



THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF LIVESTOCK AND FISHERIES

**CONTINUING
PROFESSIONAL DEVELOPMENT PLAN FOR
VETERINARY PROFESSIONALS
AND PARAPROFESSIONALS**

JULY 2018

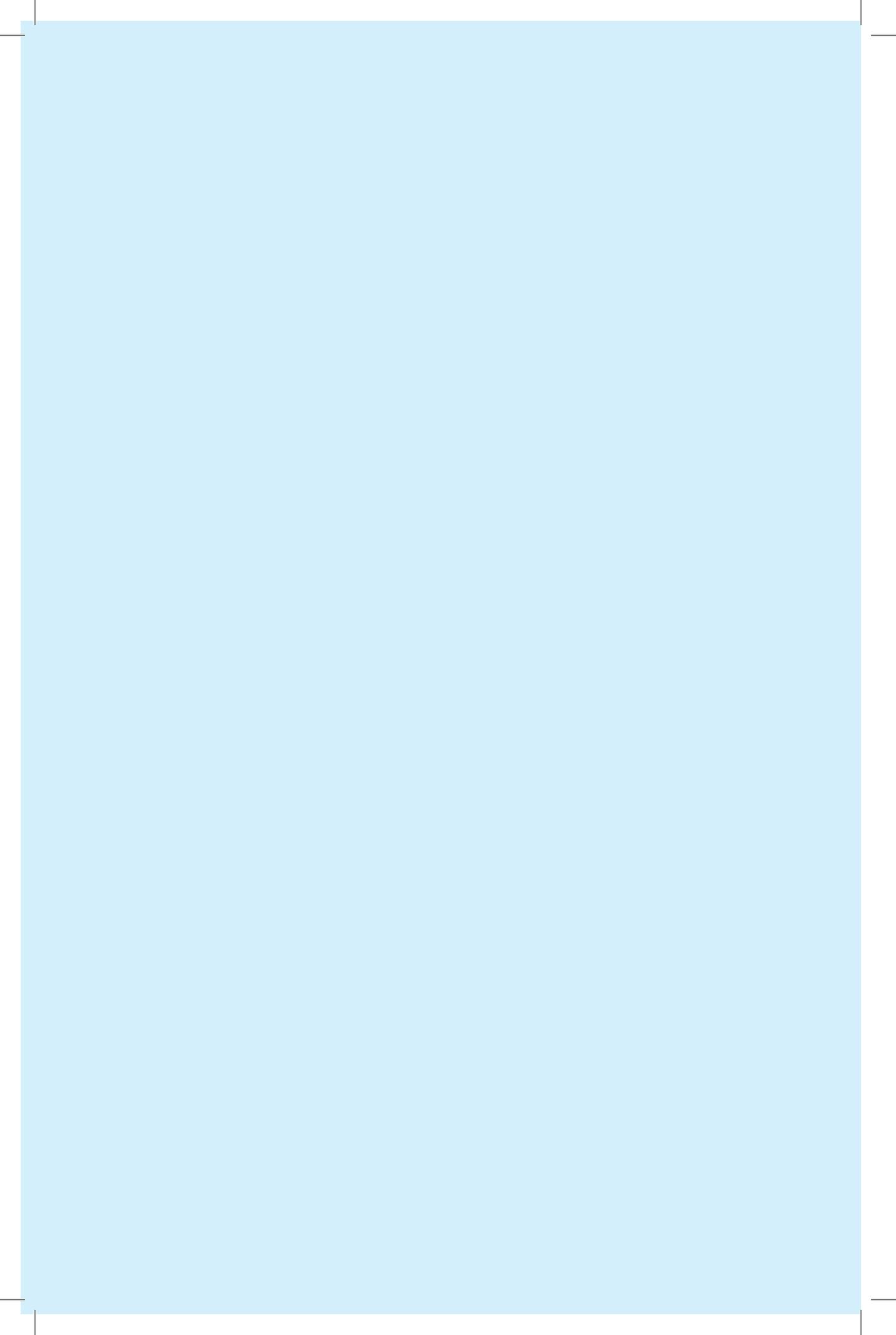


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List of Abbreviations

AE	Agricultural Extension
AHPC	Animal Health and Production Certificate
BVM	Bachelor of Veterinary Medicine
CAH	Certificate in Animal Health
DAH	Diploma in Animal Health
CPD	Continuous Professional Development
CVMBBS	College of Veterinary Medicine and Biomedical Sciences
DAHPC	Diploma in Animal Health and Production
DTAHP	Diploma in Tropical Animal Health and Production
ECTAD	Emergency Centre for Transboundary Animal Diseases
FAO	Food and Agriculture Organization of the United Nations
MLF	Ministry of Livestock and Fisheries
OIE	World Organization for Animal Health
SUA	Sokoine University of Agriculture
TNA	Training Needs Assessment
ToR	Terms of Reference
TAVEPA	Tanzania Veterinary Paraprofessional Association
TVA	Tanzania Veterinary Association
VM	Veterinary Medicine

Foreword

The fact that majority of infectious diseases of humans are shared with animals makes the veterinary profession unique and important in safeguarding public health. The profession is guided by the principle of beneficence with professionals aspiring to effective and quality service delivery, which in turn calls for enhanced competencies among them. In order to maintain and increase competence, animal health professionals need to consistently update and develop their knowledge, skills and ethical attitudes.

Continuing professional development (CPD) short courses have proved to be effective in updating professionals' knowledge and skills in a way enhancing their competencies for better performance. Built on adult education principles, CPDs are consistent with the philosophy of lifelong learning. The technique is acceptable in different professions including veterinary medicine.

As of 1st January 2015, veterinary professionals, paraprofessionals and paraprofessional assistants are required by law to complete a series of veterinary council of Tanzania accredited continuing education activities each year. The law requires that individual practitioners keep record of their attendance to CPD-accredited activities to be presented during retention of registration, enrolment and enlistment. The current initiative provides a platform for the different cadres to meet this law requirement.

The developed continuing professional development plan (CPD) for veterinary professionals and paraprofessionals specifically intends to enhance the professional competencies of the different animal health cadres in Tanzania in the delivery of animal health services, through updating their knowledge and skills. The aim is to promote and sustain quality animal health care that focuses on client needs and satisfaction. It is worth supporting this initiative as it forms a basis for quality animal health services. I therefore wish to take this opportunity to argue relevant departments in the Ministry to make sure that the plan gets into implementation. I also appeal to all animal health professionals to make use of the plan to update and develop their professional knowledge and skills so as to enhance their performance.



Dr. Mary S. H. Mashingo
Permanent Secretary

Acknowledgements

Preparation of this continuing professional development plan for veterinary professionals and paraprofessionals presents an important milestone in addressing gaps in the existing curricula adopted in their training. The plan began with identification of training gaps and culminated into development of tailor-made CPD modules for veterinary professional and paraprofessionals to address the identified gaps and eventually enhance their competencies. Completion of the plan wouldn't have been possible without the contribution made by different players.

The Ministry of Livestock and Fisheries acknowledges the contribution of animal health professional training institutions for allowing access of their curricula for review. These include institutions involved in training of all the levels of animal health professionals ranging from Certificate in Animal Health and Production, Diploma in Animal Health and Production to Bachelor of Veterinary Medicine (BVM). Managements and staff in these institutions were very positive and provided maximum cooperation during the exercise.

The technical contributions made to this initiative by the Prime Minister's Office (One Health Coordination Desk), Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC), Ministry of Natural Resources and Tourism, College of Veterinary Medicine and Biomedical Sciences of the Sokoine University of Agriculture and the National Institute for Medical Research are highly appreciated. Personnel from these organs were very instrumental in reviewing and analysis of existing programmes with reference to the OIE Recommendations on the Competency of graduating Veterinarians. The familiarity of the key stakeholders from these organs with the current animal health situation and challenges relevant to Tanzania were very useful in identifying gaps and proposing focus areas for CDP development.

Special thanks go to the Food and Agriculture Organization of the United Nations. Through the USAID project, the Organization provided financial support during the development of this plan. During the process, the Organization also provided technical support received from different experts present in their country office.

Lastly the Ministry is indebted to those who participated in validation of the initial work for this plan. These were people representing different disciplines relevant to the exercise. Their critics, observations, suggestions and recommendations were very useful in improving the plan. They were very helpful in identifying areas of strength and areas that required improvements in the document.



Dr. Martin Ruheta

Director of Veterinary Services

Executive Summary

This document presents a plan for implementing continuing professional development for veterinary professionals and paraprofessionals in Tanzania. It is an initiative of the Ministry of livestock and Fisheries that aims to enhance the competences of veterinary professionals and paraprofessionals in the delivery of animal health services in the country. The plan intends to address the gaps in the existing curricula adopted in training of different levels of animal health professionals so that their services meet the expectations of the community towards realising good quality animal health services. The plan is intended for use by Ministry of livestock and Fisheries, Veterinary Council of Tanzania, Directorate of Veterinary services, Animal health workers at all levels, NGOs, private sectors, policy makers, training and research institutions and donor agencies

The introduction section provides a background to CPDs and to the current plan; and thereafter the justification for development of the plan. Next to the introduction the document presents objectives of the plan, both the general and specific.

The methodology section is presented next to the objectives. The section begins with an item on identification of gaps in the existing curricula adopted in training of different levels of animal health professionals. This was achieved through review and analysis of existing curricula and consultation with key stakeholders familiar with the current animal health situation and challenges relevant to Tanzania. To identify gaps in the training programmes, respective curricula contents were compared against the OIE recommendations on the Competency of graduating Veterinarians. Involved curricula were those adopted for training in Certificate in Animal Health and Production, Diploma in Animal Health and Production and Bachelor of Veterinary Medicine (BVM). The identified gaps for the different animal health training programs were in the following areas;

- Bachelor of Veterinary Medicine: Animal welfare, Farm structures, Antimicrobial Resistance, *Taenia solium* Cysticercosis and One health approaches.
- Diploma in Animal Health and Production: Aquaculture and fish diseases, Veterinary Paraprofessional ethics, Farm Structures and Animal Welfare.
- Certificate in Animal Health and Production: animal welfare, farm structure Veterinary Paraprofessional ethics.

Following identification of the gaps, tailor-made CPD modules were developed and are proposed to be used in addressing them. The developed modules indicate the number of hours, modes of delivery, eligibility for registration, expected learning outcomes, module contents and readings for reference. General guidelines for attending CPDs and principles of points allocation are also stated.

1. Introduction

1.1 Background

Continuing Professional Development (CPD) refers to any form of education that takes place after the initial basic training. CPDs have become very important in professional life due to the fact that graduates with entry-level skills need to increase knowledge and skills over time so as to provide quality or additional services to clients. With time from graduation new information becomes available from different sources such as new research findings that need to be incorporated into existing or new skills and services. CPDs are also very useful for some professionals who need to venture into new career path opportunities which require them new information for specific tasks. Among others the motivations for taking CPDs include desire to know latest information, love of learning, need to develop a new skill and requirement by law / licensing

The aim of CPD plan is to update professionals' knowledge, skills and attitudes in order to improve their work performance. In the animal health sector a comprehensive Continuing Professional Development (CPD) plans aim at enhancing competences of animal health workers in the delivery of animal health services.

The current CPD plan is an initiative of the Ministry of Livestock and Fisheries with an intention to strengthen animal health workforce skills namely; competency for surveillance, outbreak investigation as well as One Health core competencies. It consists of strategies to address gaps that were identified during Training Needs Assessment (TNA) for curriculum and opinions gathered from practitioners and veterinary service users

1.2 Justification

The effectiveness of veterinary professionals and paraprofessionals in the delivery of services depends largely on their competencies, which are an attribute of the strengths in their training programs reflected in the curricula. Gaps in the program curricula translate into limited competences among the graduates thereby reducing their effectiveness at work. Continuing professional development (CPD) short courses are an acceptable strategy in updating professionals on new developments in their fields; in a way imparting them with necessary competencies in terms of knowledge and skills for better performance. The current plan was designed to identify gaps in the training of veterinary professionals and paraprofessionals in Tanzania and eventually propose CPD modules to address those gaps. The main objective of the plan is to enhance competence of veterinary professionals and paraprofessionals in the delivery of animal health services in the country.

2. Objectives

The main objective of this plan is to enhance competence of veterinary professionals and paraprofessionals in the delivery of animal health services in the country.

Specific objectives

- i. To identify gaps in the existing curricula adopted in training veterinary professional and paraprofessionals through intensive reviews and stakeholder consultation
- ii. To develop tailor-made CPD modules for veterinary professional and paraprofessionals to enhance their competencies in their identified training gaps

3. CPD Modules Development Plan

3.1 Identification of Gaps in Existing Curricula Adopted in Teaching Veterinarians and Veterinary Paraprofessionals

The identification of gaps in the existing curricula adopted in training of different levels of animal health professionals was achieved through the following;

- a. Initial collection, review and analysis of existing Bachelor of Veterinary Medicine (BVM) programme offered by the Sokoine University of Agriculture (SUA, 2014), The Diploma in Animal Health and Production (DAHP), (MALF, 2015) and Certificate in Animal Health and Production (AHPC) (MALF, 2015) programmes offered by Livestock Training Agency (LITA), as well as the Diploma in Tropical Animal Health and Production offered by the Sokoine University of Agriculture (SUA, 2014).
- b. Further analysis was undertaken by referring to the OIE Recommendations on the Competency of graduating Veterinarians ("Day 1 graduates") to assume high quality of National Veterinary Services, (OIE,2012) and the Veterinary Education Core Curriculum OIE Guidelines, (OIE 2013).
- c. Consultation with key stakeholders familiar with the current animal health situation and challenges relevant to Tanzania was also made and included the Tanzania Veterinary Association (TVA), Tanzania Veterinary Paraprofessional Association (TAVEPA). Other stakeholders consulted were from the Ministry of Livestock and Fisheries (Department of Veterinary Services), and College of Veterinary Medicine and Biomedical Sciences at Sokoine University of Agriculture (CVMBS-SUA).

Presented below are the gaps identified in each of the programmes

3.1.1 Gaps Identified in the Bachelor of Veterinary Medicine (BVM) Programme

Gaps identified during the assessment of the curriculum of the BVM programme that is offered by Sokoine University of Agriculture are as follows

i. Animal Welfare

Animal welfare is a crosscutting module and is assuming global importance in animal industry. Time allocated for Jurisprudence, Animal welfare and Veterinary Practice (**VM 500**) course is not enough to cover important animal welfare issues. As such only part of introduction to animal welfare is being covered leaving other areas of animal welfare such as behaviour and animal Welfare, role of the Veterinarian in Animal Welfare and Welfare Assessment and the five freedoms not adequately addressed.

ii. Establishment and operation of dips, quarantine facilities, loading rumps and holding grounds

The Farm structure Module (**AE 402**) does not include construction and operation of dips, quarantine facilities, loading rumps and holding grounds which are important Veterinary facilities in Veterinary Services delivery.

iii. Antimicrobial Resistance (AMR)

Antimicrobial Resistance (AMR) is an emerging public health concern globally. Antibiotics are commonly used to treat animals, just as they are in humans. Studies available now show a number of multidrug resistant bacteria. Stronger compliance to antibiotic treatment regimes, quality assurance measures to prevent use of substandard medications and restriction of non-therapeutic uses of antibiotics is not well addressed in the curriculum and therefore inadequately covered in Veterinary Public I (VM 464) and Veterinary Public Health II (VM 561) and even in Pharmacology and Toxicology I module (VM 321) and Pharmacology and Toxicology II module (VM 322).

iv. Taenia solium Cysticercosis

Cysticercosis is an infection of both humans and pigs with the larval stages of the parasitic cestode, **Taenia solium**. These larval cysts infects human brain, muscle, or other tissue, and are a major cause of human late onset seizures in most low-income countries. The disease is inadequately covered in the BVM curriculum in **Veterinary Public I (VM 464) and Veterinary Public Health II (VM 561)** particularly on how it can be controlled using treatment and control methods in place including vaccines.

v. One health approaches

The One Health concept recognizes that the health of people is connected to the health of animals and the environment. The concept adopts approaches that bring together the efforts of different disciplines including physicians, veterinarians, environmental scientists, ecologists, and many others to monitor and control public health threats and to learn about how health events spread among people, animals, and the environment. One Health is not a new concept, but it has become more important in recent years. This is because many factors have changed interactions between people, animals, and our environment. These changes have led to the emergence and reemergence of many diseases. The One health concept and its approaches are not adequately covered in the BVM curriculum. Among the areas that are not covered in the program include one health concepts and practices, leadership skills in one health, systems thinking in one health and gender and one health.

3.1.2 Identified Gaps in the Existing Diploma in Animal Health and Production (DAHP) Programme Curriculum

The following gaps have been identified in the DAHP programme that is offered in Tanzania by various Livestock Training Institutes:

i. Aquaculture and fish diseases

The medicine module (**AHT 06206**) is too general as far as it is concerned. It does not touch on specifics regarding diseases of different classes of production, companion and draught animals. Furthermore it does not cover aspects of **aquaculture and fish diseases**, which are becoming popular enterprises in rural and peri-urban setting. In addition only 14 Credits are allocated for this course, while the requirement as per day-one competencies is 27 Credit Hours.

ii. Veterinary Paraprofessional ethics

Management of zoo- sanitary inspectorate services at check points, slaughter slabs, stock markets and animal products collection centres at ward/village levels is crucial. However, the courses providing basics that prepare an expert to undertake zoo-sanitary activities are not in the curriculum. These necessary courses include but are not limited to Animal health, behaviour and welfare; **eggs and fish inspection as well as Veterinary Paraprofessional ethics**.

iii. Farm Structures

The Course on farm structure module (**GST 06218**) does not include construction and operation of dips, quarantine facilities, loading rumps and holding grounds which are important Veterinary facilities in Veterinary Services.

iv. Animal Welfare

Animal welfare is a crosscutting module and is assuming global importance in animal industry. The Animal Welfare (**APT05113**) module is inadequately covering animal welfare issues.

3.1.3 Identified Gaps in the Existing Diploma in Tropical Animal Health and Production (DTAHP) Curriculum

The following gaps have been identified in the DTAHP programme that is offered in Tanzania by various Livestock Training Institutes:

i. Farm Structures

The Course on farm structure module (**DAH 0105**) does not include construction and operation of dips, quarantine facilities, loading rumps and holding grounds which are important Veterinary facilities in Veterinary Services.

3.1.4 Identified Gaps in the Existing Certificate in Animal Health and Production (AHPC) Programme Curriculum

The following gaps have been identified in the AHPC programme that is offered in Tanzania by various Livestock Training Institutes:

i. Animal Welfare

Animal welfare is a crosscutting module and is assuming global importance in animal industry. The Animal Welfare (**APT05113**) module is inadequately covering animal welfare issues.

ii. Basic workshop technology and Farm structures

The module Basic workshop Technology and Farm structure (GST 04109) does not include construction and operation of dips, quarantine facilities, loading rumps and holding grounds which are important Veterinary facilities in Veterinary Services.

3.2 Tailor-Made CPD Modules that can Address Identified Gaps

The gap analysis activity provided key areas to focus on, while developing comprehensive curricula tailored to Animal Health, Public Health and Animal Welfare under Tanzanian situation. Opinion on the modules, duration and mode of delivery, target participants and their minimum qualifications, were collected and compiled. The proposed modules will be delivered through the use of different methods which will include:

- i. Formal lectures, oral presentations, assignments and self-reading. These will be the main ways of imparting knowledge and skills.
- ii. Practicals in the field, guided by staff shall be the main ways of imparting practical skills.
- iii. Participation in seminars will be compulsory and each student shall be required to actively participate.

End of module examinations will be used to assess the extent to which participants have acquired knowledge through attending the module. Seven tailor-made modules have been developed to strengthen animal health workforce skills including competencies in disease surveillance, outbreak investigation as well as **One Health core competencies**; as explained below.

3.2.1 Module name: ANIMAL WELFARE

Credit points: 30 CPD points or 10 CPD credit hours

Modes of delivery and time Distribution:

Lectures:	15 hours
Oral presentations:	10 hours
Assignments:	5 hours
Self reading:	15 hours
Seminars:	5 hours
Practical:	10 hours

Eligibility: Veterinarians and veterinary paraprofessionals.

Learning outcomes:

At the end of this module, participants will be able to:

- i. Describe the concept of animal welfare
- ii. Apply Five Freedoms of animal welfare assessment
- iii. Apply knowledge on animal behaviour to improve animal welfare
- iv. Demonstrate the role of veterinarians and paraprofessionals in animal welfare and ethical decisions

Module content:

Introduction to Animal welfare: Definitions, type of animals concerned, complexity of animal welfare, importance of animal welfare, role of science, ethics and law in animal welfare;

Welfare Assessment and the five freedoms: Theory behind the Five Freedoms of animals, development of modern assessment tools in animal welfare, how to assess animal's experience in terms of welfare and actual welfare performance; Behavior and Animal Welfare: Basics of animal behavior and examples of important behaviors, motivations and its influences; The Role of the Veterinarian in Animal Welfare; Roles of individual veterinarian and paraprofessional, pain management, making ethical decisions, communication with clients, roles of professional bodies

Required Readings

1. WSPA(2012),Introduction to Animal Welfare
2. WSPA(2012),Introduction to Welfare Assessment
3. WSPA(2012),The Role of the Veterinarian in Animal Welfare

Recommended Readings

1. WSPA(2012),Introduction to Animal Welfare
2. WSPA(2012),Introduction to Welfare Assessment
3. WSPA(2012),The Role of the Veterinarian in Animal Welfare

3.2.2 Module name: ANTIMICROBIAL RESISTANCE

Credit points: 30 CPD points or 10 CPD credit hours

Modes of delivery and time Distribution:

Lectures:	15 hours
Oral presentations:	10 hours
Assignments:	5 hours
Self reading:	15 hours
Seminars:	5 hours
Practical:	10 hours

Eligibility: Veterinarians and veterinary paraprofessionals

Learning outcomes:

At the end of this module, participants will be able to:

- i. Explain discovery and use of antibiotics
- ii. Understand the global impact of AMR
- iii. Understand and advocate prudent use of antimicrobials
- iv. Describe resistant mechanisms
- v. Determine antimicrobial resistance using Common laboratory methods
- vi. Demonstrate the role of veterinarians in combating AMR

Module content:

Public health Impact of imprudent antimicrobial usage in animals; Antibiotic discovery and development; antibiotic activity, effects and modes of actions; therapeutic and non-therapeutic antibiotics usage and applications in animals; Prudent use of antibiotics in animals; Bacterial strategies involved in resisting antimicrobial actions; Molecular basis for bacterial resistance to antimicrobial actions; Common laboratory methods for detecting and measuring antimicrobial resistance; The global impact of AMR and the means by which its

emergence and transmission can be mitigated and the global health impact of animal-related AMR; The environmental impact of antibiotics used in agriculture; Regulating and monitoring the use of antimicrobial agents on the ground; The role of veterinarians in combating AMR; The role of Policy makers in fighting against AMR.

Required Readings

1. Alekshun M.N and Levy S. (2007). Molecular Mechanism of Antibacterial Multidrug Resistance. *Cell* 128:1037-1050
2. Chopra and Roberts M. (2001), Tetracycline Antibiotics: Mode of Action Applications, Molecular Biology and Epidemiology of Bacteria Resistance. *Microbiology and Molecular Biology Reviews* 65(2). 232-260
3. Higgins C.F(2007) , Multiple Molecular Mechanism for Multidrug Resistance Transports. *Natural* 446749-757.
4. OIE, (2015) Fighting Antibiotic Resistance. HYPERLINK "<http://www.oie.int/antimicrobial-resistance>.www.oie.int/antimicrobial-resistance.www.oie.int
5. Prescott J.F (2017), History and current use of antimicrobial drugs in veterinary medicine. *Microbial spectrum*5 (6) ARBA-0002-2017.
6. WHO(2015), Global Action Plan on Antimicrobial Resistance.

3.2.3 Module name: *Taenia solium* cysticercosis prevention and control

Credit points: 30 CPD points or 10 CPD credit hours

Modes of delivery and time Distribution:

Lectures:	15 hours
Oral presentations:	10 hours
Assignments:	5 hours
Self reading:	15 hours
Seminars:	10 hours
Practical:	5 hours

Eligibility: Veterinarians and veterinary paraprofessionals.

Learning outcomes:

At the end of this module, participants will be able to:

- i. Describe the life cycle of *T. solium*
- ii. Emphasize on economic and public health implications of the parasite
- iii. Understand the epidemiology of *T. solium* cysticercosis including its global burden
- iv. Discuss prevention and control measure of the disease
- v. Adopt one health approach in the prevention and control of the disease

Module content:

The disease, species it affects modes of infection, its pathogenesis in humans and animals, transmission between humans and animals where it occurs; Life cycle of the parasite; Public health risk and its agricultural problem in poor countries of Africa including Tanzania; Economic losses it causes and its rank by FAO and WHO in the list of top 10 leading food borne parasites; Disease prevention, management and control strategies including the use

of the vaccine and recognize the interdependent relationship between animal and human health through the “**One Health**” approach

Required Readings

1. Komba EV, Kimbi EC, Ngowi HA, Kimera SI, Mlangwa JE, Lekule FP, Sikasunge CS, Willingham AL, III, Johansen MV, Thamsborg SM.(2013), Prevalence of porcine cysticercosis and associated risk factors in smallholder pig production systems in Mbeya region, southern highlands of Tanzania. *Vet Parasitol.* 2013; 198(3):284–91. [HYPERLINK “<https://www.ncbi.nlm.nih.gov/pubmed/24139481>” \t “pmc_ext” PubMed]
2. Mellau BL, Nonga HE, Karimuribo ED. (2011), Slaughter stock abattoir survey of carcasses and organ/offal condemnations in Arusha region, northern Tanzania. *Trop Anim Health Pro.* 2011; 43(4):857–64. [HYPERLINK “<https://www.ncbi.nlm.nih.gov/pubmed/21188519>” \t “pmc_ext” PubMed]
3. Mkupasi EM, Ngowi HA, Nonga HE (2011). Prevalence of extra-intestinal porcine helminth infections and assessment of sanitary conditions of pig slaughter slabs in Dar es Salaam city, Tanzania. *Trop Anim Health Pro.* 2011; 43(2):417–23. [HYPERLINK “<https://www.ncbi.nlm.nih.gov/pubmed/20938736>” \t “pmc_ext” PubMed].

Recommended Readings

1. Eshitera EE, Githigia SM, Kitale P, Thomas LF, Fevre EM, Harrison LJS, Mwihi EW, Otieno RO, Ojiambo F, Maingi N. Prevalence of porcine cysticercosis and associated risk factors in Homa Bay District, Kenya. *BMC Vet Res.* 2012; 8:234. [HYPERLINK “<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3528429/>” PMC free article] [HYPERLINK “<https://www.ncbi.nlm.nih.gov/pubmed/23217158>” \t “pmc_ext” PubMed].

3.2.4 Module name: AQUACULTURE, FISH DISEASES AND FISH AND EGGS INSPECTION

Credit points: 20 CPD points or 7 CPD credit hours

Modes of delivery and time Distribution:

Lectures:	45 hours
Oral presentations:	05 hours
Assignments:	05 hours
Self reading:	10 hours
Seminars:	10 hours
Practical:	50 hours

Pre-requisite: AHPC, DAHP/DTAHP and BVM

Learning outcomes

At the end of this module, participants will be able to:

1. Concepts of fish breeding; fish identification methods; fish feeding;
2. Apply point of service and laboratory techniques in diagnosis of Fish diseases
3. Prescribe and institute correct treatment for common fish diseases
4. Apply different methods recommended for control of common fish diseases;
5. Hormonal methods in sex reversion; fish production systems and technologies;

6. Conduct inspection of fish and table eggs to provide correct judgement on fitness for human consumption

Module content:

Concepts of fish breeding; fish identification methods; fish feeding; Fish diseases diagnosis, treatment and control of important fish diseases; Hormonal methods in sex reversion; fish production systems and technologies; Fish hygiene and inspection; Procedures for fish inspection; Procedures for fish egg inspection

Required Readings

1. Nicholaus James (2014), Fish breeding do's and don'ts. Farmers Weekly. [Http://www.farmersweekly.co.za/animals/aquaculture/fish-breeding-d0-donts](http://www.farmersweekly.co.za/animals/aquaculture/fish-breeding-d0-donts).
2. Ruth Francis-Floyd () Breeding and Reproduction of Fish. MSD Veterinary Manual. <http://www.msdsvetmanual.com/all-other-pets/fish/breeding-and-reproduction-of-fish>
3. Brown, L (1993). Aquaculture for Veterinarians: Fish Husbandry and Medicine.

3.2.5 Module name: PARAPROFESSIONAL ETHICS

Credit points: 10 CPD points or 3 CPD credit hours

Modes of delivery and time distribution:

Lectures:	06 hours
Oral presentations:	06 hours
Assignments:	02 hours
Self reading:	03 hours
Seminars:	03 hours
Practical:	00 hours

Pre-requisite: AHPC and DAHP/DTAHP

Learning outcomes

At the end of this module, participants will be able to:

1. Practice the Code of Conduct for Veterinary Paraprofessionals and Paraprofessional Assistants, 2005;
2. Keep Veterinary medical records and disease control;
3. Exercise the role of Veterinary Paraprofessionals and Paraprofessional assistants in Extension Services, supervisory obligation and Continuing Professional Education; and
4. Demonstrate the role of Veterinary Paraprofessionals and Paraprofessional Assistants in contract agreements

Module content:

Code of Conduct for Veterinary Paraprofessionals and Paraprofessional Assistants, 2005; The keeping of Veterinary medical records and disease control; The role of Veterinary Paraprofessionals and Paraprofessional assistants in Extension Services, supervisory obligation and Continuing Professional Education; The role of Veterinary Paraprofessionals and Paraprofessional Assistants in contract agreements

Required Readings

1. URT, (2003), Veterinary Act. Government Printer, Dar-Es-Salaam.
2. URT, (2005) The Veterinary Act (Code of conduct for veterinary paraprofessionals and paraprofessional assistants) Regulation, 2005. GOVERNMENT NOTICE NO 386 published by the Government Printer.

Recommended Readings

1. OIE,(2018), OIE Competency Guidelines for Veterinary Paraprofessionals. www.oie.int. Publisher.

3.2.6 Module name: DIPS, QUARANTINE FACILITIES, LOADING RUMPS AND HOLDING GROUNDS CONSTRUCTION AND OPERATION

Credit points: 20 CPD points or 7 CPD credit hours

Modes of delivery and time distribution:

Lectures:	12 hours
Oral presentations:	05 hours
Assignments:	05 hours
Self reading:	10 hours
Seminars:	02 hours
Practical:	8 hours

Pre-requisite: AHPC, DAHP/DTAHP, BVM

Learning outcomes

At the end of this module, participants will be able to:

1. Select and recommend areas suitable for construction of quarantine facilities, holding ground, loading lumps, and dips;
2. Prepare layouts for quarantine facilities, holding ground, loading lumps, and Dips including; and
3. Operate quarantine facilities, holding ground, loading lumps, and Dips

Module content:

Areas suitable for construction of quarantine facilities, holding ground, loading lumps, and dips; Requirements and layouts for quarantine facilities, holding ground, loading lumps, and Dips including; Requirements for operation of quarantine facilities, holding ground, loading lumps, and Dips

Required Readings

1. MLF (2007), Standards for Veterinary Quarantine Facilities
2. Nick Linden Maffra(1994) Cattle Loading Ramps. AG0127 ISSN 1329-8062
3. Wizara ya Mifugo na Uvuvi (2006), Mwongozo Kuhusu Ujenzi wa Malambo/Mabwawa Imara. Ukurasa 68-77

3.2.7 Module name: ONE HEALTH APPROACHES**Credit points:** 30 CPD points or 10 CPD credit hours**Modes of delivery and time distribution:**

Lectures:	20 hours
Oral presentations:	05 hours
Assignments:	10 hours
Self reading:	10 hours
Seminars:	05 hours
Practical:	10 hours

Pre-requisite: AHPC, DAHP/DTAHP and BVM**Learning outcomes**

At the end of this module, participants will be able to:

1. Describe the evolvement of One Health
2. Apply one health approach, in addressing complex health and environmental problems
3. Explain Interdependence of the health of people, animals, and the environment
4. Understand the effects of different disease drivers: Human population growth, climate change, and land use (such as deforestation and intensive farming practices) and increased International travel and trade
5. Explain the importance of promoting One Health approach

Module content:

Definition of One Health and how it evolved from efforts concentrating on preventing the spread of diseases from domestic animals and wild animals to people; The one health approach, its inter-connectedness and why it advocates for a comprehensive approach to health and environmental problems versus a piecemeal approach; Interdependence of the health of people, animals, and the environment; relationship between change in the environment and the effect on living things; Cause and effects; Human population growth, climate change, and land use (such as deforestation and intensive farming practices) and increased International travel and trade; Importance of promoting One Health approach

Required Readings

1. Hewrick Lerner and Charlotte Berg (2015). The Concept of health in One Health and some practical implications for research and education: What is One Health?. Journal of Infection Ecology and Epidemiology, Volume 5, 2015.
2. OIE (2013), The 'One Health' Concept: The OIE approach. Bulletin N. 2013-1 pg1-5. WHO (2017), One Health. www.who.int/features/qa/one-health/en/

Recommended Readings

1. CABI (2015), One Health: The Theory and Practice of Integrated Health Approaches. www.cabi.org.
2. Peter M. Rabinowitz et .al. (2013) toward Proof of Concept of a One Health Approach to Diseases Prevention and Control. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3840882>

4. Career Development Pathways and Linkages for CPD

Below are details pertaining to career development pathways and linkages for Continuous Professional Development (CPD) credit points' awards and staff performance monitoring and promotion.

4.1 Principles of Points Allocation

The allocation of CPD points for Veterinarians. Point's allocation is based on the following principles which shall be applicable to all categories of CPD programs and/or activities:

- i. Every Veterinarian must accumulate a minimum of thirty (30) CPD points which is equivalent to ten (10) CPD credit hours over a period of one (1) year in order to retain their names in the register of Veterinarians.***
- ii. Not more than eighty percent (80%) of the points in any CPD year can be accumulated from programmes and/or activities from one category of activities.
- iii. All CPD programmes and/or activities are accredited for a maximum of one (1) CPD year only. The maximum number CPD credit hours that can be accredited for one (1) day is one (1) credit hour equivalent to three (3) CPD points equivalent to six (6) hours.

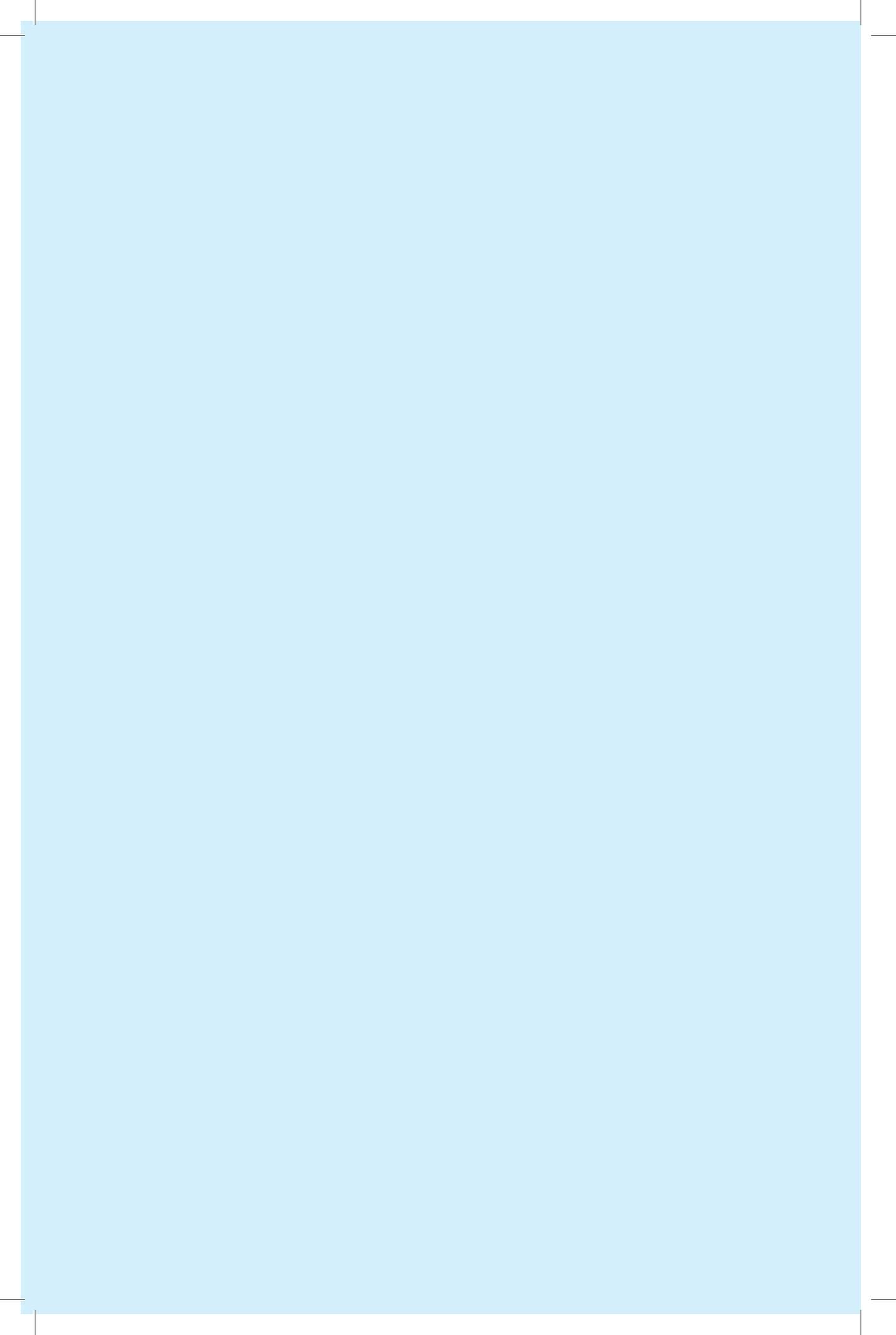
4.1.1 The Allocation Of Cpd Points For Paraprofessionals

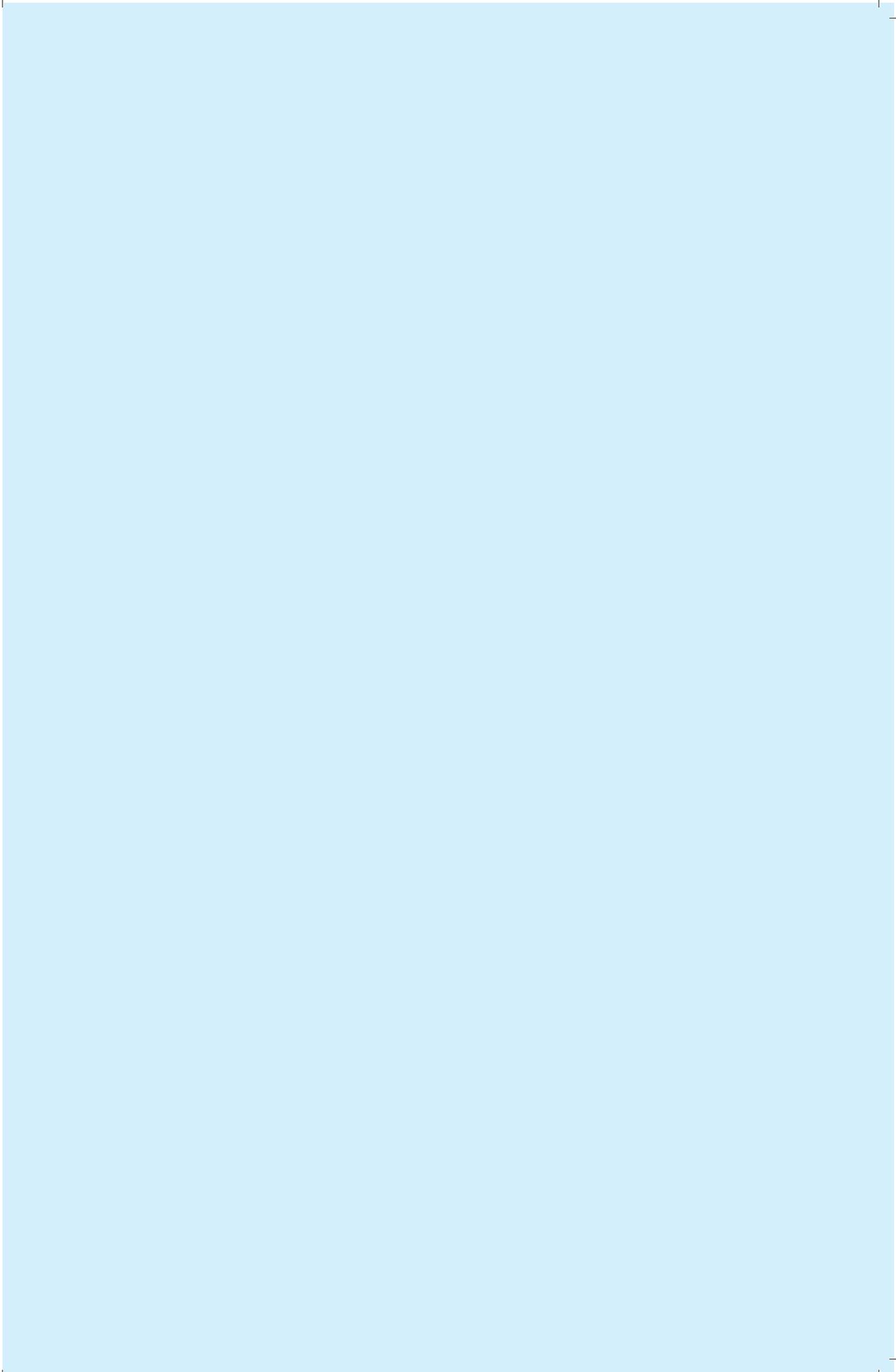
Point's allocations will be based on the following principles which shall be applicable to all categories of CPD programmes and/or activities:

- i. Every paraprofessional or paraprofessional assistant must accumulate a minimum of fifteen (15) CPD points which is equivalent to ten (5) CPD credit hours over a period of one (1) year in order to retain their names in the Roll or List of paraprofessionals or paraprofessional assistant
- ii. Not more than eighty percent (80%) of the points in any CPD year can be accumulated from programs and/or activities from one category of activities. All CPD programs and/or activities are accredited for a maximum of one (1) CPD year only.
- iii. The maximum number of CPD credit hours that can be accredited for one (1) day is (1) credit hour equivalent to three (3) CPD points equivalent to six (6) hours.
- iv. All Paraprofessionals and paraprofessional assistants shall retain documented proof of participation in CPD activities and a record including the nature, scope and duration of CPD activities. A summary of all CPD activities attended is to be submitted on an annual basis to the VCT.

References

1. MALF, (2015). The Diploma in Animal Health and Production (DAHP),
2. MALF, (2015). Certificate in Animal Health and Production (AHPC)
3. OIE, (2012) OIE recommendations on the Competence of graduating Veterinarians (“Day 1 graduates”) to assume high quality of National Veterinary Services
4. OIE, (2013) Veterinary Education Core Curriculum OIE Guidelines. www.oie.int/Veterinary_Core_Curriculum.pdf. Accessed on 22nd June 2018
5. OIE, (2015) Fact sheets on Antimicrobial resistance, www.oie.int/antimicrobial-resistanceWSPA, (2013). Concepts in Animal Welfare, 3rd Edition
6. SUA, (2014), Bachelor of Veterinary Medicine (BVM) programme, Sokoine University of Agriculture
7. SUA, (2014) Diploma in Tropical Animal Health and Production, Sokoine University of Agriculture





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