Food and Agriculture Organization of the United Nations

Veterinary paraprofessional training and business environment needs assessment

Lessons learned

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Abbreviations

AHT	animal health technician
AMR	antimicrobial resistance
CAHW	community animal health worker
CE	continuous education
CPD	continuing professional development
CVO	chief veterinary officer
FAO	Food and Agriculture Organization of the United Nations
FGD	focus group discussion
ICT	information communication technology
KII	key informant interview
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
PRA	participatory rural appraisal
SA	South Africa
SAVC	South African Veterinary Council
SHF	smallholder farmer
SWOT	strengths, weaknesses, opportunities and threats
UVB	Uganda Veterinary Board
VCN	Veterinary Council of Nigeria
VPP	veterinary paraprofessionals
VSB	veterinary statutory body
WOAH	World Organisation for Animal Health

1. Introduction

Animal health services are critical for reducing the risk and impacts of livestock diseases and increasing productivity. However, the number of veterinarians across sub-Saharan Africa and Asia remains low, which has led to a gap in service provision (Lessons learned 1).
In addition, in many countries structural adjustment programmes have focused the role of public sector veterinary services on surveillance and control of priority diseases, thus reducing government provision of broader livestock health services.
Private sector veterinary paraprofessionals (VPPs) can play a vital role in filling this gap, in particular reaching rural smallholder and pastoralist livestock farmers, including women.

Who are veterinary paraprofessionals?

According to the WOAH Terrestrial Animal Health code, a VPP is "*a person who... is authorised by the veterinary statutory body to carry out certain designated tasks (dependent upon the category of veterinary paraprofessional) in a territory, and delegated to them under the responsibility and direction of a veterinarian. The tasks for each category of veterinary paraprofessional should be defined by the veterinary statutory body depending on qualifications and training, and in accordance with need.*" VPPs typically have two to three years of formal technician level training on animal health and production which provides them with a wide basic skillset. VPPs are differentiated from community animal health workers (CAHWs) who are individuals selected from a farming community and given short training of several weeks duration in order to provide basic animal health functions within their community.

Nigerian VPP from Kaduna state

Through an innovative continuous professional development (CPD) training programme, "**Growing your business through preventive livestock health care**", the Food and Agriculture Organization of the United Nations (FAO) has aimed to address private sector VPPs' skills gaps and support them to develop successful businesses providing preventive livestock health care services to small-scale farmers and pastoralists. These training courses were piloted in Nigeria, South Africa and Uganda in 2023.

Prior to developing the course, a detailed needs assessment was undertaken in all three countries in order to identify farmers' demand for services, VPPs' skills gaps and priorities, and most appropriate training modalities. This 'Lessons Learned' document details the methodology of the needs assessment and the key findings.

Photo 1. Veterinary paraprofessional trainee cohort from Oyo state, Nigeria

2. Methodology

The needs assessment aimed to answer the following questions:

- What **capacities and competencies** need to be built through CPD type training for VPPs?
- How can VPPs be supported to develop **sustainable businesses**?
- How will VPPs **learn best**?
- What **training, experience and partnerships** already exist?

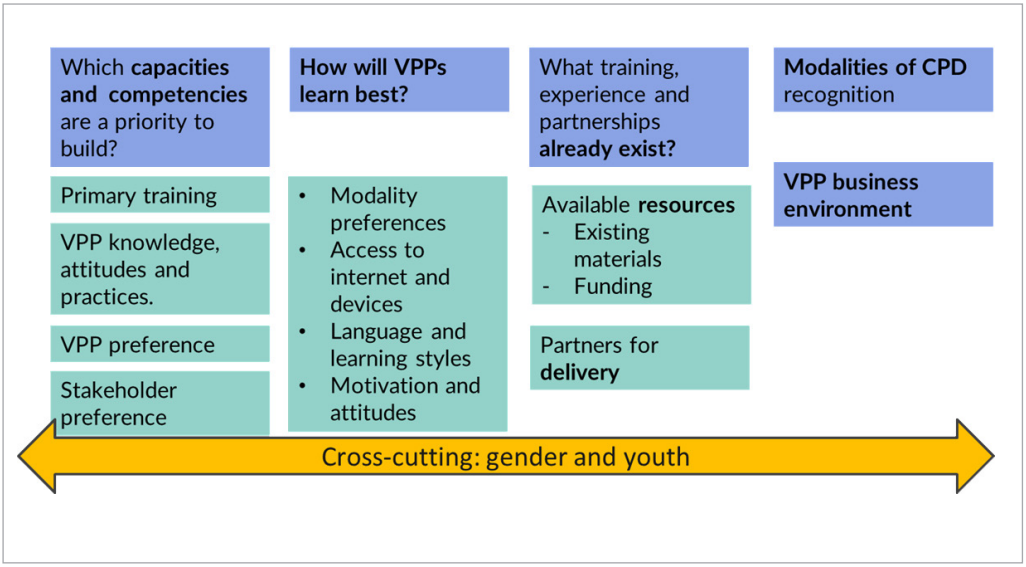
A mixed methods approach was designed to triangulate information from multiple sources including primary training institutes, CPD providers, VPPs, smallholder farmers, relevant statutory bodies and international bodies. The methodology involved the following components:

2.1 Desk-based review

A broad literature review was conducted on veterinary paraprofessionals, their roles and access to continuous professional development, as well as existing experiences with regards to use of virtual learning for reaching paraprofessionals. The following lessons learned documents were prepared (and will not be further detailed here):

1. The role of Veterinary Paraprofessionals in the control of foot-and-mouth disease and similar transboundary animal diseases
2. Virtual learning strategies for veterinary paraprofessionals
3. Gender animal health and information communication technology

Figure 1. Needs assessment points of focus



Source: Authors' elaboration, 2024.

Furthermore, for each target country (Nigeria, South Africa and Uganda) the current curricula used by VPP training institutes was analysed. This included evaluating the different topics as well as the balance of practical vs theoretical teaching. The results from this analysis are included in the findings section of this document.

2.2 Country level key informant interviews and stakeholder engagement

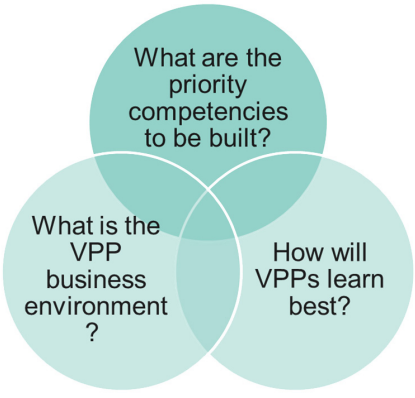
During the country selection process, extensive research was undertaken into stakeholder engagement through key informant interviews. Notably, this included exchange with the Veterinary Statutory Body (VSB) and the Chief Veterinary Officer (CVO) on avenues for collaboration on topics such as recognising competency-based training of VPPs, including CPD points for the training, and committing to participation in a Multistakeholder Platform.

2.3 Participatory rural appraisal

To undertake the participatory rural appraisal (PRA), a national consultant and associated research team were hired in each project country. Research teams included both men and women and involved gender-separate and mixed focus group discussions (FGDs) with farmers and VPPs in pastoral, agro-pastoral and peri-urban settings. This was to ensure that respondents felt comfortable expressing their views and that opinions were accurately disaggregated by gender. In addition, key informant interviews were conducted with veterinarians, drug shop owners and commercial farmers. The FGDs and key informant interviews were held in two pilot areas per country. These were Kaduna and Oyo states in Nigeria; central and greater north-eastern regions of Uganda; and North-West and Eastern Cape provinces in South Africa. Findings were presented back to informants for validation during feedback sessions to ensure their accounts had been accurately captured.

The PRA was based on the following three research questions.

Figure 2. Participatory rural appraisal research questions



Source: Authors' elaboration, 2024.

2.4 Quantitative telephone survey of 150 veterinary paraprofessionals per country

For the telephone survey 150 VPPs were interviewed in each country, and 450 VPPs were interviewed in total. Telephone surveys were selected as the modality of choice in order to reduce costs but increase outreach compared to an online survey. Online surveys were also felt to bias results towards VPPs who have internet access and are familiar with technology. Given the prominence of digital gender gaps identified during the literature review, there was concern that an online survey would risk excluding the participation and active engagement of women. The results from the survey were collected so they could be easily gender disaggregated.

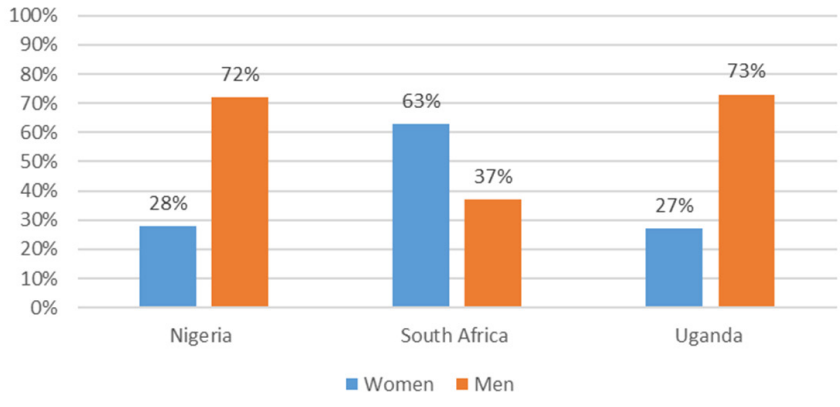
Assessing access to digital technology by gender

A prerequisite for digital inclusion is to identify the different needs, concerns, and constraints of both women and men from different locations, age groups, educational backgrounds, and income levels. Such inclusive outcomes can be facilitated by carrying out a gender analysis to examine the differences that may affect stakeholders' ability to benefit from Information and Communication Technology (ICT) to ensure appropriate project design and implementation. In the context of ICT access, gender analysis, including the collection of gender-disaggregated data, may be helpful on the following issues:

- Participation in the information society at local levels;
- Ownership, use, and control of digital devices;
- Attitudes toward the use of technology;
- Education levels, and language skills; and
- Local norms and customs, including distribution of productive and reproductive labour.

Evaluations have shown that many of the recurring shortcomings of ICT projects could have been mitigated or eliminated through a gender-responsive, communication-oriented approach to implementation (Isenberg, 2019, p. 41). Case studies that incorporate these methods confirm their effectiveness in meeting user needs, especially for women.

Figure 3. Percentage of veterinary paraprofessional participation rates in telephone survey, disaggregated by gender



Source: Authors' elaboration, 2024.

Female survey participation appears low in Nigeria and Uganda (27 percent and 26 percent respectively) as seen in Figure 3. In South Africa there is a more even split with female respondents making up 55 percent of the sample. Female survey participation rates broadly reflect the estimated female VPP workforce, which is 21 percent in Uganda, 48.8 percent in South Africa, and 30 percent in Nigeria (FAO, 2003). This data suggests significant gender gaps in frontline service provision and are consistent with FAO reports stating that only 15 percent of agricultural extension agents are women worldwide (UNDP, 2013).

The contacts for the telephone survey were derived from the national VPP associations which as of yet do not have a wide enough membership base in Nigeria and Uganda for full representation. When cross checking the qualitative and quantitative results, it was clear there was some potential selection bias in the telephone survey towards more urban and male VPPs, underscoring the usefulness of a mixed methods approach for more diverse and representative sampling.

3. Results

3.1 Baseline and legal framework

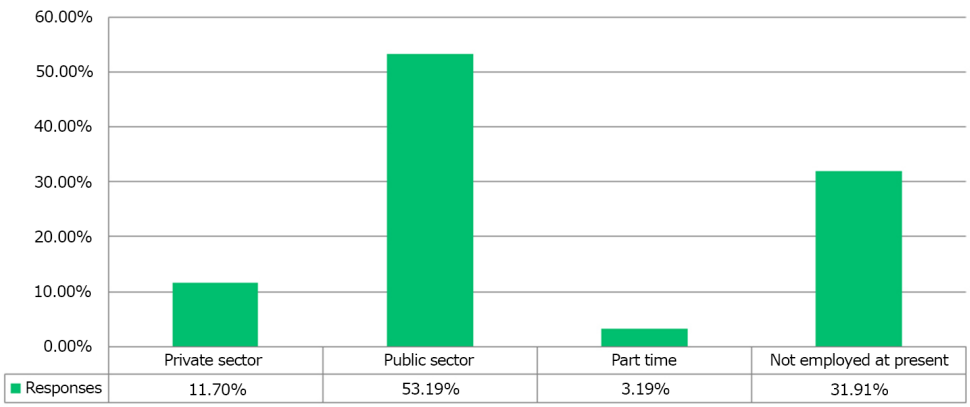
At the time of conducting the needs analysis, the legislation pertaining to veterinary paraprofessionals was under review in all three countries, leading to an element of uncertainty but also opportunity as elements were proposed to improve the regulation of private sector veterinary paraprofessionals in each country.

South Africa

In South Africa, veterinary paraprofessionals are regulated under the Veterinary and Para-Veterinary Professions Act (Act 10 of 1982) which defines a number of different categories: Animal Health Technicians, Laboratory Animal Technicians, Veterinary Technicians, Veterinary Physiotherapists, Veterinary Nurses, and Animal Welfare Assistants. The category relevant for this needs assessment are Animal Health Technicians (AHTs). The South African Veterinary Council (SAVC) regulates the primary training institutions for AHTs and the legislation clearly defines their scope of work. In order to work as AHTs they must register with the SAVC and conduct regular continuous professional development in the form of 15 structured and 35 unstructured CPD points for every consecutive three year cycle. At the time of the needs assessment the legislation only enabled them to work as employees in the public or private sector, as opposed to owning their own business.

In 2021, data obtained from the SAVC showed that there were 1 373 registered AHTs of which 49 percent were women. Results from an online survey completed by 399 AHTs showed that whilst the majority worked for the public sector, there was high unemployment among AHTs (32 percent). These results are shown in Figure 4. Unemployment levels were found to be particularly high in Gauteng, Northwest, KwaZulu Natal and Eastern Cape. A driving factor in the high levels of unemployment was the legal framework that prevented AHTs from working as private sector service providers.

Figure 4. Graph detailing area of employment of veterinary paraprofessionals in South Africa



Source: Authors' elaboration, 2024.

At the time of the needs assessment there was however a proposal to amend the rules relating to Animal health Technicians to enable them to provide primary animal health care services for their own gain. This amendment was subsequently approved in December 2022, paving the way for AHTs to work as private sector service providers (SAVC, 2012).

Uganda

In Uganda, the Veterinary Surgeons Act (1958) covered the establishment and constitution of the veterinary board and the registration of veterinarians but did not explicitly cover veterinary paraprofessionals or continuous professional development. However, at the time of the needs assessment, the Ugandan Veterinary Board was already registering VPPs and had drafted guidelines for continuous professional development.

A 2019 FAO Animal Health Workforce study collating data from Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) through District Veterinary Offices found that there were 3,820 VPPs operating within the country of which 70 percent worked in the private sector. In comparison, there were 485 veterinarians of which only 19 percent worked in the private sector. Overall, 14 percent of the workforce was female. Whilst the overall numbers of women VPPs remains low, analysis of recent graduates shows that this trend is changing with 35 percent of new graduates from the major training institutes being female (2018-2021).

Table 1. Results from the 2019 FAO animal health workforce study in Uganda

	Vets (Degree)	Paravets (Degree - not BVM/DVM)	Paravets (Diploma)	Paravets (Certificate)	Community Animal Health Workers	Subtotal (Females)	Subtotal (Males)
Public	393	209	908	15	36	204	1357
Private	92	64	1406	1218	485	473	2792

Source: FAO Uganda, 2019.

In 2020, 1582 VPPs were registered with the UVB (41 percent of VPP workforce) but with the COVID-19 constraints only 718 VPPs renewed their licences in 2021.

An additional challenge for the registration of VPPs at the time of the needs assessment was that a number of private sector training institutes had started to train VPPs without seeking accreditation from the UVB. This meant their graduates were therefore not able to register with the UVB.

Subsequent to the needs assessment, the proposed veterinary bill was passed into law in May 2024 (Parliament of the Republic of Uganda, 2024). This new bill covers veterinary paraprofessional training, their scope of work, their supervision as well as continuous professional development. Furthermore, it includes provisions for VPPs to sit on the board of the Ugandan Veterinary Council which will replace the Ugandan Veterinary Board.

Nigeria

In Nigeria, the Veterinary Surgeons Act (1969) covers the establishment and functions of the Veterinary Council of Nigeria (VCN) and registration of veterinarians. Similarly to the situation in Uganda, it does not explicitly cover veterinary paraprofessionals. However, at the time of the needs assessment a new veterinary act had been proposed which included provisions for the registration of VPPs with the council and for a VPP representative to be incorporated within the governing board of the VCN. At the time of writing the new veterinary act has not yet been approved however

the VCN is registering veterinary paraprofessionals who have a Higher National Diploma or National Diploma in Animal Health and Technology. There are currently 36 recognized training institutes within the country. VPPs may work in both the public and private sectors in Nigeria under the supervision of a veterinarian.

A framework for provision of CPD has existed since 2012 with the Continuous Education committee of the VCN being responsible for approving courses and trainers as well as organizing trainings and certifying participants attending trainings. In 2022 the VCN launched a process to expand the number of trainings by using private CPD providers which have registered with the VCN. There is currently no legal requirement for VPPs to undertake CPD, but it is foreseen under the new veterinary act.

Official data on the number of veterinary paraprofessionals in Nigeria is not available. Among the VPPs participating in the telephone survey, only 53 percent actually worked under the supervision of a veterinarian. 56 percent were self-employed, 23 percent employed by the government and 17 percent employed in the private sector (of which 8 percent were farm managers). Only 3 percent were unemployed.

3.2 Identifying gaps

Curricula analysis

A desk study detailing the current curricula of VPPs examined all relevant VPP training institutions for which curricula were available in each target country. These curricula were compared by analysing how much teaching was delivered on each competency, as according to World Organisation of Animal Health (WOAH) competency guidelines for VPPs. During the telephone survey, respondents were also asked to list the top 5 topics they would like to study further. Below is a list of key findings from the analysis:

Nigeria

Nigeria has a national curriculum for the Higher National Diploma and National Diploma in Animal Health and Technology. Figures with a more detailed break-down of topics can be found in the Annexe section of this document. In summary:

- No course content could be found on animal handling and welfare, use and management of equipment, one health or specimen collection.
- Only small parts of the training were dedicated to herd/flock health management, animal production, biosecurity and agricultural economics.
- Between 46-63 percent of course content was practical based, and some courses had long clinical postings.
- All courses had a large proportion of their curriculum dedicated to veterinary medicine and at least some teaching on technical business management and veterinary legislation.
- **Artificial insemination, animal production/economics, breeding, feed formulation and infectious disease prevention and control were the top five subjects prioritized for further training (both genders)**.

South Africa

South Africa has three institutions offering primary training for animal health technicians accredited by the South African Veterinary Council. Two of these curricula were obtained for analysis which found:

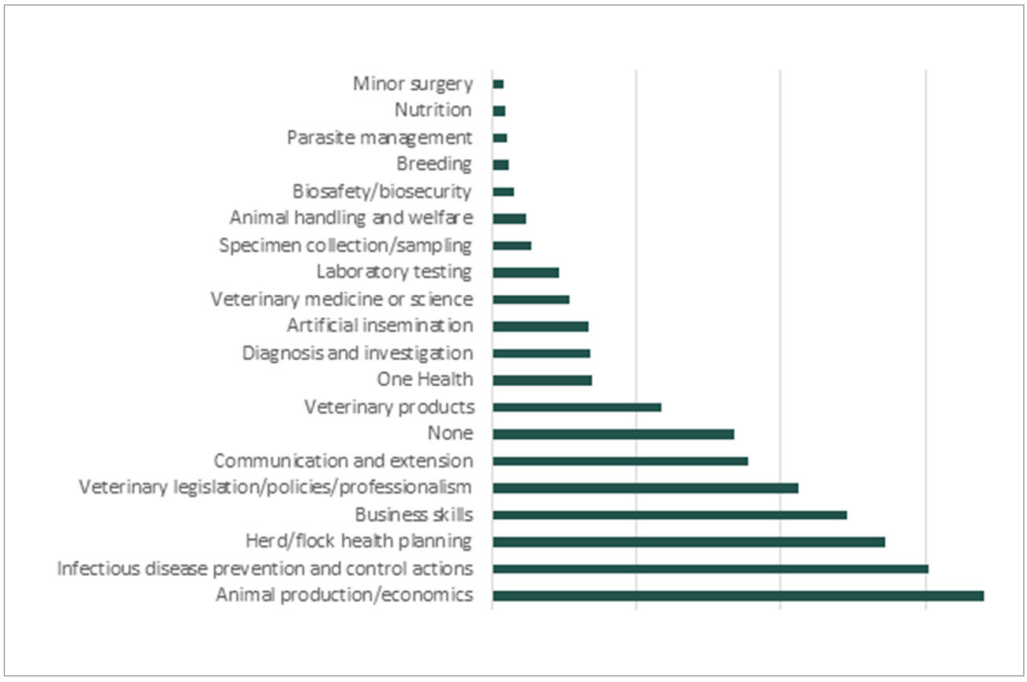
- No modules were found covering biosecurity or health and safety in either institution. In one institution no content on management of equipment or animal handling were found.
- Courses covering computer, management and business skills were lacking.
- Approximately 30 percent of the teaching hours were composed of practical skills
- Veterinary medicine was the most covered competency followed by animal production/husbandry.
- **Animal production, agricultural economics, business skills, communication and herd health planning were the top five subjects prioritized for further training (both genders)**.

Uganda

In Uganda, there are two public VPP training institutions which are accredited by the Ugandan Veterinary Board, each with its own curriculum. Other private institutions exist but at the time of the needs assessment most were not accredited by the UVB. An analysis of the two public sector and one private sector curricula found:

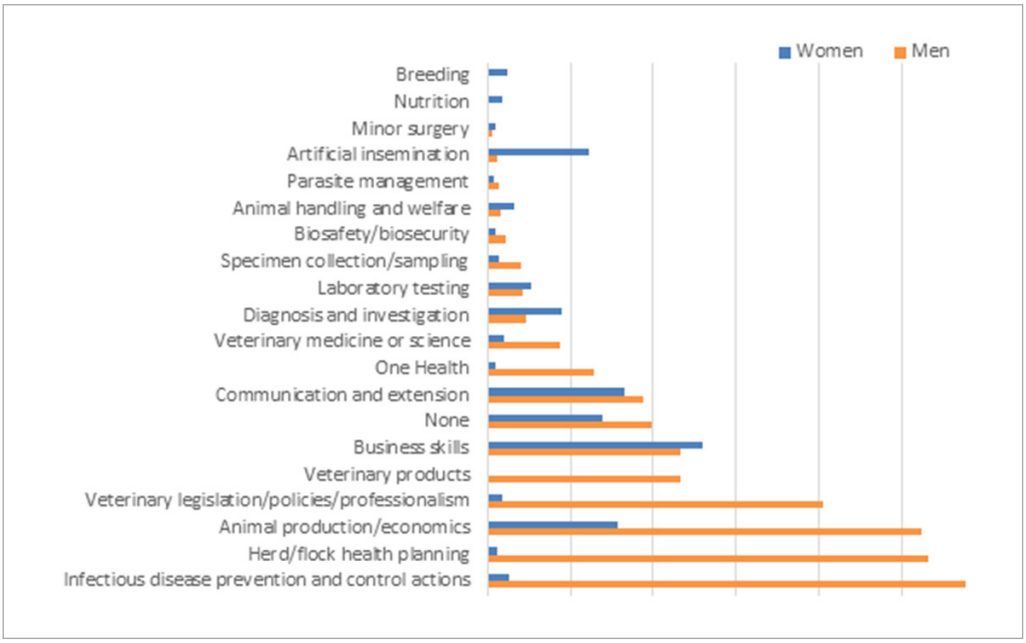
- Curricula varied a lot between institutions with a general bias towards animal production, husbandry and agriculture over animal health/veterinary medicine.
- The least covered subjects included animal welfare, specimen collection and legislation/politics/ethics.
- Only a small number of hours were dedicated to biosecurity.
- Approximately 33 percent of hours (22-41.6 percent) were dedicated to practical skills.
- The amount of teaching on business skills varies widely between institutions.
- **Artificial insemination, clinical treatment, and feeding and nutrition were the top five subjects prioritized for further training (both genders)**.

Figure 5. Continuous professional development topics prioritized by veterinary paraprofessionals in Uganda (aggregate results post-weighting, n=150)



Source: Authors' elaboration, 2024.

Figure 6. Continuous professional development topics prioritized by veterinary paraprofessionals in Uganda, disaggregated by gender (n=150)



Source: Authors' elaboration, 2024.

Topics prioritized for continuous professional development from surveys of smallholder farmers, veterinary paraprofessionals and veterinarians

Information on which topics were prioritized by different groups for future CPD was collected through telephone surveys, FGDs with VPPs and smallholder farmers and key informant interviews with veterinarians. These were assigned the relevant competency, and the results are summarised in Table 2.

Table 2. Continuous professional development training priority topics from smallholder farmers, veterinary paraprofessionals and veterinarians in Uganda, Nigeria and South Africa

Country	Smallholder farmers	VPPs	Veterinarians
Uganda	1. Veterinary Medicine 2. Veterinary Products 3. Communication	1. Animal Production/Economics 2. Infectious Disease Prevention and Control 3. Herd / Flock Health Planning 4. Business Skills 5. Veterinary Legislation / Policies / Professionalism	1. Veterinary Medicine 2. Veterinary Legislation / Policies / Professionalism 3. Infectious disease prevention and control
Nigeria	1. Veterinary Medicine 2. Animal Production / Husbandry	1. Veterinary Medicine 2. Technical Business Skills/ Workflow Management 3. Animal Production and Husbandry	1. Veterinary Medicine 2. Business Skills 3. Animal Production / Agricultural Economics
South Africa	1. Veterinary Medicine 2. Veterinary Products 3. Herd/Flock Health Planning	1. Animal Production and Agricultural Economics 2. Business Skills 3. Communication 4. Herd Health Planning	1. Animal Production and Agricultural Economics 2. Herd / Flock Health Planning 3. Veterinary Products 4. Veterinary Medicine

Source: Authors' elaboration, 2024.

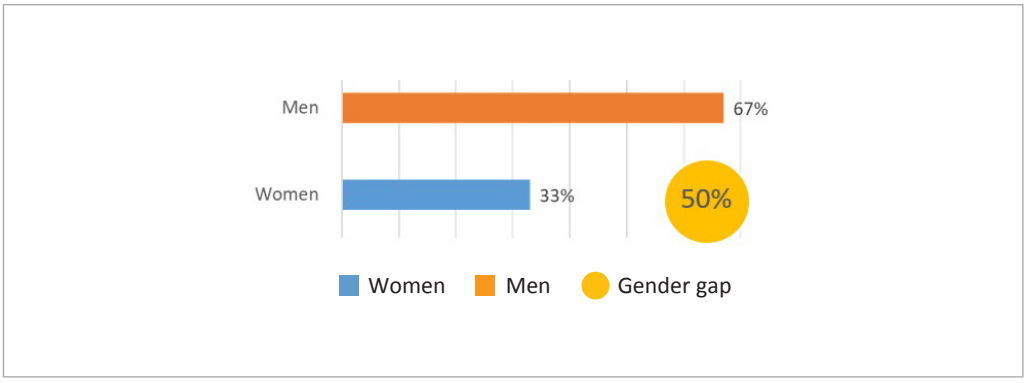
As can be seen in the above table, a pattern emerges whereby further training in Veterinary Medicine, Animal Production / Husbandry / Economics, Herd / Flock Health Planning and Business Skills predominate

Photo 2. Focus group discussions with smallholder farmers

Women SHFs are less likely to interact with an animal health professional compared to their male counterparts

The study in South Africa found a significant 50 percent gender gap in SHF's contact with an Animal Health Practitioner with 33 percent of female SHF but 67 percent of male SHFs reporting meeting an Animal Health Practitioner at least once a year. Although similar gender-specific data were not collected in Nigeria and Uganda, both literature reviews and anecdotal evidence from these countries suggest significant gender disparities in access to veterinary services. These findings are consistent with data from the FAO, which previously reported that women receive only 5 percent of agricultural extension services globally (FAO, 2023).

Figure 7. Smallholder farmers that reported meeting an animal health professional at least once over the course of one year, by gender. Data from South Africa



Source: Authors' elaboration, 2024.

Gender findings at smallholder farmer level

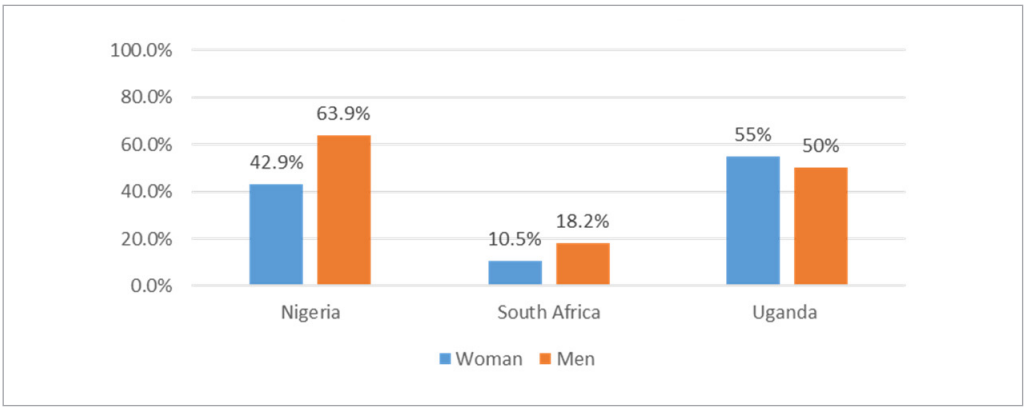
To inform project design, a variety of information pertaining to existing gender roles and access to services were collected. The following summarises the main point from the smallholder farmer (SHF) FGDs in order to provide context to the VPPs working environment:

- Women's limited ownership and control over land often restrict them to managing small livestock, such as poultry, pigs, and goats, typically in their backyards. In contrast, men usually manage larger and more commercially valuable livestock, such as cattle.
- Livestock service delivery systems are predominantly male dominated, creating barriers for women in accessing these services.
- Women frequently access information and training indirectly, often relying on male intermediaries.
- Upon widowhood, women generally take on greater responsibilities in livestock management, assuming roles previously held by their husbands. However, they often face challenges due to a lack of knowledge, skills, and autonomy, with some requiring male family members' consent for decisions such as animal slaughter (e.g. South Africa).
- Women's access to and control over income, investments, and marketing opportunities are severely limited or non-existent (e.g. Uganda).
- Time constraints and safety concerns hinder women's ability to herd animals, increasing their vulnerability to livestock theft. In female-headed households, women often incur additional costs by hiring shepherds to graze their animals (e.g. South Africa).

Existing CPD

When asked if VPPs had undertaken CPD in the last four years, 56 percent in Nigeria, 13.3 percent in South Africa, and 51.3 percent in Uganda answered yes.

Figure 8. Percentage of veterinary paraprofessionals who have undertaken continuous professional development training in the last four years by gender



Source: Authors' elaboration, 2024.

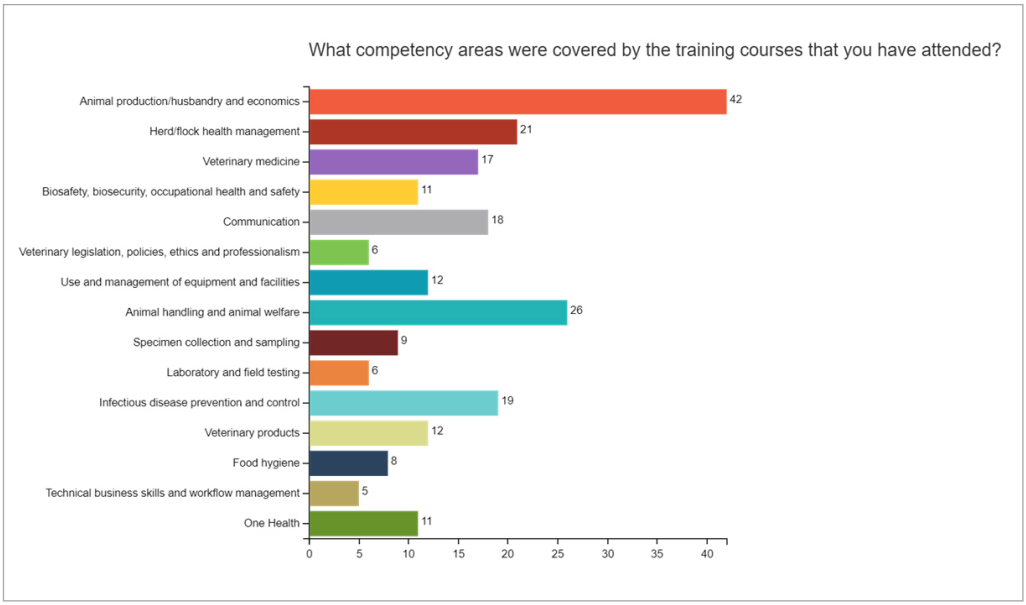
Uganda

Although a high proportion of VPPs reported they had undertaken CPD, the vast majority of these were one day trainings by the National Drug Authority. When discussing with rural VPPs, many felt they lacked CPD opportunities.

Nigeria

The continuous education (CE) committee of the VCN ran short in-person and online fee-based courses on a variety of topics including drug use, biosecurity, reproduction and ICT skills.

Figure 9. Previous continuous professional development topics undertaken by veterinary paraprofessionals in Uganda

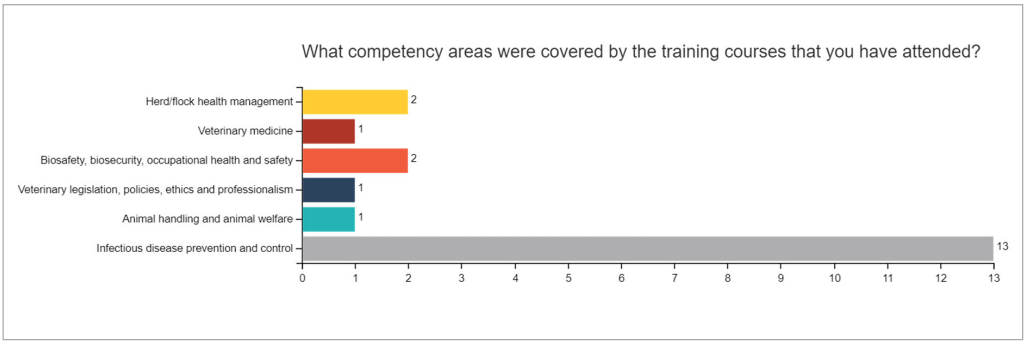


Source: Authors' elaboration, 2024.

Figure 10. Previous continuous professional development topics undertaken by veterinary paraprofessionals in Nigeria

Source: Authors' elaboration, 2024.

Figure 11. Previous continuous professional development topics undertaken by veterinary paraprofessionals in South Africa



Source: Authors' elaboration, 2024.

South Africa

In South Africa there are over 50 accredited CPD providers which together offer over 500 different trainings. Most of these are free as they are sponsored by private businesses. There is a clear focus on infectious disease control whilst there is a lack of content on business skills, especially covering poultry and pigs. This is in line with the previous responsibility of AHTs to work only in the public sector. CPD is compulsory for renewal of practice licenses in South Africa, which makes the survey result of only 13.3 percent of VPPs having undertaken CPD recently surprising. During VPP surveying in South Africa, unemployed VPPs were targeted. This figure could therefore be explained by a large proportion of surveyed VPPs not having active licenses (this information was not collected).

Enhancing gender-responsive competencies in veterinary paraprofessional training

Animal health and production services provide farmers with information and resources to improve their livelihoods through livestock keeping. In almost all countries, however, extension systems, including veterinary services, fail to reach women effectively. Worldwide, only 5 percent of agricultural extension reaches women (FAO, 2003). This reflects a lack of knowledge and understanding about the important role played by women livestock keepers, particularly regarding disease prevention and response. To strengthen animal health systems at the local level, veterinary service provision should be tailored to address the priority needs of both women and men livestock keepers.

VPPs, both women and men, could benefit from additional training focused on integrating gender-responsive approaches into their work to better serve women livestock farmers. Given that the typical 2-year technical or scientific diploma for VPPs often lacks specific curricula on gender, many VPPs may not be fully aware of the gender-related challenges faced by farmers or possess the skills needed to address these gaps effectively. This highlights the importance of prioritizing the development of gender-responsive competencies in VPP training, to enhance their understanding of gender issues within livestock-keeping communities and improve their ability to deliver inclusive and equitable services.

3.3 Working environment of private sector veterinary paraprofessionals

Challenges

The needs assessment process highlighted a number of challenges VPPs faced in their work:

- **Rivalry between veterinarians and VPPs**
  In all three countries, professional rivalry between veterinarians and VPPs posed a challenge for VPPs in developing their businesses. In Nigeria in particular, it was found that in the southern state of Oyo recent regulatory changes had led to strained relationships. However, it was noted that in the north this was not the case and veterinarians in general greatly supported VPPs. In South Africa where there were previously no private AHTs, veterinarians and VPPs were in theory positive about a collaboration. However, legislation still posed a hurdle in creating formal collaboration and supervision between state veterinarians and independent AHTs. In Uganda, FGDs with veterinarians found that some VPPs see vets as competition and so avoid collaboration, including avoidance of reporting disease to the government veterinarians. Relationship strains were found to be perpetuated by a large presence of "quacks" and inappropriate diagnoses/drug-use by VPPs.
- **Presence of untrained VPPs and "quacks" who charge less of a fee**
  In both Uganda and Nigeria, the presence of untrained persons providing animal health services or "quacks" who often charge less of a fee was felt to be a significant constraint on VPP businesses. In Nigeria it was found that even though SHFs were aware that some service providers were not properly trained, they would still preferentially render their services due to their lower fee. In both countries it was of particular concern that the practices of untrained service providers were also contributing to antimicrobial resistance (AMR). Similarly, in Uganda it was found that SHFs were most concerned with the fees charged, availability of the service provider and case outcome rather than the qualification of the VPP.
- **Scarcity of vaccines, shortage of cold chain and lack of buy-in.**
  In all three countries, lack of cold chain was mentioned as a challenge due to a shortage of reliable electricity and capital to purchase fridges/freezers. In Nigeria, it was found that in rural areas VPPs instead had to store vaccines in room-temperature water or wrapped in cloth and buried under a tree. This was found to restrict the use of vaccination, which was identified as a good opportunity for VPPs to create business. In addition, a shortage of access to vaccines in general was identified. In Nigeria there is only one vaccine producer, the National Veterinary Research Institute, which meant waiting times for vaccines were long and most VPPs relied on free government-funded vaccines. In Uganda, selling vaccines was ranked as lower priority compared to selling drugs because it was felt that farmers did not appreciate vaccination; a misbelief that vaccines spread disease; and that vaccines were not easily accessible. For many of the diseases affecting large and small ruminants (peste des petits ruminants, foot-and-mouth disease, contagious bovine pleuropneumonia), the public sector is solely responsible for their vaccine procurement and distribution, and they are therefore not available within the private sector. In South Africa it was found that farmers view vaccines as too expensive and believe that the government should be responsible for financing them.

- **Limited number of diagnostic laboratories**
  In Uganda and Nigeria, a lack of diagnostic laboratories was found to be a challenge for VPPs. In Nigeria this was felt to compromise the quality of the VPP services. In Uganda it was also found that where laboratories exist, VPPs did not utilise them very often.
- **Poor quality or fake drugs**
  In both Uganda and Nigeria, it was found that drugs from China, which were viewed to be less effective, were being used due to their cheaper price. Quality drugs from reputable companies were felt to be too expensive and that SHFs would not pay more for a superior product. In addition, in Uganda it was found that if a VPP were to realise they had bought fake drugs they would either throw them away or give them to a colleague to use, highlighting bio-hazard concerns. It was felt that the use of fake drugs was contributing to anthelmintic resistance.
- **SHF attitude – lack of recognition of VPPs and unwillingness to pay for services**
  In Nigeria it was felt that SHFs undervalue professional animal health services in general and that a lack of recognition of VPPs constrained business opportunities. Similarly, in Uganda it was felt that a lack of recognition from the government was an issue.
- **Gender bias from SHF towards women VPPs**
  In all three countries, some SHFs reported a preference for male VPPs for various reasons in each country. In summary, these were due to negative gender stereotypes such as that women are less competent, unable to restrain large ruminants, or should not be trusted because they pose a threat to the integrity of farmers' marriages. Traditional beliefs about women and men's roles were also reported, with farmers expressing that the animal health profession is not suitable for women. However, some farmers stated that they did not care about the gender of the VPP, as long as they were competent and committed in their work. A small number of farmers stated that they preferred women VPPs, because they had a more "nurturing nature" in caring for animals and were more reliable compared to men VPPs.
- **Gender-based disadvantages faced by women in the VPP profession**
  Women VPPs reported facing various challenges specific to their gender in their work as frontline field service providers. Across the three countries, women stated that they sometimes received lower remuneration compared to their male counterparts for providing the same services. They also shared that they experience physical challenges restraining large ruminants, partly due to a lack of animal handling facilities on farms and also little exposure/ practice during initial training. Safety related issues such as sexual harassment from male farmers were also reported, as well as limited time availability due to household and caregiving responsibilities which disproportionately affect women.
- **Barriers to service delivery due to rigid gender norms**
  Across the three countries, gender norms were described to create barriers to service delivery for both women and men VPPs. For example, in South Africa, women stated not being allowed to touch livestock or enter kraals during menstruation due to cultural beliefs that this could cause illness or death for the animals. This means that in order to check the animals, they must be taken outside of the Kraal for clinical examination, which involves extra manual labour to catch, move and restrain the animals. In Kaduna, Nigeria, it was reported that

gender norms disallow women in some communities from interacting with men outside of their household, especially if they are unmarried. Consequentially, male VPPs sometimes cannot speak to the women livestock keepers in the household. As women often play crucial roles in daily livestock care (feeding, cleaning, milking, collecting eggs, etc.) this can result in incomplete history-taking and assessment of the situation on the farm. Another implication is that the woman farmer misses out on crucial information from the VPP, or only receives it second handedly, risking that important details are lost in transmission between family members.

- **Lack of transport, especially for female VPPs**
  In all three countries a lack of transportation was identified as a major challenge for VPPs. In Nigeria it was found that the majority of VPPs were limited in terms of their mobility, which posed a major challenge for female VPPs in particular. Male VPPs often had motorcycles while female VPPs relied on public transportation which could be expensive and unreliable. SHFs were unwilling to cover VPPs cost of transportation in addition to service charges. Similarly in Uganda, women in some areas were unable to use motorcycles which were the standard form of transport for male VPPs. Instead, they relied on taxi's which were prohibitively expensive. Lack of access to affordable transportation reportedly created barriers in particular in responding to emergency-calls. Women VPPs also reported cultural and safety issues with travelling alone or late at night.
- **Insecurity**
  In Nigeria it was found that the provision of VPPs services was threatened by insecurity in both regions surveyed. Remote areas and rural communities were particularly affected by frequent kidnapping, killings and banditry This was especially seen as an issue for female VPPs. In South Africa it was found that insecurity was an issue dependent on the area due to farm killings and gun crime.

In South Africa, previous legislation prevented VPPs from practicing privately. Therefore, the same data could not be collected for their AHTs. Instead, a SWOT analysis highlighted the following threats to settings up their private practices:

i) Competition
ii) Lack of infrastructure
iii) Unstable economy
iv) Theft
v) Age, race and gender discrimination
vi) Non-willingness to pay

Opportunities

In addition, a number of potential opportunities were identified:

- In Nigeria, feed formulation was seen as an opportunity for VPPs to produce and sell feed which will cost less to the farmer than industry formulated feeds. Similarly, as cattle herders transition to more intensive grazing practices represents an area VPPs could expand into.
- In Uganda, farmers indicated they would ask a private VPP to provide animal health services before a government VPP or veterinarian. This included for services such as treatment, vaccination, advisory services, breeding, feeding/nutrition and training.

- In South Africa, the private sector is new to VPPs and interviewed AHTs/Vets/SHFs felt there were many opportunities on the horizon including in primary animal health care, and pharmaceuticals.

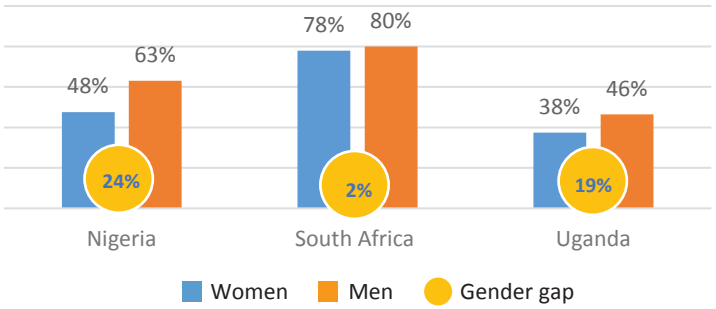
3.4 Design considerations

Access to technology and learning preferences

The needs assessment also collected information on VPPs learning preferences and access to technology. The information collected was used to inform the blended learning training design, of which more detail can be found in this link: Delivery of blended learning models for veterinary paraprofessionals.

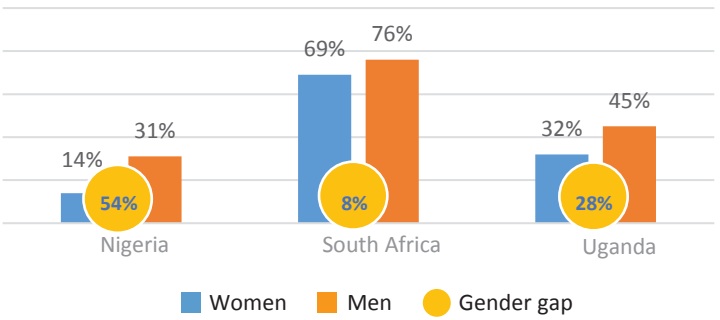
Understanding access to internet was important to ensure that any blended learning model would be feasible and impactful. When asked about access to internet, the following results were found:

Figure 12. Percentage of respondents who had nearly constant acccess to internet, disaggregated by gender



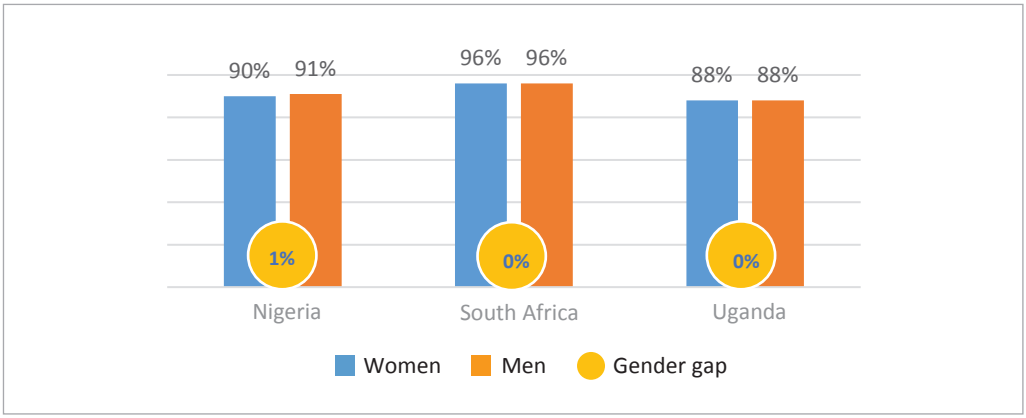
Source: Authors' elaboration, 2024.

Figure 13. Percentage of responsents who owned a desktop or laptop computer, disaggregated by gender



Source: Authors' elaboration, 2024.

Figure 14. Percentage of respondents who owned a smartphone, disaggregated by gender



Source: Authors' elaboration, 2024.

Smartphone ownership rates were found to be relatively high and equitable by gender, with women and men owning smartphones at nearly identical rates. It was found that over 90 percent of VPPs owned smartphones in Nigeria, 96 percent in South Africa and 88 percent in Uganda. By comparison, much smaller proportions had access to laptops or desktop computers. This necessitated a training which was easy to use on smartphone devices and used low bandwidth. It should be noted that the FGD results indicated much lower smartphone ownership in Uganda, which may be explained by the higher proportion of rural and female VPPs in the FGD.

Desktop and laptop computer ownership rates were found to be substantially lower than smartphone ownership rates with significant variation by country and gender. The lowest ownership rates are observed in countries which also have the most pronounced gender gaps, namely Nigeria (54 percent), followed by Uganda (28 percent) and South Africa (8 percent). In Nigeria, female ownership of desktop and laptop computers is particularly low, with only 14 percent of women VPPs owning a device.

In all three countries, women VPPs were found to have lower constant access to the internet compared to men. The gender gap was greater in Nigeria (24 percent) and Uganda (19 percent) than in South Africa (2 percent). Across all countries, constant internet access is lowest in Uganda with only 38 percent of women and 46 percent of men, followed by Nigeria and South Africa.

VPPs were asked what methods of training they preferred. Overall, VPPs preferred face-to-face practical training but often had little to no experience of online training. This differed in peri-urban FGDs in Uganda where VPPs showed a preference for online learning as they considered it more flexible. Moreover, many showed interest in learning to use online learning platforms. Online synchronous training was the least popular in South Africa due to its interference with personal commitments and inexperience with online training. Some women VPPs reported requiring their husband's permission to attend and pay for trainings, and that conflicting caregiving and household responsibilities was also a challenge for them to attend in-person training workshops, especially if training institutions are located far from their living location.

WhatsApp was the preferring informal network to use for communication. English was the preferred language for training but consideration for adding in other major local languages and avoiding a strong English accent was suggested.

4. Conclusion

This lessons learned document on the needs assessment of the project is part of a series of documents which can be found at https://www.fao.org/one-health/areas-of-work/integrated-one-health-services/en. The needs assessment process provided crucial insights into the current context of VPP training and work conditions. Through a desk review, key informant interviews and focus group discussions, information was yielded on the current VPP curricula, desired CPD topics, access to technology, preferred training modalities, business environment and gender considerations. Using mixed methods, gender analysis, sex disaggregation of data and in-country experts meant that valuable and context-relevant information was gathered which in turn optimised the sustainability of the project design, tailoring it to the reality on the ground and focussing on real gaps in service and priorities of farmers.

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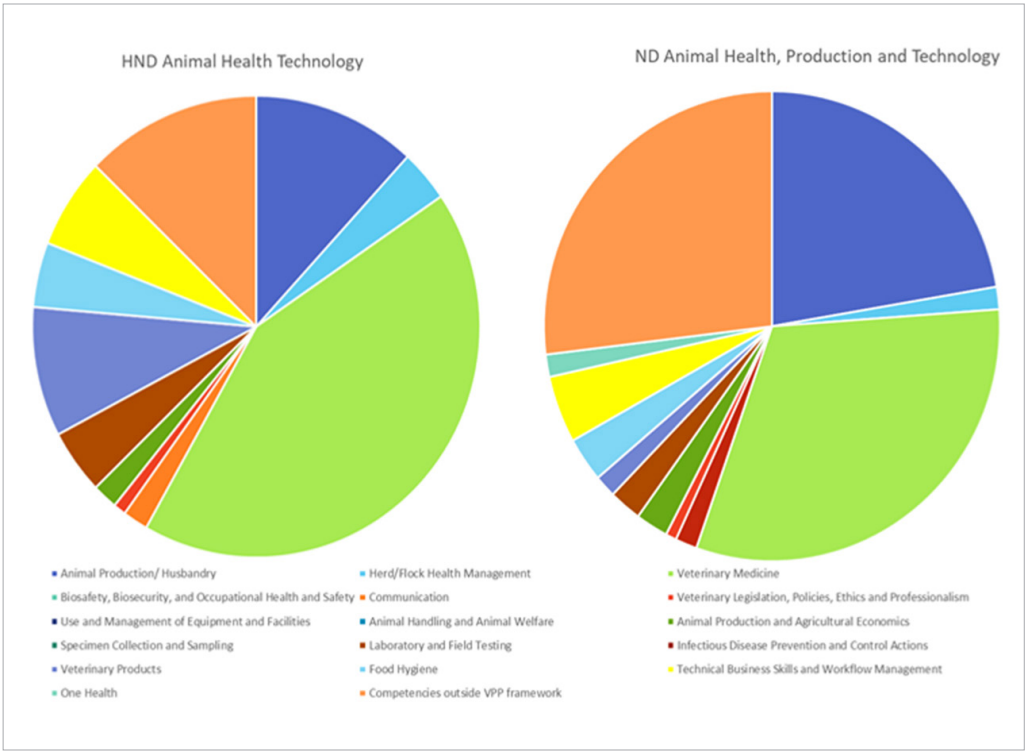
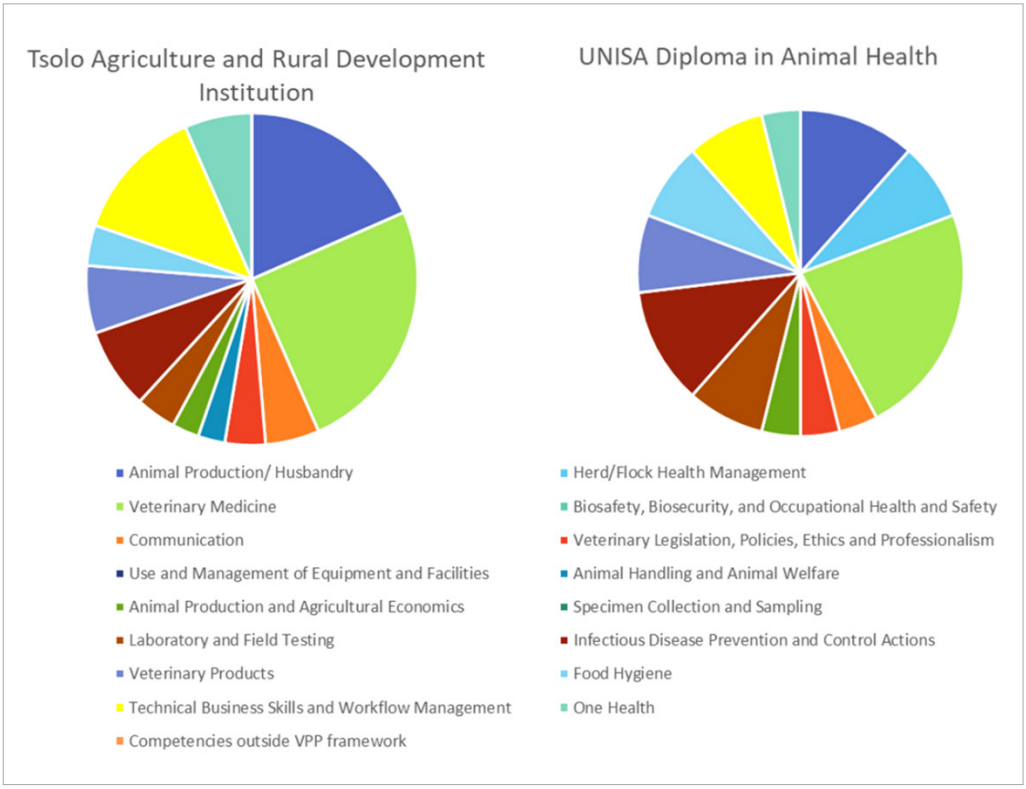
Annexes

Nigeria curricula analysis



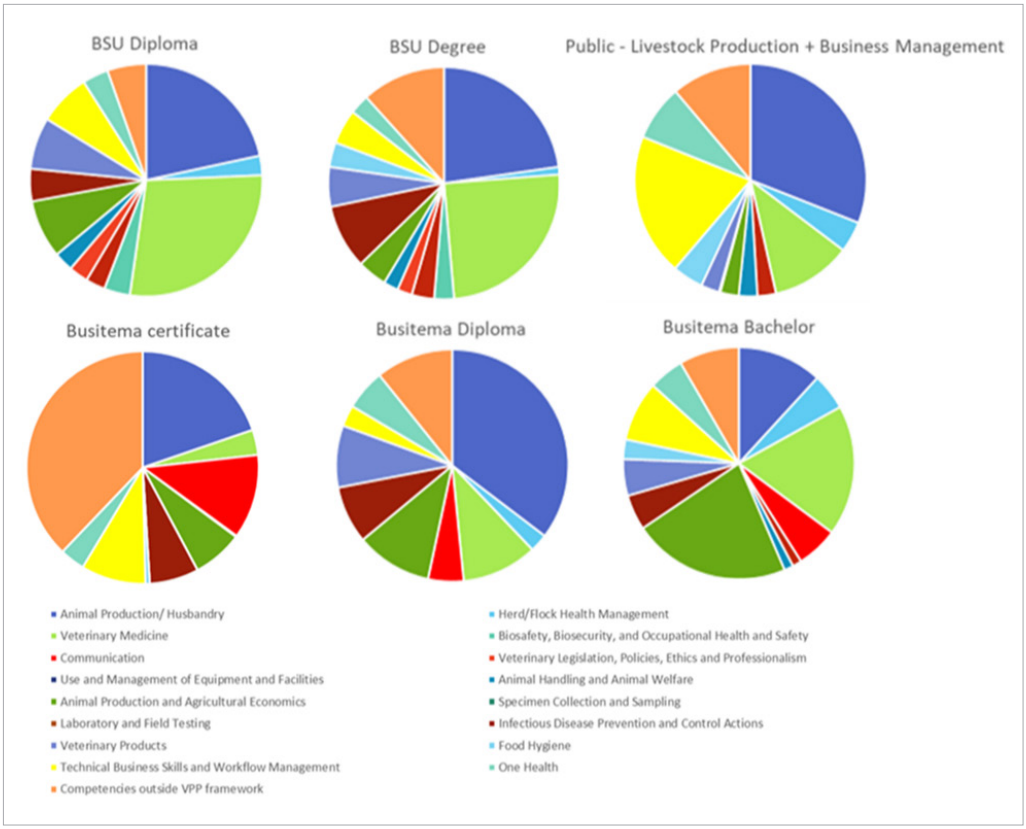
Source: Authors' elaboration, 2024.

South Africa curricula analysis



Source: Authors' elaboration, 2024.

Uganda curricula analysis



Source: Authors' elaboration, 2024.

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