional CCC meeting, and 44 country level Country Coordinating Committee (CCC) Meetings.



One Health Launches

OHCEA held One Health launches in Tanzania, DRC, and Ethiopia. The launches were attended by more than 580 participants that included policy makers, academicians, researchers, media and the general public. The launch in Rwanda did not take place since stakeholders in the country decided to first develop a One Health strategic plan before holding the launch. With support from RESPOND, Rwanda developed a strategic plan and the process of getting the plan endorsed by the ministerial cabinet is on-going.

Business Improvement and Financial Systems Assessment

OHCEA is still a young network that needs to understand its weaknesses and address them so as to position itself to attract more resources from funding agencies. A Business Improvement and Financial Systems Assessment was therefore conducted at OHCEA Secretariat and the country offices. With direct support from RESPOND, the exercise that was conducted by a consultancy firm Edes & Associates, was intended to perform a pre-audit of the financial processes (management, internal procedures and reporting) as well as identify gaps for business improvement. The report was presented to the OHCEA Board for review and ratification before sharing with other OHCEA partners.

The following action points were recommended by the Board for the Deans' Summit approval so as to address the identified gaps:-

- i. Registration of OHCEA at the country level
- ii. Development of a board charter
- iii. Undertaking statutory audit of OHCEA as an organization
- iv. Establishment of OHCEA's own financial management system including recruitment of a Financial Officer
- v. Revision of the Operational Manual and development of stand-alone manuals for Human Resource, Operations and Financial Management
- vi. Development of guidelines and plans for procurement, supervision and training
- vii. Procurement of a computer server and development of a web-enabled data management system

End of Project Evaluation

In order to assess the performance of the project, an end of project evaluation was implemented. The evaluation was conducted by an independent consultancy firm HIPO – Africa, with the following objectives:-

- i. To assess the performance of the project in meeting its two objectives
- ii. To assess and document the achievements, outcomes, best practices, lessons learned and challenges
- iii. To make and document key findings and recommendations of the evaluation and highlight key areas that may inform OHCEA's decision on the next phase of the project and new areas that can be replicated or scaled up
- iv. Details of the evaluation approach, findings and recommendations are the attached end of project evaluation report.

OHCEA Financial Audit

OHCEA conducted a financial audit for the project covering the period from the start of the project to April 30, 2014. The audit was conducted by a firm called Ernst & Young Uganda and covered all the OHCEA country offices and the secretariat. The audit objectives included:

- i. To express an opinion on whether the fund accountability statement for the funds received from USAID through RESOND presents fairly, in all material respects, revenues received, costs incurred, and commodities directly procured by RESPOND for the period I January 20 II to 31 December 20 II aud ited in conformity with the terms of the agreements and the cash basis of accounting as adopted by OHCEA.
- ii. Evaluating OHCEA's internal control related to the program, assess the control risk, and identification of significant deficiencies including material weaknesses and expressing an opinion thereon.
- iii. Performing tests to determine whether the recipient complied, in all material respects, with agreement terms and applicable laws and regulations related to the funded program and identification of all material instances of non compliance and all illegal acts that have occurred or are likely to have occurred as well as expressing an opinion on the entity'S compliance.
- iv. Whether proper accounting records have been kept by the OHCEA of its funds sent by USAID through RESPOND and proper supporting documentation have been received by the auditors.
- v. Whether the Program fund balance and receipts and expenditure statements are in agreement with the accounting records and supporting documentation.

Key among the recommendations of the report is to strengthen OHCEA's internal audit function. A detailed audit report is provided as an annex to this report.

Resource Mobilization

OHCEA is conscious of the fact that its sustainability is heavily dependent on strategic partnerships and winning new funding opportunities. During the project period, OHCEA made great strides towards mobilizing resources and collaborating with partners. With the approval of the Board, a Fund Development Officer (FDO) was recruited and is responsible for coordinating mobilizing resources and partnership building.

OHCEA has developed 5 grant proposals; 2 of which were approved for funding and 1 is under negotiation with the funding institution. The proposal to IDRC “*Managing health risks among the communities in and round Queen Elizabeth Conservation Area, Western Uganda using EcoHealth approaches*” is one of the two OHCEA proposals accepted for funding. IDRC assessed OHCEA’s capability to efficiently manage funds and implement activities under the proposal and eventually approved the award of 1,000,000 Canadian dollars. The launch of the project will be held around August 2014. OHCEA is in the process of getting ethical clearance from the National Council for Science and Technology.

Through collaboration with Tulane University, Higher Education for Development (HED) has availed OHCEA a sub grant of USD 505,000 which runs from August 2013 to December 2014. The goal of this sub grant is to improve regional response capacity to human, animal and ecosystem health challenges in Eastern and Central Africa. The objectives of the sub award are to build interdisciplinary and community based research skills among faculty and students in the Eastern and Central Africa Region; and increase participation of female students, faculty and practitioners in leadership in Eastern and Central Africa

OHCEA is in the process of concluding a partnership with Sandia National Laboratories in collaboration with the US Defense Threat Reduction Agency (DTRA). The partnership is aimed at setting up a training consortium for the purpose of establishing a center of excellence that supports the development and harmonization of bio risk management (BRM) capacity, improves education and training, and serves as a node to share best practices to increase integration, cooperation and communication in BRM training. Training will target both in-service and pre-service participants. This collaboration was approved by OHCEA’s Board. SANDIA National Laboratories is in the process of evaluating OHCEA’s cost proposal.

OHCEA’s 1st International One Health Conference

In September 2013 OHCEA successfully held its 1st international One Health conference in Addis Ababa, Ethiopia.

The conference brought together more than 270 delegates from Africa, Asia Europe, South America and USA representing academia, research institutions, government ministries, development partners and the private sector. The conference was graced with the participation of Hon. Bright Rwamirama the



Minister of State for Animal Industry- Government of Uganda and Director Generals of Health as well as Chief Veterinary Officers of the six OHCEA countries. The theme of the conference was “One Health and the Control of Infectious Diseases: Building Capacity, Systems and Engaging Communities”. More than 110 oral presentations were made, covering a wide range of One Health related topics. Dr. Dennis Carroll who is the USAID Director for the Pandemic Influenza and other Emerging Threats unit was the keynote speaker. At the end of the conference participants representing different countries made a number of resolutions including a request to be admitted to OHCEA network by Cameroon, South Sudan, Djibouti and Somaliland. Other resolutions included: develop national One Health strategic roadmaps, policy formulation for One Health, integrate One Health into pre-service training, and rethink Health Systems globally to facilitate the sharing of data and knowledge across sectors. The proceedings of the conference are to be published in the AU-IBAR journal.

Strengthen and Build University Curricula and Programs

Working in collaboration with Tufts University and University of Minnesota, OHCEA conducted curriculum reviews in Uganda, Kenya, Tanzania, Rwanda and DRC. The reviews were conducted in collaboration with relevant government ministries, agencies and private sector. A list of pre-service curricula reviewed is presented in table 1.

Table 1: Pre-service curricula reviewed

Date	Institution / Country	Curriculum reviewed
November 19 to 21, 2013	UR-SPH	MPH and MSC (Epi) – included a OH component
July 2013; September 26th to 28th, 2013;	COVAB	Veterinary socio-economics and gender course to include One Health components
September 16th to 21st, 2013	UON - Vet	Bachelor of Veterinary Medicine (BVM)
September 18th to 20th, 2013; February 27 th to 28 th , 2014	COVAB	Masters of Wildlife Health and Management
May 30 to 31, 2013	Rwanda	All programs under Veterinary Medicine UR – Nyagatare campus (BVM, BEHEP, BLPTD, BWARM); and MPH at UR - SPH were reviewed
April 29 to May 4, 2013	DRC	Epidemiology course in DRC - integrating Participatory Epidemiology and One Health core competencies into the teaching of epidemiology in DRC
8th to 11th February, 2013	Tanzania	Undergraduate curricula for School of Medicine, Nursing, Public Health (MUHAS) and School of Veterinary Medicine at SUA, reviewed them to incorporate One Health Component and come up with a pre-service curriculum.
April 7 th to 11 th , 2014	Moi University	Reviewed the MPH curriculum incorporating One Health related modules
June 3 rd to 7 th , 2014	University of Nairobi School of Public Health	Reviewed the MPH curriculum incorporating One Health related modules

The different institutions that have had their curricula reviewed are in the process of having the curricula approved by the university senates. Implementation of the curricula will start after senates' approval.

In preparation for field attachments for students of nursing – Public Health and Veterinary Medicine, OHCEA in partnership with Tufts University and UMN developed materials that are uniform across the OHCEA countries. The field attachment model has a systematic approach to community challenges and training of students, and can be modified at country level to suit the country's needs. Training materials developed include: student assessment templates, community assessment documents and protocols that can be used in the joint vet-nursing –Public health field practicum.

Develop and Conduct Capacity Building Plans

In-service Training

Following the identification of One Health training needs, OHCEA with support from UMN and Tufts University developed training materials for in-service professionals. The materials were based on the four cornerstone competencies for One Health leadership that were identified by participants during the training materials development workshop. The four cornerstones are; visionary and strategic, communication, team building and teamwork, and change management.

As part of preparations for country level in-service training, 18 participants from the 6 OHCEA countries were trained as trainers. Participants included government ministry staff and faculty of OHCEA institutions. The participants were trained in One Health leadership skills and competencies, as well as active learning methods and tools to deliver in-service One Health leadership training in their respective countries.

One Health leadership trainings workshops were conducted for 181 in-service professionals from Uganda (33), Tanzania (26), Rwanda (17), Ethiopia (53), DRC (23), and Kenya (29). The trainings were facilitated by faculty of OHCEA institutions and government ministry officials in partner countries, who were centrally trained as trainers. Participants to the trainings included central and district / regional level staff drawn from different disciplines and ministries such as Ministry of Health; Ministry of Agriculture, Animal Industry and Fisheries; Ministry of Wildlife and Environment, Ministry of Planning, and Prime Ministers' Office. At the end of the trainings, participants would come up with problems or issues that they would handle using a One Health approach back at their work stations. Prior to the workshops held in all the countries, a joint collaboration between OHCEA, UMN and the Uganda Ministry of Health (MoH) resulted into training of 50 participants that included 13 Health Officers and 12 Veterinarian Officers from 19 districts of Uganda that are reporting epidemics and natural disasters.

One Health Residency

In partnership with Makerere University's COVAB and UMN, OHCEA commenced the One Health Residency Program pilot. This two-year residency focuses on a unique model of service provision through experiential learning by developing stakeholder identified skills and competencies through applied problem solving. Three residents were admitted to the program and started their coursework in February, 2013. The residents include two veterinarians and one nurse from Uganda and Kenya respectively. The first cohort of residents is continuing with the program which is expected to last 3 years. Key achievements to-date include:-

- i. The One Health residents have engaged in multiple teaching advocacy and research opportunities and participated and presented at local and international conferences, which has led to increase in their competencies and skills.
- ii. As part of engaging stakeholders, the residents have met and shared experiences with a number of stakeholders including the US Ambassador to Uganda.
- iii. The residents produce and distribute a daily summary of “One Health News” to audiences all over the world. The news is circulated through a number of avenues such as mailing lists, OHCEA website and social media platforms. It is aimed at informing stakeholders of the current and future trends in global health.
- iv. Residents have participated in a number of health surveys to better characterize health challenges and address these challenges using innovative One Health solutions.

OHCEA had plans of enrolling a second cohort of residents during the 2013/2014 period. However, this was not implemented due to uncertainty in availability of funds for the residents to complete their training.

Master of Veterinary Preventive Medicine

Twelve students were admitted for the Master of Veterinary Preventive Medicine (MVPM) training program that is hosted at Makerere University’s COVAB and started training in February 2013. Two students were admitted from each of the OHCEA countries. Training of the students is still on-going with the following key achievements :

- i. Working with faculty of Tufts University and COVAB, the MVPM students developed One Health Problem Based Learning (PBL) case studies based on zoonotic diseases and issues of Public Health importance. A total of 11 case studies were developed focusing on: Yellow Fever, typhoid fever, brucellosis, cholera, tuberculosis, schistosomiasis, rabies, Ebola, lead toxicosis, Rift Valley Fever and anthrax. This exercise culminated into the development of a draft One Health PBL handbook.
- ii. The MVPM students have acquired competencies necessary for leading an institution and responding to various animal and Public Health threats. During fieldwork in 5 districts of Uganda, the students identified areas and topics for their short studies focusing on areas such as antibiotic resistance, Avian influenza, and Brucellosis with the aim of providing solutions to communities.
- iii. As part of Makerere University’s requirement for award of Masters Degree, MVPM students developed proposals for their dissertations. The students presented and successfully defended their proposals. By the end of the project period, the students were in final stages of collecting and analyzing data for their dissertations..

The MVPM together with the One Health Residency programs were officially launched in February, 2013.

Faculty and Student Exchanges

One of OHCEA’s strategies for expanding the human resource base needed to detect and respond to potential pandemic is to establish faculty and student exchanges to help break down existing silos at universities between disciplines.

US faculty support to OHCEA institutions

Teaching faculty from Tufts University and UMN conducted technical assistance visits covering all the 14 OHCEA institutions. Over 80 Scopes of Work were approved to enable the US faculty avail technical assistance to OHCEA faculty. These visits have seen US faculty with their counterparts from OHCEA institutions working together to

develop country plans, review training curricula, prepare One Health demonstration sites, deliver various short courses and work as external examiners. The courses taught included: Research Methods; Wildlife Ecology, Health and Management; Infectious Disease and Veterinary Field Techniques for Diagnosis and Treatment; Problem Based Learning; Social Entrepreneurship; Risk Communication; Grant Writing, Risk Analysis; Use of Economic Instruments in Environmental Health and Production; E-learning User Support; and Participatory Epidemiology. The visits by the US partners were also instrumental in leveraging resources for the institutions. For instance, Dr. Hellen Amuguni (Tufts) linked University of Rwanda – Nyagatare Campus (URNC) to Dr. Cummings, a philanthropist who funded an ambulatory clinic worth USD 100,000; Dr. Innocent Rwego (UMN) on behalf of Silent Heroes Foundation handed over 200 veterinary textbooks and surgical equipment to URNC.

Faculty Exchange between US Universities and OHCEA Institutions:

Three sets of faculty exchanges between OHCEA institutions and US universities were conducted. The first set involved twelve faculty from OHCEA institutions that participated in an exchange program with Tufts University. At Tufts University, the faculty that included five Deans participated in activities of two centers/institutes namely; Centre for Enhancement of Learning and Teaching (CELT) and Tufts Environmental Literacy Institute (TELI). The ultimate goal of TELI was to increase the exposure and knowledge of selected participants to enable them to effectively engage with the issues that will shape the new generations they teach. The participants were introduced to many tools that could be used in their work such as GIS, Asset mapping, crisis mapping, social network analysis, digital storytelling, TUSK and environmental informatics. The participants also learnt how to design and develop a one health curriculum with examples from the Tufts masters in conservation medicine program. CELT offered a three day intensive experience that provides guidance on developing courses through focusing on creating an environment for significant learning rather than just transfer of knowledge. OHCEA Board highly commended TELI/CELT training and recommended that it should be conducted at the regional level in order to benefit many faculty from OHCEA institutions.

The second set of faculty exchange was conducted at UMN. During the exchange, eleven faculty shared and developed models of One Health training and education for OHCEA (team diarrhea, case studies, Farm to Table course), participated in and co-delivered courses at UMN Public Health Institute (PHI), developed and implemented workshop/active learning short course- “Eco- Health/One Health Approaches to Prevention and Control of Zoonotic diseases”, and participated in a discussion group focusing on how to engage and support traditional cultures in preparedness and response to disease outbreaks.

The third and last set of faculty exchange with US Universities involved the Director for Academic Quality Assurance (QA) at URNC Assoc. Prof. Caleb Tamwesigire who visited and trained with the QA and institutional research office at Tufts University, under the supervision of associate Provost, Professor Dawn Terkla. With the ultimate goal of enabling OHCEA institutions in Rwanda to mainstream QA systems and operationalize QA tools and techniques in the workplace, this activity facilitated the visiting faculty to gain hands on experience in QA and institutional research systems and structures at Tufts University. Additionally, Tufts University linked Assoc. Prof. Tamwesigire to training institutions around Boston area to explore possibilities for joint institutional research and QA activities in Rwanda. The institutions visited include Boston College, Boston University, Harvard, and University of Massachusetts Boston.

Faculty Exchange within OHCEA Institutions

OHCEA encouraged and supported South-to-South faculty exchange. During the project period, six teaching staff participated in faculty exchanges within OHCEA institutions. As part of the exchange visits, faculty were involved in teaching short cases, giving keynote lecturers, and external examiners. The exchange visits benefitted 19 faculty of the host institutions and more than 1,400 students.

One Health Student Clubs

OHCEA realizes the value of student clubs as an effective approach in bridging the disciplinary silos. This realization gave confidence to OHCEA to support student clubs' activities in the different countries. One Health student clubs were formed in all the six OHCEA countries with launches conducted in Uganda and Rwanda. The student clubs members were involved in a number of One Health activities such as rabies awareness campaigns, tree planting, and environmental cleaning. The students have attended different meetings and conferences where they made presentations on One Health. For example, four students who are champions of One Health students clubs attended the One Health conference in Addis Ababa and shared their experience with their counterparts from different countries. The students were from Uganda, Tanzania, Rwanda and Ethiopia. As part of the conference activities, OHCEA organized a workshop on One Health students clubs attended by 40 participants where students shared their experiences highlighting the achievements made, challenges and future plans. Some of the achievements mentioned include launching of the club in Rwanda and Uganda, recruitment of members from various disciplines, development of website and facebook pages, registration with universities and outreach activities.

Strengthen the E-learning Infrastructure in OHCEA Institutions

To support OHCEA members share teaching materials and aid interaction between faculty and students, OHCEA strengthened the e-learning infrastructure in OHCEA institutions. With support from Tufts University, OHCEA installed and customized the Tufts University Sciences Knowledgebase (TUSK) system in five institution namely; University of Lubumbashi (UNILU), University of Kinshasa (UNIKIN), University of Rwanda – School of Public Health (URSPH), University of Rwanda – Nyagatare Campus (URNC), and Moi University School of Public Health. This is in addition to four institutions where the system was already installed by the beginning of the project. At the project start, the two OHCEA institutions in Tanzania were using Moodle e-learning platform and opted to continue with the same system. OHCEA had planned to strengthen the e-learning infrastructure in all the 14 institutions. However, installation of the e-learning system in the three institutions of OHCEA was not realized.

In order to promote sustainable use of the TUSK e-learning system, fourteen ICT managers from five OHCEA countries were trained on: installation of the operating system and Open TUSK; system customization; basic troubleshooting techniques; and basic system testing after system installation or upgrades. Tanzania was not represented at the training since it opted to implement a different e-learning platform. In addition to the ICT managers that were trained centrally, 167 staff of OHCEA institutions attended TUSK user support trainings held at country level.

Implement Country-Level Capacity Building Plans for One Health

One Health Core Competencies and Priority Courses

Using a highly participatory process involving different stakeholders, OHCEA identified the One Health Core Competencies for the region. These are:

- i. Management with sub-domains: planning, sustainability, M&E
- ii. Communication with sub-domain: informatics
- iii. Values and Ethics : these are cross cutting
- iv. Leadership with sub-domains: teamwork and emotional intelligence,
- v. Systems Thinking with sub-domain: OH knowledge
- vi. Culture, gender and beliefs
- vii. Policy and Advocacy with sub-domains: legislation and regulations
- viii. Collaboration and Partnership with sub-domains: community participation & engagement
- ix. Research

Additionally, using the same participatory process, OHCEA identified the regional priority One Health courses as:-

- i. Risk Analysis
- ii. One Health leadership development
- iii. Conflict, Disaster management and trans-boundary diseases
- iv. Ecosystem health
- v. Wildlife epidemiology and disease ecology

So far, 281 in-service professionals have been trained on One Health leadership. UMN faculty in collaboration with their Ugandan counterparts, are working to facilitate the creation of a cross-sectoral team to implement an Outbreak to Control field-based training program in Uganda. A multi-disciplinary working group has taken up the challenge and is moving forward with this program. The team has been able to develop an outline of a course that seeks to address key competencies required to handle outbreaks from onset to final control. They have identified modules, with objectives, delivery mode and intended target audience. The goal of this initiative is to improve trans-sectoral collaboration and strengthen prevention, investigation and response to emerging and zoonotic disease outbreaks.

One Health Demonstration Sites

Implementation of One Health demonstration sites was one of the strategies employed by OHCEA to promote students experiential learning. The sites facilitated testing and improving outbreak surveillance and response strategies, training students in real world problems and engaging government and community in addressing emerging challenges. A total of 127 students completed field attachment at the demonstration sites in Uganda (50 students), DRC (40 students) and Tanzania (37 students). The students were drawn from various disciplines including veterinary medicine, public health, nursing, wildlife management, environmental science, and nutrition.

During the field attachment, students implemented a number of activities such as community assessment to health



DRC Students during the field attachment

challenges within the communities; meat inspection to assess hygiene, food safety and waste disposal; farm visits with students treating animals and advising farmers and their families on human, animal and environmental health; health centre visits to assess medical records for community health challenges, clinical work by nursing students, clerking of patients, patient education and dispensing of drugs; market visits to collect information through observation and interviews; community education and awareness campaigns; visit to fishing villages to assess hygiene with focus on waste disposal, assess

possible avenues for transmission of diseases, and assess water use and management practices; and home visits to demonstrate hygiene and environmental care practices. Additionally, after conducting the community assessment, students identified a priority health problem (project) that they worked on as a team.

OHCEA had planned to implement demonstration sites in Kenya, Rwanda and Ethiopia during the period 2013 / 2014. However, owing to the budget cut of 56%, this activity could not be implemented.

Organize face-to-face Exchanges among CCCs

OHCEA acknowledges the trans-boundary nature of disease and appreciates the value of organizing face-to-face meetings for CCC members to discuss needs and develop plans for strengthening surveillance of and response to regional emerging pandemic threats and episodic zoonotic disease outbreaks. Besides the meetings at country level, OHCEA organized one regional CCC meeting bringing together CCC members from all the six OHCEA countries.

The meeting realized the following key outcomes:

- i. Clarified and agreed on roles and responsibilities of CCC members as: Educators/Mobilizers/Advocates, Technical Decision-Makers, Collaborators, Resource Developers-, Supporters, M&E Appraisers, and Innovators.
- ii. Reviewed the 2013/2014 draft country work plans and produced a revised draft of the regional work plan.
- iii. CCC members were trained on One Health leadership skills
- iv. Experiential learning through a technical field visit

A second regional CCC meeting which was scheduled to take place during the 2013 / 2014 period did not take place. Arising from the budget cut during this period, the CCC meeting was removed from the work plan.

Engage International Donors

One Health is receiving considerable attention and support from a wide range of international organizations and funders. OHCEA made deliberate efforts to engage international organizations and donors to support One Health activities. A few examples of the engagements include the following:-

- i. OHCEA in collaboration with FAO conducted a workshop on FAO's support to One Health Regional Approach. Held in Uganda in Mid January 2013, the workshop focused on progressing towards integrated and effective animal health-food safety surveillance capacity development in Eastern Africa and was attended by twenty-eight participants from ten countries.
- ii. A joint FAO-OHCEA workshop held on September 26, 2013 Addis Ababa, Ethiopia brought together more than 50 participants from 10 countries in East and Central Africa representing Ministries of Health, Agriculture and Environment as well as representatives from the United States Agency for International Development, academic institutions and international organizations.. The workshop held on the sidelines of the 1st OHCEA international One Health conference, focused on how FAO and OHCEA can partner to advance One Health in OHCEA countries.
- iii. OHCEA established partnerships with WHO Ethiopia and AMREF that resulted into sponsorship of 28 participants (20 – WHO and 8 – AMREF) to the 1st OHCEA OH conference.
- iv. Working with 2 partners i.e. Deutsche Stiftung Weltbevoelkerung (DSW) and Partners in Population and Development (PPD), OHCEA led the development of a concept note in response to a European Union (EU) call. This concept note is aimed at supporting three countries- Kenya, Tanzania and Uganda. The concept note "*Bridging research and policy*" was submitted to the European Union.
- v. OHCEA held a funders' conference in May 2014 that brought together development partners from different development organizations. The development partners that participated in the meeting included Rockefeller Foundation, Embassy of Swedish, IDRC, DFID, GIZ, DTRA, VSF Belgium, and USAID. The funders interacted with OHCEA Deans and secretariat staff, discussing possible areas of cooperation. The secretariat is making follow up with individual partners on areas of possible cooperation.
- vi. Six Deans from OHCEA institutions and the OHCEA Program Manager attended a workshop on Engaging Intergovernmental Organizations (EIO) that was held in France, Switzerland and Italy in March 2013. As part of the workshop participants visited and engaged the following organizations on how to promote One Health approach: WHO, World Trade Organization, OIE, and FAO.



Strengthen and Expand OHCEA Network to other Disciplines

OHCEA recognizes that One Health requires contributions from various disciplines in order to safeguard against the threat of disease. Currently OHCEA's membership draws principally on disciplines of Public Health and Veterinary Medicine. OHCEA had intended to expand its network to other disciplines across universities, governments and the private sector. However, the OHCEA Board of Directors observed that focus needed to be placed on strengthening the current network so that it is able to effectively expand membership. No new academic disciplines were therefore admitted to the network.

The University of Montagnes in Cameroon and the National Institute of Public Health in Burundi have applied to join OHCEA network. The Board reviewed the applications with the supporting information and recommended

that the University of Montagnes should provide a copy of the charter and a certificate of registration before a decision can be made. For Burundi, OHCEA received insufficient information and the Board recommended owing to the strategic importance of Burundi, a delegation visits Burundi and talks to Government and University officials with a view of supporting the University set up a School of Public Health.

SECTION II: PROJECT RESULTS

OHCEA achieved remarkable results from implementing project the activities. The key outcomes under the objective of “Expand the Human resource base needed to detect and respond to potential pandemic disease outbreaks” are:

- i. OHCEA has strengthened its network with a well established secretariat and country offices. Through regular meetings of its management and country teams, OHCEA has formalized and institutionalized its guiding principles, policies, rules and regulations. The structure of the network with country operations centred around universities with Deans, Focal Persons and the Country Coordinating Committee provided an increasingly effective mechanism for in-country coordination and activity development which are sustainable governance and management structures. As a result of its resource mobilization activities, OHCEA has received funding for two projects that will support some activities beyond the life of the RESPOND project. Moreover, part of the funding received will be used for research; expanding operations beyond the RESPOND project focus.
- ii. The perception of stakeholders towards OHCEA is very positive given the effect OHCEA has had on creating bridges across different disciplines which hitherto had worked independently.
- iii. The demonstration sites and students field attachments have promoted students’ implementation of One Health. This innovative approach has seen universities “moving from ivory towers to the communities”. Additionally, multi-disciplinary teams of university faculty and district officials have participated in training and supervision of the students during the field attachments. Using the One Health student clubs, students under the supervision and guidance of their lecturers and government staff have community activities using a One Health approach. Following the in-service training, a number of participating districts and central government ministries formed teams and identified One Health related issues that they have started working on using a One Health approach.
- iv. There has been improved relationship between faculty through meetings, planning and joint implementation of activities. At the Summit level, Deans from both Public Health and Veterinary disciplines have been meeting regularly and holding cordial discussions to promote One Health. Likewise, OHCEA Focal Persons have been holding regular meetings at country and regional level to jointly plan and implement activities. Some of the meetings at country level that bring together faculty from different disciplines are the CCC meetings and these are in many cases attended by Deans as well. Activities jointly implemented by multi-disciplinary faculty teams include: work planning and budgeting, curriculum reviews, co-teaching, review of conference abstracts, supervision of students during field attachments and community outreaches, development of research concepts and proposals.
- v. The two innovative programs of Masters of Veterinary and Preventive Medicine; and One Health Residency are being implemented at COVAB with students drawn from OHCEA countries. Training curricula at OHCEA institutions have been revised to include One Health modules. The process of getting approval of the curricula is on-going.
- vi. The e-learning infrastructure is operational in 11 out of the 14 OHCEA institutions. This infrastructure has facilitated sharing teaching materials and interaction between faculty and students.

- vii. The capacity of OHEA institutions to conduct epidemiological studies has improved as a result of the project activities. Through faculty exchange, OHCEA institutions have been exposed to high quality training on short courses, collaboration on writing publications, innovative programs and approaches, and co-mentorship of students. Additionally, as part of the OHCEA Research Innovations Project (ORIP) activities, OHCEA activated a regional, interdisciplinary research network dedicated to producing significant applied research that provides strong evidence for the strategic management of One Health programs and projects throughout Eastern and Central Africa. The network has identified One Health regional research priorities and developed six research concepts that are to be developed into full proposals.
- viii. Institutional sustainability of One Health approach is to be realized through integration of One Health approach in University curricula. The sustainability prospects for One Health in Rwanda are very high considering that the country has integrated One Health in the national policy framework.

Under the second objective of “Increase integration of animal, wildlife and human disease surveillance and outbreak response systems” OHCEA realized the following outcomes:

- i. OHCEA has established fully functional CCCs in all countries that have facilitated academic – government sector engagement. CCC members were instrumental in planning and implementing the in-service training whose deliverables included forming teams to address One Health issues at district and national levels.
- ii. There has been increasing support for One Health approaches by governments. For example, with OHCEA’s participation, Kenya developed and has started implementing a five year strategic plan for implementation of One Health activities in Kenya. In Rwanda, the government has been very supportive of the development of the One Health strategic plan. The process of getting the plan endorsed the cabinet ministerial endorsement is on-going. Uganda has developed a framework for strengthening One Health activities in the country.
- iii. The project enhanced the basic understanding of district level Veterinary and Public Health officers to actively carry out disease surveillance.
- iv. Individual OHCEA network members and member institution staff are highly motivated to participate in OHCEA activities. The motivation was facilitated by the realization by different professional disciplines that working outside silos gave rise to opportunities for cross learning and exposed members to commonalities and synergies. It is now evident to OHCEA members and partners that different professional disciplines can actually complement one another to address public health issues.
- v.

SECTION III: LIFE OF PROJECT INDICATOR TARGETS AND RESULTS

Table 2: Indicator Performance Table for the Life of the Project

Performance Indicators	Life of project target	Life of project actual	Actual as % of target	Explanatory notes and Comments
SO: Strengthened One Health Outbreak Response Capacity				
S1- Number of national government staff responsible for disease surveillance that were trained on one health	90	62	69%	Numbers trained were reduced due to budget cut
S2- Number of grant proposals for One Health activities that have been accepted for funding	4	2	50%	Funding has been received from USAID under a partnership with Tulane University, and from IDRC. Development of proposals started late due to delay in recruitment of Funds Development officer.
S3- Perception of stakeholders towards OHCEA's success in meeting One Health goals				The perception of stakeholders towards OHCEA is positive given the effect it has had on creating bridges across different disciplines which hitherto had worked independently
IR1: Increased HR base for detecting and responding to pandemics				
R1-1 Number of participants who completed in-service training in one health	910	231	25%	Following a cut in the budget, numbers trained were reduced.
R1-2 Number of students who are enrolled in the OH residency program	2	3	150%	OHCEA in conjunction with COVAB increased the number of students but working within the same budget
R1-3 Number of students who completed a pre-service training on One Health	1560	127	8%	Pre-service training was affected by the lengthy process of approval of the revised curricula that include One Health modules.
<i>Sub IR 1.1. One Health in-service and pre-service training curriculum developed and implemented</i>				
1.1.1 Number of countries that have developed One Health pre-service course/curricula	6	5	83%	All the countries except Ethiopia have developed One Health modules that they have incorporated into their

Performance	Life of	Life of	Actual	Explanatory notes and Comments
				curricula.
1.1.2 Number of countries that have developed in-service training programs and materials for One Health	6	6	100%	Generic materials were developed centrally and each country customized them to their local needs. In-service training was conducted in all the countries.
1.1.3 Number of participants who completed a TOT course in one health	78	18	23%	The number to be trained as TOT was revised downwards following a reduction in the targeted in-service trainees.
1.1.4 Number of institutions that are teaching against a one health curriculum consistent with the agreed upon core competencies	14	0	0%	None of the countries has started teaching using the revised curricula due to the lengthy process involved in having the curricula approved.
<i>Sub IR 1.2 Collaboration in One Health training and research promoted at international, regional and country level</i>				
1.2.1 Number of Inter-University workshops held at country level to establish and nurture university-based cross-disciplinary collaboration, co-teaching, curriculum review and partnership	6	6	100%	All countries conducted inter-university workshops
1.2.2 Number of faculty participating in university exchange program	45	30	67%	Most of the planned exchanges between OHCEA schools did not take place due to conflicting timetables between the institutions
1.2.3 Number of students participating in university student exchanges disaggregated by training institutions	70	6	9%	The OH Residents were the only students involved in the exchange and this was done to USA twice. Exchange between OHCEA African institutions did not take place due to clash in the calendars for the host and visiting institutions.
<i>Sub IR 1.3 Improved training models</i>				
1.3.1 Number of OHCEA partner training institutions using the TUSK e-learning system	10	9	90%	One of the institutions in Ethiopia was scheduled to install TUSK but this was not possible due to delays in the procurement process.

Performance	Life of	Life of	Actual	Explanatory notes and Comments
1.3.2 Number of participants who completed the TUSK training for IT managers	14	14	100%	The training had all the expected participants from 5 countries attending. No participants attended from Tanzania since the country is implementing a different E-learning platform.
1.3.3 Number of participants who completed the TUSK user training	200	167	84%	Training in Ethiopia did not take place since no TUSK equipment was installed.
IR 2: Increased integration of animal, wildlife and human disease surveillance and outbreak response systems				
R2-1 Number of academic disciplines comprising OHCEA network	3	2	67%	OHCEA did not expand to new disciplines due to the Board's decision to first focus on strengthening the current network so that it is able to effectively expand membership.
R-2-2 Number of students completing a Public Health, Veterinary and Nursing Students field placement	270	127	47%	Most of the students were scheduled to attend the field placement during 2013/2014 period. However, this activity was completely scrapped from the 2013/2014 work plan due to budget cut.
<i>Sub IR 2.1: OHCEA network built and strengthened</i>				
2.1.1 Number of OHCEA regional meetings held	16	16	100%	All the planned regional meetings were held
2.1.2 Number of participating countries where official One Health launch was held	6	5	83%	Launch in Rwanda will be held after approval of the One Health strategic plan
2.1.3 Number of grant funding and research funding proposals developed by OHCEA	10	6	60%	There was a delay in recruitment of the Funds Development Officer.
2.1.4 OHCEA network institutional and individual members' motivation to participate in One Health activities				Individual OHCEA network members and member institution staff as teams are highly motivated to participate in OHCEA activities.
2.1.5 Perception by stakeholders towards OHCEA network's sustainability				Stakeholders view OHCEA as having high sustainability prospects. This is premised on OHCEA's governance and management structures as well as its performance in mobilizing additional resources beyond those provided by the project.

Performance	Life of	Life of	Actual	Explanatory notes and Comments
<i>Sub IR 2.2 Government and private sector engaged in One Health activities</i>				
2.2.1 Number of Country Coordination Committee meetings held	102	44	43%	No meetings were held in Rwanda. Some countries held fewer than planned due to challenges in accessing funds as well as a need to prioritize some activities over CCC meetings. Additionally, meetings were reduced during 2013/2014 due to budget cuts.
2.2.2 Number of country level capacity building plans Developed	6	0	0%	This activity could be implemented due to budget re-alignment.
2.2.3 Number of country level capacity building plans implemented	6	0	0%	This activity could be implemented due to budget re-alignment.

SECTION IV: BEST PRACTICES AND LESSONS LEARNED

OHCEA has learnt a number of lessons during the implementation of the project. These lessons will inform OHCEA's decisions while implementing similar activities. The best practices and key lessons learnt are:

- i. Integration of One Health approach in Rwanda's Health Sector Strategic Plan and the country's Vision 2020 was a significant advocacy effect. The strategy adopted included involving high level ministry officials as champions to appreciate the One Health concept. This later resulted into adoption of One Health as a national policy issue.
- ii. The practice of allowing different disciplines to work together has seen staff from Veterinary disciplines work within Medical institutions. For instance, having a Veterinarian head the Anatomy Department at MUHAS is a true reflection of the One Health concept in practice. In addition, seconding a PhD student from MUHAS to SUA under supervision of a Professor of Veterinary Medicine was another plausible One Health practice. This facilitated the student who was carrying out research on the effects of agriculture pesticides on new borne in humans manage to collect placenta specimen from women in farming communities. The Veterinarians helped the student to access the farmers without whose support he study would have been challenging to undertake.
- iii. The process of developing and reviewing curricula and have them approved is very long. In a typical situation, the process involves collecting and synthesizing views from stakeholders, drafting the curriculum, approval by the school / faculty board, approval by the college academic board, approval by the Deans' committee, and approval by the university senate. While planning for training using revised curricula, adequate time need to be allowed bearing in mind the time needed for the curricula to be approved at the different levels.
- iv. Student centered One Health initiatives such as student clubs and Vet-Nursing-Public Health student attachments are an excellent avenue of breaking disciplinary silos among the students.
- v. Implementing faculty and student exchanges can be challenging due to conflicting timetables of the institutions.
- vi. Planning for venues and timing of regional activities should take into consideration major events such as elections and university examinations that may affect the activities. Consideration should also be taken in cases where the Deans Summit takes place immediately after ending the Board meeting.
- vii. On-site support to the country offices is necessary to improve financial management, planning and implementation of activities. There are several issues that cannot be adequately solved remotely using email or telephone communication.
- viii. Focal Persons who have involved other faculty in leading activity implementation attain a higher rate of timely implementation of planned activities.
- ix. Getting consensus from the different country teams on the dates for holding particular regional events is challenging and always leads to delays in implementing those events.
- x. In order for the OHCEA Board to operate more efficiently, there is need for the Board to include members with resource mobilization and legal skills.
- xi. OHCEA institutional memory is affected by the high turnover of Deans who constitute the Deans Summit. This calls for measures of redress in order to provide project policy oversight.
- xii. Technical support from US universities has facilitated OHCEA institutions to access state of the art skills in curriculum design, training, facilitation, research, and resource mobilization

- xiii. Although OHCEA is a regional network, country policies and approaches greatly affect implementation of activities.
- xiv. Individual countries have varied working modalities that will require tailor made interventions that suit the specific country needs.
- xv. The finance management modalities had negative bearing on timely activity implementation; more especially delays in funds disbursement.
- xvi. There is a high turnover of Deans who constitute the Deans Summit and this affects the institutional memory and sustainable governance. Each time a new Dean comes on board, there is need for orientation which sometimes does not take place given the time constraint.

SECTION V: RECOMMENDATIONS FOR FUTURE INTERVENTIONS

- i. Develop a One Health module that each institution can customize to their needs
- ii. To ensure sustainability of field-based activities such as students' field attachment, cost saving approaches need to be employed. Such approaches could include using tents for accommodation, use of portable toilets, and hiring university transport where available.
- iii. Teaching faculty in the OHCEA institutions do not have formal inter-disciplinary interactions at country level. To further break the silos between faculty of Veterinary Medicine and Public Health, and improve teamwork, OHCEA should support retreats at country level.
- iv. A lot of emphasis should be placed on using ICT to facilitate teaching. OHCEA should strengthen video conferencing capabilities at all the institutions. Institutions that have not yet implemented e-learning should be supported by OHCEA to expedite the process. OHCEA should work with the US partners to support training for both staff and students on using and maintaining the system.
- v. Innovations such as One Health demonstration sites that promote experiential learning should be scaled up to cover all OHCEA countries.
- vi. OHCEA network should continue collaborating with the US partners in areas of curriculum development, teaching, research, resource mobilization and documentation. Focus should be on the US partners passing on the skills to their African counterparts to ensure sustainability.
- vii. Considering the efforts put into sustaining OHCEA gains, it is apparent that the institutional mechanisms as well as the benefits will be sustained overtime. However, the financial sustainability mechanisms require more efforts aimed at generating resources locally. For instance, OHCEA should explore the possibility of in-service trainings being paid for by the respective ministries through allocating budget lines. In addition, students can also contribute towards the field placements as part of their tuition.
- viii. OHCEA should commission an in-depth organizational capacity assessment to facilitate a review of the project during the next funding phase. The initial assessment was done at the beginning of the project and considering the experience during the first phase of the project, it is important to conduct a more comprehensive capacity assessment to guide the development challenges inherent within a hybrid network organization operating in multicultural political and administrative settings.
- ix. OHCEA should consider having permanent representatives on its Board to facilitate long term institutional memory for purposes of good governance. For example, founding universities can have permanent representatives to maintain the initial One Health philosophy.

ANNEXES

1. Quarterly performance reports from July 2012 to March 2014
2. Baseline survey report Feb 2012
3. PMP version 2012/2013, 2013/2014 revision
4. OH Conference Presentations
5. OH Residents Presentations at AAMU conference
6. Presentation by Dr. Berihun Afera during 5th AFENET Scientific conference in Addis Ababa, Ethiopia.
7. Presentations Kirui and Makau during the 47th Kenya Veterinary Association conference
8. Graduate research proposals for the 12 MVPM students
9. Department of Wildlife & Aquatic Resources Management Curriculum review report
10. MOI university- Curriculum review report
11. Reports on One Health launches for Tanzania, DRC and Ethiopia
12. Training needs assessment report for OHCEA Kenya
13. Rwanda One Health Strategy pre-validation workshop Feb, 7 2014 report
14. Report on OH Core competency capacity building workshop – Ridar Hotel, Uganda
15. Communication Satisfaction survey final report
16. Needs assessment exercise -Curriculum review
17. Rwanda Curriculum Review report - June 2013
18. Report on the UON - SPH stakeholders' meeting as part of the curriculum review process
19. Kenya Inter-University workshop report: 21-25 Jan 13
20. Rwanda One Health students club rabies awareness campaign report March 2014
21. One Health in-service training reports for Uganda, Ethiopia, and Tanzania
22. Students OH field attachment reports: DRC, and Uganda
23. One Health Students' club launch in Rwanda and Kenya
24. Quality Assurance workshop reports , Kenya, Rwanda and Tanzania
25. Report on regional workshop to identify targeted practical and applied One Health (OH) related in-service training programs
26. TUSK regional training for IT Managers report
27. Report on workshop on resource mobilization held in Mombasa, Kenya from December 2 to 6, 2013
28. Report on a visit to Tufts University for QA training by Prof. Caleb Tamwesigire
29. UON BVM revised curriculum FINAL DRAFT 14-1-2014b
30. URSPH – Masters programs curriculum version Nov 2013
31. OH students club handbook final
32. One Health in-service leadership training materials (toolkit) (Dec 2013)– *drop box link*
33. Uganda One Health policy short course (March 2013) – *drop box link*
34. DRC One Health leadership and advocacy short course (Dec 2012) – *drop box link*
35. DRC Introduction to Risk Analysis (Feb 2012) – *drop box link*
36. The OHCEA conference abstract book content– *drop box link*
37. Materials for students attachment
38. One Health Problem Based Learning (PBL) handbook
39. Rwanda OH Students Club Rabies awareness campaign – Audio radio program recording
40. DRC Video footage for students' field attachment at Kisantu, DRC
41. DRC OH Launch – Function and TV news footage
42. Training Needs Assessment Tool
43. One Health Strategy for Rwanda
44. OHCEA Strategic plan

45. OHCEA technical proposal
46. OHCEA End of Project Evaluation Report
47. Audit Report and Fund Accountability Statement