

QUANG NGAI RURAL DEVELOPMENT PROGRAM (RUDEP) - PHASE 2

Paravet Competency Assessment Report



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Acronyms

AHS	(District) Animal Health Station
CPC	Commune People's Committee
DPC	District People's Committee
HH	Household
PRA	Participatory Rural Appraisal
RUDEP	Quang Ngai Rural Development Program
SDAH	Sub-Department of Animal Health
ToT	Training-of-Trainers

Summary

This Report highlights the results of a Paravet Competency Assessment that was conducted by RUDEP and the Sub-Department of Animal Health in 19 RUDEP Communes (involving 65 paravets). An analysis of the results of the Paravet Competency Assessment reveals:

- Of the 65 paravets operating in 19 RUDEP Communes:
 - 38 paravets are from 5 lowland Communes
 - 27 paravets are from 8 upland Communes
 - 6 upland Communes have no paravets.
- In lowland Communes the number of paravets does not meet the demand of households. Paravets in upland Communes face difficulties operating on a full-time basis due to low incomes of households in these areas and long distances to access medicines in the District towns.
- Of the 65 paravets that undertook the Paravet Competency Assessment:
 - No paravets are considered competent.
 - 22 of the 65 paravets (34 percent) of paravets are considered critical in terms of skills and knowledge.
 - 25 of the 65 paravets (38 percent) of paravets are at a concerned level of competency.
 - Only 18 of the 65 paravets (28 percent) of paravets are considered consolidating in terms of skills and knowledge.
- Paravets in lowland Communes overall have higher levels of skills and knowledge than paravets in upland Communes.
 - 18 of the 28 paravets (64 percent) in upland Communes are considered critical
 - § Only 4 of the 38 paravets (11 percent) in lowland Communes are critical.
 - 17 of the 38 paravets (45 percent) in lowland Communes are consolidated.
 - § Only 1 of 28 paravets in uplands Communes is consolidated.
- Knowledge of fundamental concepts of animal health and livestock physiology appears low, particularly in upland Communes. Without basic knowledge on fundamental concepts (e.g. normal body temperatures of pigs and cattle) it is probable that misdiagnoses (differential diagnosis) will be made and incorrect treatments administered. Any future paravet training courses must incorporate and reinforce basic elements of livestock physiology.
- Though theoretical knowledge in some instances may be high (e.g. for lowland paravets), practical skills and capacity is typically lower. For example, knowledge of the purpose and desired uses of vaccines may be consolidated; however practical assessments revealed incorrect or insufficient preparation and administration of vaccines.
- Diagnostic skills of paravets are a concern. This is particularly the case for upland paravets who have a poor capacity to diagnose pig, chicken and cattle diseases. In general, there is a limited capacity of paravets to diagnose diseases in poultry or understand chicken anatomy. Concerns must be raised regarding the capacity to properly diagnose of Avian Influenza in the event of outbreaks.
- Knowledge on vaccinations and correct methods to sterilise syringes and needles is surprisingly low. Twice per year, the Provincial Sub-Department of Animal Health, in combination with District Animal Health Stations and paravets, conduct vaccination campaigns in each Commune. Inadequate knowledge and the wrong

methods to sterilise needles (e.g. use of alcohol) will consequently reduce the effectiveness of vaccines and any such campaigns.

- Training of households to be paravets in some Communes (particularly in upland Communes), and in some Villages that do not have paravets (particularly in lowland Communes), is warranted. Sustained long-term training and technical assistance is necessary. Training approaches will need to be appropriate to the language, literacy and education levels in some ethnic minority Communes. Any such approach to improve animal health services through training households to perform as paravets must start with basic livestock physiology, simple measures to prevent disease (improved husbandry practices) and vaccination approaches.
- Fundamental concepts of livestock physiology and causative agents of disease must provide the foundation for any Paravet Capacity Building Program and Training Course. Proceeding further into disease treatment and other specific topics cannot proceed until paravets are competent in these areas. Training Courses must apply both theoretical information and adequate time for practical demonstrations and exercises. The Paravet Competency Assessment reveals that theoretical knowledge in some instances can be consolidated, but in practice is at concern or critical levels.

1 Introduction

The Quang Ngai Rural Development Program (RUDEP) and the Sub-Department of Animal Health (SDAH) are initiating a range of animal health activities in poor Communes in Quang Ngai Province. Livestock is viewed as the preferred income-generating activity of rural households. Seasonal occurrence of epidemic diseases impacts on household capacity to increase income through livestock production. Activities implemented by RUDEP and SDAH to mitigate this livestock production constraint include:

- Training and Capacity Building activities for SDAH and District Animal Health Station (AHS) officers;
- Development of Animal Health Training Courses for Households that applied participatory and practical training approaches;
- Development of Animal Health Technical Materials for households (Cattle/Bufaloes, Chickens and Pigs) to complement the Animal Health Training Courses.

SDAH plays a key role in capacity building for paravets under their existing mandated role. Paravets operate in many RUDEP Communes with qualifications and experience of such paravets varying. It was agreed between RUDEP and SDAH that a collaborative approach to Paravet Capacity Building would be initiated. The ultimate goal of such a Program is to improve animal health services in the Districts and Communes in which RUDEP is working. Such an approach must be comprehensive and would ultimately develop Provincial capacity to replicate such approaches throughout Quang Ngai Province.

A Paravet Capacity Building System was developed that reflected the approach applied under RUDEP's Capacity Building Component (Component 3). This approach includes the following in order of sequence:

1. Capacity Profiles;
2. Competency Assessments;
3. Capacity Building and Training Program;
4. Training Needs Analysis;
5. Training Course Preparation;
6. Training Course Delivery;
7. Training Review and Evaluation.

Paravet Capacity Profiles provided the foundation for the Paravet Capacity Building System and was developed and agreed between RUDEP and SDAH. These Capacity Profiles provide a foundation for initiating a Capacity Building and Training Program for paravets.

This Report highlights the results of the Paravet Competency Assessment. A methodology was developed that incorporated theoretical and practical assessment methods. The Paravet Competency Assessment was conducted in 19 RUDEP Communes and involved 65 paravets. It is anticipated that the results of the Paravet Competency Assessment will provide a foundation for the development of a detailed Capacity Building and Training Program to be developed.

2 Paravet Competency Assessment Methodology

2.1 Capacity Building System and Program for Paravets

A Capacity Building System must be outlined and agreed prior to any Training being provided to paravets. A Capacity Building System illustrates the overall approach and methods that will be applied to improve the skills and knowledge of paravets. This Capacity Building System is sequential in approach. The Capacity Building System applies the general outline and approach outlined in the RUDEP Capacity Building Manual (with necessary modifications) and involves the following:

- **Paravet Capacity Profiles:** Developed to identify the skill and knowledge levels paravets should possess to work effectively in their job.
- **Paravet Competency Assessments:** Conducted to assess ‘actual’ skill and knowledge levels of paravets against the Paravet Capacity Profile.
- **Training and Capacity Building Program:** Developed in accordance with the results and skill and knowledge gaps identified in the Paravet Competency Assessments.
- **Training Needs Analysis:** Conducted to identify training needs for a specific topic or course that will be delivered.
- **Training Course Preparation:** Ensures that training courses and materials are prepared well in advance.
- **Training Course Delivery:** Training Course is delivered. Pre- and Post-Course Competency Assessments are conducted to evaluate competency gains as a result of the Training.
- **Training Review and Evaluation:** Conducted to evaluate the Training Course content, Pre- and Post-Course Competency Assessment Results and provide recommendations to future Training Courses.
- **Ex-Post Competency Assessment:** Conducted up to 6 months after the Training Course to identify retained levels of knowledge and application of knowledge and skills learnt on-the-job.

Any Capacity Building System and Program for paravets must recognize two areas of competence that must be built; technical knowledge and practical skills. In order to operate as professional service providers, both areas of competence must be targeted and therefore reflected in all activities undertaken during the Capacity Building Program for paravets.

2.2 Paravet Capacity Profiles

Paravet Capacity Profiles are necessary to determine the desired skill and capacity requirements for paravets to operate effectively in Quang Ngai Province. Competency Profiles are characterized by the following:

- Desired skill and technical competency levels are outlined and agreed. A ‘competent’ paravet functioning and operating well in a Commune has technical skills and knowledge in aspects of the Capacity Profile.
- Capacity profiles are developed in a participatory manner and involve selected Provincial SDAH and District AHS officers and paravets themselves.
- Paravet Capacity Profiles are dynamic and flexibly applied. Roles and responsibilities of paravets may change in response to new Decrees or livestock diseases (e.g. Avian Influenza).

- The Paravet Capacity Profile provides a baseline for all future activities conducted under the Paravet Competency Assessment.

The Paravet Capacity Profiles were drafted at a one-day Working involving selected Provincial SDAH officers, District AHS officers, paravets, RUDEP and the RUDEP Animal Health Training Advisor. The Paravet Capacity Profile is attached in Annex 1. The finalized Paravet Capacity Profile outlines the following skill and knowledge requirements of paravets:

- **Roles and Responsibilities:** The general roles and responsibilities of paravets, including responsibilities as service providers to households (e.g. providing prophylactic and anaphylactic treatment for livestock) and Government responsibilities (e.g. reporting and assistance in vaccination campaigns).
- **General Requirements:** Including an understanding of the Veterinary Ordinance Law and Animal Breeding Law and adhering to professional ethical standards.
- **Basic Veterinary Knowledge:** Knowledge of causes of diseases in livestock, prophylactic measures, skills in diagnosing livestock diseases, storing and transfer of medicines and vaccines, sterilization of equipment, and properties of various types of medicines and treatments.
- **Poultry, Pig, Cattle/Buffalo and Goat Diseases:** Practical skills and technical knowledge on the prevention and treatment of specific poultry, swine, cattle/buffalo and goat diseases (outlined in detail in the Paravet Competency Profile).
- **Other Skills:** Including castration, artificial insemination of pigs and cattle, treatment of wounds/abscesses, birth delivery for cattle (calving) and pigs, and treatment of reactions to vaccinations.

Within the poultry, pig, cattle/buffalo and goat areas of the Paravet Capacity Profile, a combination of technical knowledge and practical skill requirements is outlined. It was agreed that paravets demonstrating adequate skills and knowledge in these areas are able to perform effectively and support households and SDAH to reduce risks associated with livestock diseases.

2.3 Paravet Competency Assessment Preparation

The finalized Paravet Capacity Profile provided a foundation for RUDEP and SDAH to conduct Paravet Competency Assessments. Preparing to undertake such an activity involved the following:

- Preparation of an approach and outline to conduct the Paravet Competency Assessments;
- Training for SDAH and District AHS officers on methods and skills to facilitate and conduct the Paravet Competency Assessments;
- Preparation of an implementation plan and Contract to conduct the Paravet Competency Assessment in 19 RUDEP Communes from the 12 mainland Districts in Quang Ngai Province.

2.3.1 Paravet Competency Assessment Methodology

The RUDEP Animal Health Training Advisor (Mr. Ta Ngoc Sinh), RUDEP Advisors and SDAH collaborated initially to develop a general framework on basic approaches applied to conduct the Paravet Competency Assessments. It was agreed that the Paravet Competency Assessments would assess both technical knowledge and practical skills:

- **Technical Knowledge (*Theory*)** would be assessed through a multiple choice questionnaire with four possible answers (A, B, C or D). Questions asked are

largely derived from competency requirements outlined in the Paravet Capacity Profile;

- **Technical Skills (*Practical*)** would be assessed through a series of exercises using actual equipment and medicines (when required). A series of tasks (commonly performed by paravets) are given to the Paravet to perform in front of the SDAH or District AHS facilitator.

The Paravet Competency Assessment outline is attached in Annex 2. Each Theory Question and Practical Topic (question or exercise) is linked to a specific topic. This allows for detailed assessments on specific Theoretical and Practical strengths or weaknesses of paravets to be conducted. Detail on each of these Questions, Topic and the desired level of competency is outlined in Table 1 (Theoretical Questions) and Table 2 (Practical Topics).

Table 1: Paravet Competency Assessment; Theoretical Questions, Topic and Desired Level of Competency

Question	Topic	Assessed Knowledge and Competency
No. 1	Causes of livestock and poultry disease	Knowledge of bacterial, viral or parasitic causes of disease or infection
No. 2	Diarrhoea in piglets	Contributing and causative factors of diarrhoea in piglets
No. 3	Incubation Period	Understand concept of incubation period
No. 4	Disinfection of veterinary equipment	Know how to disinfect veterinary equipment safely and properly
No. 5	Disinfection of Stables or Stys	Correct methods and treatments for disinfecting stables and stys
No. 6	Purpose of Vaccinations	Purpose of vaccinations to prevent disease
No. 7	Storage and Transportation of Vaccines	Correct methods for storing and transporting vaccines
No. 8	Use of Alcohol in Sterilisation	Use of alcohol in sterilising needles is <u>inappropriate</u>
No. 9	Body Temperature	Normal body temperature of buffaloes, cattle, pigs and chickens
No. 10	Preliminary diagnoses of diseased animals	Consulting households, observing the animal and taking body temperatures
No. 11	Hog Cholera	Clinical signs and lesions of Hog Cholera
No. 12	Newcastle Disease	Clinical signs and lesions of Newcastle Disease
No. 13	Trypanosomiasis	Clinical signs and treatment of Trypanosomiasis
No. 14	Antibiotics	Purpose of antibiotic use
No. 15	Antibiotics	Duration of antibiotic treatment
No. 16	Antibiotics and Parasiticides	Correct use of antibiotics and parasiticides
No. 17	Antibiotics	Body weight and age to determine dosage amounts
No. 18	Iron injections for piglets	Purpose and age at administration
No. 19	Vaccines	Factors affecting vaccine quality
No. 20	True or False	Five statements (indicate true or false)

Table 2: Paravet Competency Assessment; Practical Topics and Desired Level of Competency

Question	Topic	Assessed Skill and Competency
No. 1	Preliminary Disease Diagnosis	Correct questions to ask households to facilitate diagnosis and understanding of the disease problem
No. 2	Use of Thermometers	Correct usage of a thermometer and knowledge of fever in different livestock varieties
No. 3	Syringes and Needles	Assembling, correct administration site (intramuscular and subcutaneous of chickens, pigs and cattle) and disinfection/sterilisation
No. 4	Antiseptics	Calculating and diluting antiseptics
No. 5	Treatment Medicines	Desired use of medicines and dosage levels of parasiticides and antibiotics
No. 6	Vaccines	Knowledge of live and inactive vaccines and correct administration sites and dosage
No. 7	Oral Inoculation	Preparation and administration of orally-administered medicines and treatment
No. 8	Chicken Diseases	Knowledge of visual signs of chicken diseases (Newcastle Disease, Gumbaro, Avian Influenza, etc.)
No. 9	Pig Diseases	Knowledge of visual signs of pig diseases (Hog Cholera, Salmonellosis, Erysipelas, Pasteurellosis, Leptospirosis, etc.)
No. 10	Cattle/Buffalo Diseases	Knowledge of visual signs of cattle/buffalo diseases (FMD, Haemorrhagic Septicaemia, Anthrax, etc.)
No. 11	Reporting	Collection of data, understanding of reporting formats and compiling reports
No. 12	Poultry	Post-mortem of poultry, knowledge of organs and sites where lesions of different diseases occur

2.3.2 Paravet Competency Assessment: *Competency Levels*

Levels of competency of each paravet is assessed when the Paravet Competency Assessment is completed. Four levels of competency were applied under the Paravet Competency Assessment and taken from RUDEP's Capacity Building Manual. These four levels of competency (based on the percentage of total correct marks of Theoretical and Practical answers) is attached in Table 3.

Table 3: Paravet Competency Assessment; Competency Levels

Percentage of Marks Correct	Competency Level
0 – 33%	CRITICAL
34 – 67%	CONCERN
68 – 95%	CONSOLIDATED
96 – 100%	COMPETENT

2.3.3 Paravet Competency Assessment *Training-of-Trainers Course*

Upon finalizing the Paravet Competency Assessment methodology, a 2-day *Training-of-Trainers* Course was delivered to SDAH and District AHS staff (up to 38 people in total). The outline of this *ToT* Course is attached in Annex 2 (Table 7). This *ToT* Course

provided trainees with sufficient skills and capacity to conduct Paravet Competency Assessments in RUDEP Communes and Districts.

2.3.4 Paravet Competency Assessment Implementation Preparation

Prior to the development of an Implementation Plan, it was agreed that specific details on the quantity of paravets to be assessed must be outlined. Existing paravets currently working in the Communes (regardless of professional levels or educational backgrounds) was identified. It was agreed that these paravets would be assessed using the Paravet Competency Assessment format.

In 6 RUDEP Communes, paravets do not live in the Commune and are typically called from neighbouring Communes. These Communes are commonly upland, predominantly ethnic minority, extremely poor and situated in the most remote locations in the Districts. Despite the apparent lack of operating paravets in these locations, it was proposed the Competency Assessments still be conducted, however:

- A Preliminary Assessment of Animal Health Services would be conducted that involved:
 - Background information on animal health issues and problems in the Commune and facing households is collected;
 - PRA exercises conducted that assess the seasonal occurrence of livestock diseases, general animal health and production problems, and suitable support needed to build animal health services in the Commune.
- Households considered to have some skills or knowledge in animal health would still undertake the Paravet Competency Assessment; both Practical and Theoretical components of the Assessment.

The approach of conducting the Paravet Competency Assessments with households considered to have some knowledge was considered necessary and beneficial. This is because the Paravet Capacity Building Program is likely to incorporate the training of households to perform as paravets in the future. This approach, though not new in Viet Nam, faces some risks that include:

- The technical skills and knowledge to be built is extremely large and may be beyond the resources (time and funds) of SDAH and RUDEP. The formal education and literacy/numeric skills of households in upland Communes is low. Any program to build the knowledge and skills of households would need to be prolonged, use appropriate training methodologies and require substantial on-the-job technical assistance and advice.
- The 6 Communes without existing paravets are all >70% poor household according to DOLISA figures. Paravets require some form of payment from households to operate effectively; with such a high proportion of poor households it may not be possible for a paravet (or paravets) to operate sustainably over a long period of time.

Through the combination of the Preliminary Assessment of Animal Health Services and the Paravet Competency Assessments, some of these risks can be evaluated and their feasibility assessed. To support this feasibility concern, CPC and Mass Movement Representatives were invited to attend and participated in the Preliminary Assessment of Animal Health Services and Paravet Competency Assessments. It was agreed that the valuable information that could be obtained through the Preliminary Assessment of Animal Health Services warranted its application in all Communes and was subsequently conducted. The PRA tools and approaches used to conduct these exercises is outlined in Annex 4.

3 Paravet Competency Assessment Results

3.1 Levels of Participation

Table 4 illustrates the participants involved in the Paravet Competency Assessments. These results reveal that:

- 476 people in total participated in the Paravet Competency Assessment, of which:
 - 65 were paravets;
 - 261 were CPC, Village Leaders or Mass Movement Representatives; and
 - 150 households.
- Of the 65 paravets operating in the 19 RUDEP Communes:
 - 38 paravets are from the 5 lowland Communes;
 - 27 paravets operate in 8 RUDEP upland Communes;
 - 6 upland Communes have no paravets.

Table 4: Commune Participants in Paravet Competency Assessments

No.	Commune	Dates	Participants			
			Paravets	CPC Representatives	Households	Total
1	Long Son	18 June	6	8	6	20
2	Ba Le	23 June	0	18	12	30
3	Ba Nam	30 June	0	18	12	30
4	Son Bua	17 June	0	16	9	25
5	Nghia Son	21 June	1	14	5	20
6	Tra Hiep	20 June	0	28	12	40
7	Nghia Tho	28 June	1	5	13	19
8	Tra Lam	21 June	2	28	10	40
9	Tra Trung	22 June	0	9	11	20
10	Tra Lanh	24 June	0	11	9	20
11	Son Mua	16 June	2	18	10	30
12	Son Giang	18 June	6	18	6	30
13	Son Hai	17 June	4	20	8	32
14	Son Trung	16 June	5	15	10	30
15	Duc Phong*	25 June	14	1	0	15
16	Tinh Tho*	16 June	3	9	8	20
17	Hanh Phuoc*	15 June	10	10	0	20
18	Binh Minh*	20 June	5	10	5	20
19	Pho Chau*	30 June	6	5	4	15
	Total		65	261	150	476

* Indicates lowland Communes.

3.2 Preliminary Assessments of Animal Health Services

The Preliminary Assessment of Animal Health Services provided information on common livestock disease problems in the Communes and their seasonal occurrence. The results were rather similar between Communes and is highlighted in Table 5.

Table 5: Seasonal Occurrence of Livestock Diseases in 19 RUDEP Communes

Livestock Variety	Diseases	Time of occurrence
Cattle/ Buffaloes	Haemorrhagic septicemia	• April/May – December
	Diarrhoea	• October – March
	Fascioliasis	• Sporadic Occurrence
	Ascariasis	• Sporadic Occurrence
Pigs	Hog cholera	• March – October
	Swine Pasteurellosis	• April/May – December
	Swine Salmonellosis	• September – March
	Diarrhoea	• October – March
Chickens	Newcastle disease	• November – January
	Gumboro disease	• Sporadic Occurrence
	Fowl cholera	• December – April
	Fowl pox	• Sporadic Occurrence
Goats	Mouth ulceration	• Sporadic Occurrence
	Diarrhoea	• Sporadic Occurrence

The assessments of seasonal occurrence of livestock diseases and subsequent discussion revealed that:

- Livestock diseases occur throughout the calendar year. However, peak times of incidence do occur for most diseases and were highlighted by households¹.
- Livestock epidemic diseases appear to occur in periods of weather extremities (e.g. wet seasons, cold or prolonged hot weather).
- Few households invest money to raise poultry. This is largely because the high level of mortalities due epidemic diseases discourages households from investing in poultry production. Compounding this problem is the limited knowledge on the application and availability of vaccines to prevent such epidemic outbreaks.
- Cattle, pigs and chickens are the most commonly raised livestock varieties. Buffalo production levels are generally decreasing; whilst goat populations have risen sharply over recent years.
- Traditional ‘extensive’ production practices are applied by households in upland Communes. Most cattle and buffaloes are left to graze in forest areas with few households having shed to keep animals. A slightly more ‘intensive’ form of husbandry is practiced by households in lowland Communes and is reflected by the application of sheds, stys and forage/fodder cultivation.

The Problem-Cause-Effect-Solution trees revealed a range of problems associated with animal health services and livestock diseases in the Communes:

- In **Lowland Communes**, there is a higher population of people and livestock numbers than upland Communes. In some Communes (e.g. Duc Phong Commune; 4,000 households), the small numbers of paravets (14 paravets)

¹ The technical validity of this information cannot be guaranteed. When diseases were raised by households, SDAH and AHS officers discussed the common symptoms with the households and paravets. Based on this information provided and previous experience on seasonal occurrence by SDAH and AHS officers, an assumption is made on the actual disease.

does not meet the demand of households. Paravets are often away and difficult to contact. Similarly, the distribution of paravets is often not equal with some Villages not having operating paravets residing in the locality.

- In **Upland Communes**, there is a high proportion of poor households with incomes less than lowland Communes. The small income leaves little, if any, disposable income that can be used to fund the treatment of the livestock in the event of disease. Thus, paravets that do operate in these Communes struggle to operate. It is evident that for paravets to operate and provide a service for households, particularly relating to the administering of vaccines and treatments, a sufficient income needs to be generated through this service and money paid by households for their services.
- Paravets do operate in some **Upland Communes** and typically obtained certification from District Vocational Training Centres. Following certification, many of these paravets have had limited opportunities to put a lot of their skills into practice. This partly due to a limited ability of households to afford their services and treatment medicines (mentioned above). It is also compounded by these Communes being situated in remote locations with access difficulties. This makes the transportation of vaccines difficult and costly. Consequently, most of these paravets rarely operate or are mainly used to assist in Provincial and District Vaccination Campaigns held twice-yearly.
- In **Lowland Communes**, some paravets are considered to have a weak diagnostic capacity. With wrong diagnoses made and incorrect medicines administered, recovery rates can sometimes be low or requires the use of additional medicines over a series of days to treat the animal. The financial burden on households can sometimes be high as a result of this capacity weakness. Consequently, faith in the capacity of some paravets is consequently low.

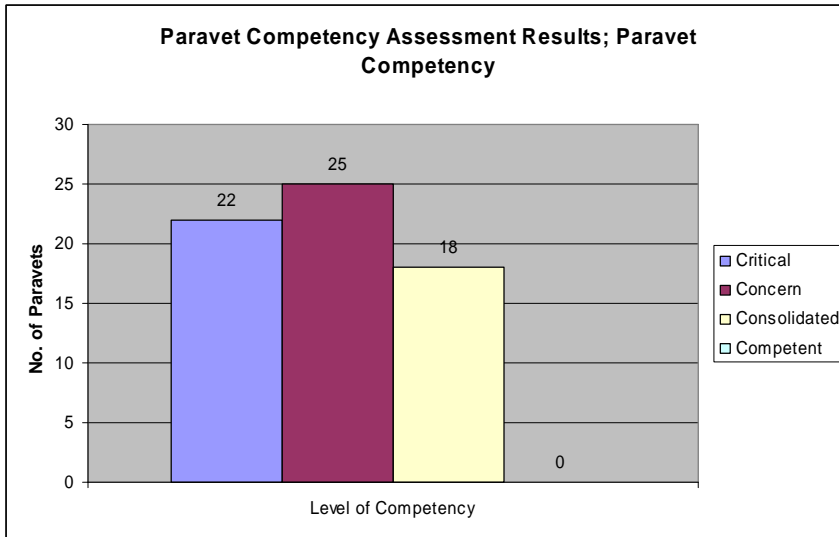
3.3 Paravet Competency Assessment Results

A total of 65 paravets undertook the Paravet Competency Assessments from 13 RUDEP Communes. Of these 65 paravets:

- No paravets are considered competent.
- 22 of the 65 paravets (34 percent) are considered 'critical'.
- 25 of the 65 paravets (38 percent) are at a 'concerned' level of competency.
- Only 18 of the 65 paravets (28 percent) are 'consolidated'.

Figure 1 illustrates the results of the Paravet Competency Assessments. This demonstrates that 47 of 65 paravets (72 percent) of paravets are at critical or concern levels of competency.

Figure 1: Paravet Competency Assessment Results; 65 Paravets in 13 RUDEP Communes



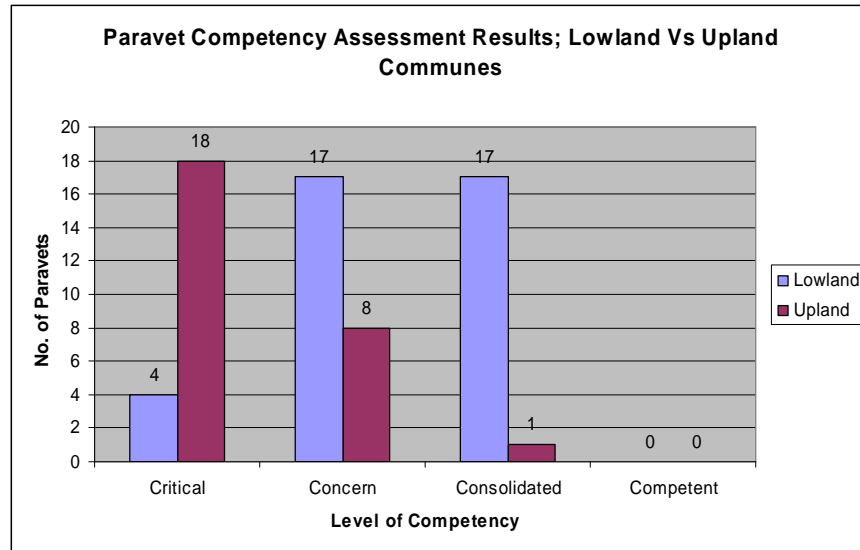
Large differences in the competency levels of upland and lowland paravets exist. Of the 65 paravets that operate in the 13 RUDEP Communes, 38 reside in the 5 lowland Communes and 28 in the 8 upland Communes that have paravets. A comparison of the level of competency between lowland and upland Commune paravets is illustrated in

Figure 2. Paravets in lowland Communes generally have higher levels of competency than paravets in upland Communes:

- 18 of the 28 paravets (64 percent) in upland Communes are considered critical.
 - Only 4 of the 38 paravets (11 percent) in lowland Communes are critical.
- 17 of the 38 paravets (45 percent) in lowland Communes are consolidated.
 - Only 1 of 28 paravets in uplands Communes is consolidated.

This analysis illustrates that although paravets exist and operate in upland Communes, >90 percent are at critical or concern levels of competency. The majority of paravets in upland Communes have critical levels of competency. In addition, the majority of paravets with critical levels of competence, are from upland ethnic minority Communes.

Figure 2: Paravet Competency Assessment Results; Comparison of Upland and Lowland Paravet Competency Levels



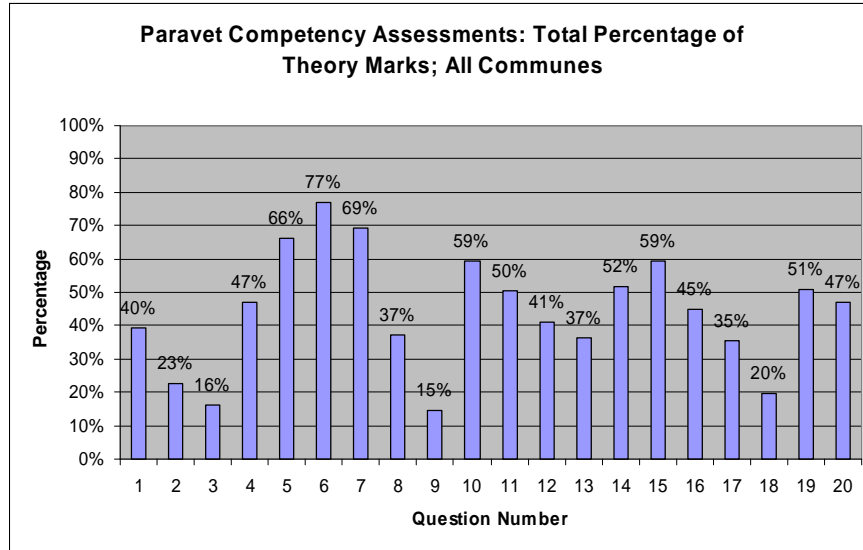
A critical analysis of the Theoretical and Practical assessment questions was undertaken to identify specific areas of weakness among paravets. Each of the Theoretical Questions and Practical Topics was linked to a specific skill and knowledge requirement. The total percentage of correct marks² for Theoretical Questions is illustrated in

² This refers to the total score of marks for each Theoretical Question and Practical Topic. For most Theoretical Questions and Practical Topics, marks for partially correct answers are given; marks are also deducted in some cases for incorrect answers. The Marking direction for the Theoretical Questions and Practical Topics is outlined in Annex 3.

Figure 3 and attached in Table 10 (Annex 5) and reveals:

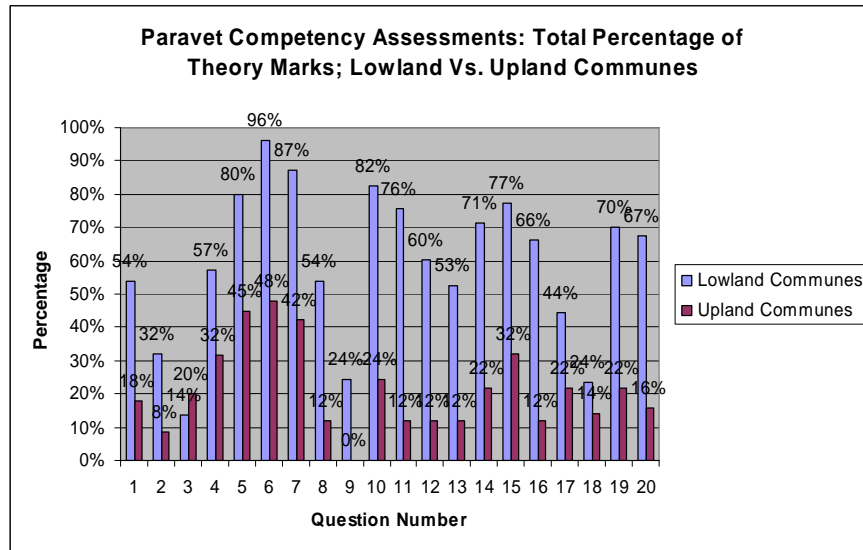
- Knowledge of contributing factors that cause diarrhoea in piglets is critical (Question 2) with few paravets understanding five contributing factors that cause diarrhoea (feed for the sow, feed for piglets, drinking water, sty condition and weather).
- There is little understanding on the term incubation and incubation period (critical in terms of competency); a fundamental concept relating to vaccinations and immunity (Question 3).
- Paravets have a critical level on knowledge on the normal body temperature range of cattle, buffaloes, pigs and piglets. This will consequently lead to a poor capacity to recognise symptoms of disease and diagnose infections (Question 9).
- The purpose and age of administration of iron injections for piglets is not well understood with paravets generally considered critical in terms of competency (Question 18).
- Not using alcohol to disinfect syringes prior to vaccination, Trypanosomiasis (clinical signs) and calculating antibiotic dosage (weight and age of animals) are not widely or fully understood by paravets and considered at the concern level of competency (Question 8, 13 and 17).
- The purpose of vaccinations and storage and transportation methods for vaccines are known by a larger proportion of paravets (Questions 6 and 7) and is consolidated.

Figure 3: Critical Analysis of Theoretical Paravet Competency Assessments; 65 Paravets



A comparison between paravets from upland and lowland Communes (based on the total percentage of Theory marks) is illustrated in Figure 4. This result illustrates vast differences in Theoretical knowledge between upland and lowland paravets. Paravets in lowland Communes on-average are more competent in terms of animal health knowledge than paravets in lowland Communes. It is evident that basic and fundamental aspects of livestock physiology, animal health and diseases are not widely understood by paravets in upland Communes.

Figure 4: Critical Analysis of Theoretical Paravet Competency Assessments; 65 Paravets; Upland and Lowland Communes

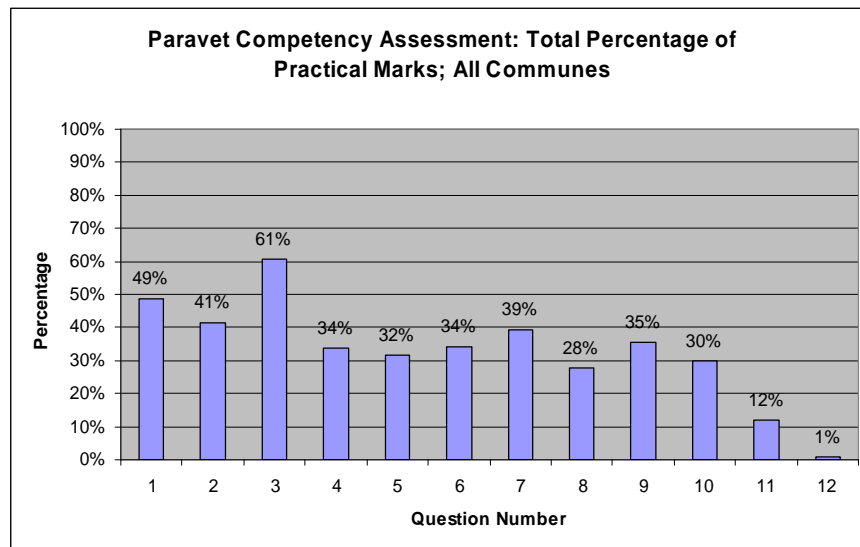


Practical exercises were conducted under the Paravet Competency Assessments and involved 12 tasks and exercises commonly conducted by an operating paravet. The results of the practical Paravet Competency Assessment is illustrated in Figure 5 and attached in

Table 11 (Annex 5) and revealed that:

- There is a critical level of competency of paravets on poultry anatomy and recognition of lesions associated with diseases in poultry (Topic 12). A critical level of competency has implications in the diagnosis and prevention of disease problems in poultry and is reflected in the low percentage of marks for Topic 8 (Poultry Disease Diagnosis).
- Reporting preparation and content is critical in the majority of paravets (Topic 11). Few paravets are capable of filling in reports correctly with appropriate information.
- Knowledge of common medicines used in the treatment of animal health diseases (Topic 5) and knowledge of the symptoms of important diseases of cattle and buffaloes (Topic 10) is critical.

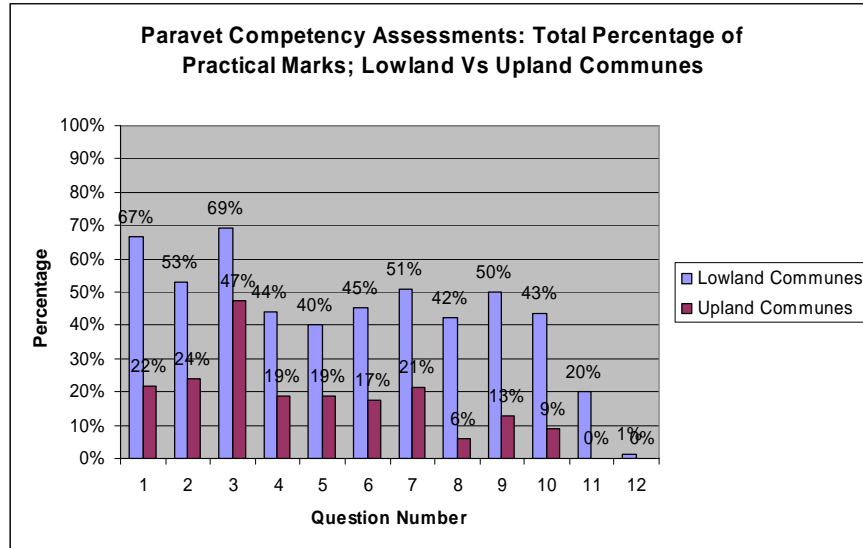
Figure 5: Critical Analysis of Practical Paravet Competency Assessments; 65 Paravets; All Communes



A comparison between lowland and upland Commune paravets on levels of practical competency was conducted. This analysis is illustrated in

Figure 6 and revealed that paravets in upland Communes are critical in terms of practical competency in 11 of the 12 Topics. Paravets in lowland Communes are consolidated in collecting basic information from livestock owners about sick animals and the use of syringes and needles (Topics 1 and 3). Upland Communes paravets have a much lower level of capacity than lowland paravets in the knowledge and capacity to diagnose common diseases of chickens, pigs and cattle/buffaloes.

Figure 6: Critical Analysis of Practical Paravet Competency Assessments; 65 Paravets; Upland and Lowland Communes

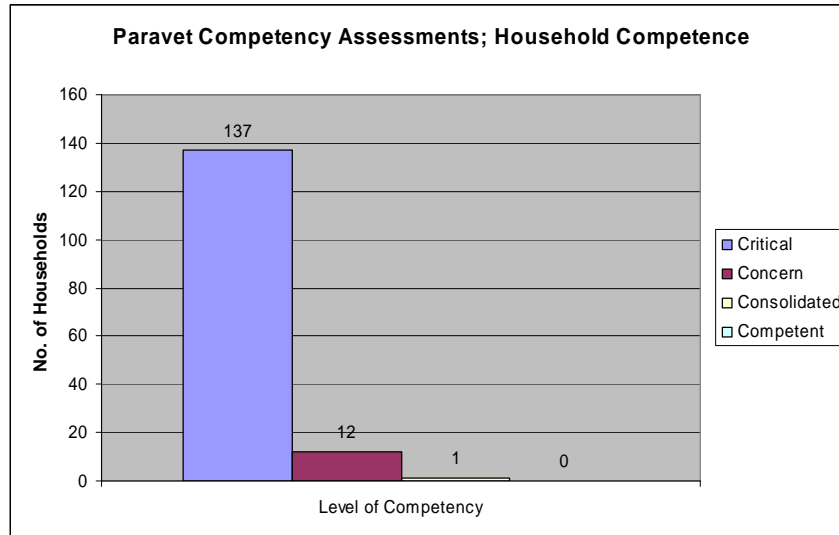


Training of households to be paravets is commonly conducted by many projects throughout Viet Nam. Prior to initiating such an activity in Quang Ngai Province as a component of the Paravet Capacity Building Program, it was considered important to assess the animal health skills and knowledge levels of households (using the Paravet Competency Assessment format). Of the 150 households participating that were considered to have some degree of animal health knowledge that undertook the Paravet Competency Assessments:

- 137 households were critical;
- 12 households were concern;
- 1 household was consolidated; and
- No household was considered competent.

Figure 7 illustrates the results of the Paravet Competency Assessments conducted with 150 households in 16 RUDEP Communes. No analysis of the differences between upland and lowland Communes was conducted.

Figure 7: Paravet Competency Assessment Results; 150 Households in 16 RUDEP Communes



Training of some households to function as Commune/Village paravets is warranted and beneficial. However, this assessment reveals that households considered to have technical on animal health largely are incompetent. This has implications for future approach to train households to perform as paravets. It is probable that their basic knowledge on animal health and physiology would be extremely low. With such a low knowledge foundation from which to build, it is evident that sustained long-term training support and technical assistance will be required to develop competency.

3.4 Main Findings and Implications

The results of the Paravet Competency Assessments revealed:

- The majority of paravets in the 13 RUDEP Communes are at critical or concern levels of competence; few paravets are consolidating and no paravets are competent. This highlights a major constraint to animal health service delivery in many Communes and is possibly indicative of the situation throughout the Province.
- Few paravets exist in upland ethnic minority Communes. Paravets that do exist in upland Communes on average have lower skill and knowledge levels than those in lowland Communes. Animal health services in upland ethnic minority Communes are constrained with households likely to face difficulties in preventing and treating disease outbreaks.
- Knowledge of fundamental concepts of animal health and livestock physiology appears low, particularly in upland Communes. Without basic knowledge on fundamental concepts (e.g. normal body temperatures of pigs and cattle) it is probable that misdiagnoses made and incorrect treatments administered. Any future paravet training courses must incorporate and reinforce basic concepts of livestock physiology.
- Though Theoretical knowledge in some instances may be high (e.g. for lowland paravets), practical skills and capacity is typically lower. For example, knowledge of the purpose and desired uses of vaccines may be adequate; however practical assessments revealed incorrect or insufficient preparation and administration of vaccines.
- Diagnostic skills of paravets are a concern. This is particularly the case for upland paravets who have a poor capacity to diagnose pig, chicken and cattle diseases. In general, there is a limited capacity of paravets to diagnose diseases

in poultry or understand chicken anatomy. Concerns must be raised regarding the proper diagnosis of Avian Influenza in the event of outbreaks. Misdiagnosis (differential diagnosis) of Avian Influenza as Newcastle or Gumboro Disease could be made given such a low level of knowledge and skills.

- Knowledge on vaccinations and correct methods to sterilise syringes and needles is surprisingly low. Twice per year, the Provincial Sub-Department of Animal Health, in combination with District Animal Health Stations and paravets, conduct vaccination campaigns in each Commune. Inadequate knowledge and the wrong methods to sterilise needles will consequently reduce the effectiveness of vaccines.
- Training of households to be paravets in some Communes, and in some Villages that do not have paravets, is warranted. However, sustained long-term training and technical assistance is necessary. Training approaches will need to be appropriate given the language, literacy and education levels in some ethnic minority Communes. Any such approach to improve animal health services through training households to perform as paravets must start with basic livestock physiology, simple measures to prevent disease (e.g. improved animal husbandry) and vaccination approaches.

The results of the Paravet Competency Assessment will support the development of a Paravet Capacity Building Program between RUDEP and SDAH. It is evident that such a Capacity Building Program must incorporate the following approaches and concepts:

- Pre- and Post-Course Assessments of each Training Course must be conducted. This will measure knowledge of each topic before training and identify knowledge and competency gains as a result of training. Any topics that paravets are still not competent in can be refreshed in future Training Courses and identify areas in which follow-up technical assistance may be required.
- Fundamental concepts of livestock physiology and causative agents of disease must provide the foundation for any Paravet Capacity Building Program and Training Course. Improved animal husbandry practices are essential. Proceeding further into disease treatment and other topics should not occur until paravets are competent in these areas.
- Training Courses must apply both theoretical information and adequate time for practical demonstrations and exercises. The Paravet Competency Assessment reveals that theoretical knowledge in some instances can be consolidated, but in practice is not appropriate.
- Training methodologies and approaches must be appropriate for ethnic minority households with low literacy and education levels. This will particularly be the case in Training Courses and Programs aimed at training households to perform as paravets. Women must have opportunities to participate in these Training Courses and work as paravets.

4 Conclusion

The results of the Paravet Competency Assessment revealed the following:

- Animal health problems and livestock diseases are a significant problem affecting households and household income in RUDEP Communes. Animal health services and paravets struggle to mitigate this problem. In Lowland Communes, the numbers of paravets varies and is typically insufficient to meet the demands of households.
- Six upland Communes have no paravets with eight upland Communes have paravets. Paravets in upland Communes struggle to operate due to low incomes of households in these areas and long distances and difficulties to access medicines in the District towns. Consequently, most of these paravets rarely operate and mainly assist in Provincial and District Vaccination Campaigns held twice-yearly.
- The Paravet Competency Assessment revealed that 34 percent of paravets are critical in terms of competency. Approximately 38 percent of paravets are at concern levels and only 28 percent of paravets are consolidated. No paravets are considered competent.
- Paravets in upland Communes have a lower level of competency than paravets in lowland Communes. Approximately 64 percent of paravets in upland Communes are critical; compared to only 11 percent in lowland Communes. Forty-five percent of paravets in lowland Communes are consolidated; only one of twenty-eight paravets in upland Communes is consolidated.
- An analysis of the questions and topics assessed under the Paravet Competency Assessment highlights concerns. It is evident that an understanding of fundamental concepts of livestock physiology and contributing factors to disease are lacking. Vaccination and sterilisation are commonly performed by paravets; however, knowledge on basic concepts and methods varies and in many instances is lacking.
- Diagnostic skills of paravets are a concern. This is particularly the case for upland paravets who have a poor capacity to diagnose pig, chicken and cattle diseases. In general, there is a limited capacity of paravets to diagnose diseases in poultry or understand chicken anatomy. Concerns must be raised regarding the proper diagnosis of Avian Influenza.
- Training of households to be paravets in some Communes, and in some Villages that do not have paravets, is warranted. However, sustained long-term training and technical assistance is necessary. Training approaches will need to be appropriate given the language, literacy and education levels in some ethnic minority Communes. Any such approach to improve animal health services through training households to perform as paravets must start with basic livestock physiology, simple measures to prevent disease and vaccination approaches.

Limitations

URS Australia Pty Ltd (URS) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of the AusAID Quang Ngai Rural Development Program and only those third parties who have been authorised in writing by URS to rely on the report. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Program Design Document.

The methodology adopted and sources of information used by URS are outlined in this report. URS has made no independent verification of this information beyond the agreed scope of works and URS assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to URS was false.

This report was prepared during March and April 2005 and is based on the conditions encountered and information reviewed at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

Annex 1: Paravet Competency Profile

Table 6: Paravet Competency Profile: Quang Ngai Province

Roles & responsibilities	General requirements	Basic Veterinary Knowledge	Poultry diseases		Pig diseases		Cattle/buffalo diseases		Goat diseases	Other skills
Contact directly with HHs, diagnose and treat sick livestock	Have professional ethics	Causes of disease in animals	<i>Diagnosis, prevention and treatment of diseases:</i> (1) Poultry Pasteurellosis, (2) Poultry Salmonellosis	<i>Skill of recognizing sick poultry</i>	<i>Diagnosis, prevention and treatment of diseases:</i> (1) Swine Pasteurellosis, (2) Swine Salmonellosis, (3) Erysipelas, (4) Leptospirosis, (5) Diarrhea in piglets by E. coli, (6) Palsy in sows	<i>Restraining techniques for pigs</i>	<i>Diagnosis, prevention and treatment of disease:</i> (1) Hemorrhagic septicemia	<i>Restraining techniques for cattle/buffalo</i>	<i>Diagnosis, prevention and treatment of disease:</i> (1) Diarrhea in goats, (2) Dermatophyte	Castration
Advise local authorities (CPC and DPC) and participate directly in vaccination campaigns and epidemic control	Understand the Veterinary Ordinance Land and Animal Breeding Law	Prophylactic measures for animals	<i>Diagnosis and prevention of diseases:</i> (3) Newcastle, (4) Gumboro, (5) Avian Influenza, (6) Fowl pox, (7) Duck plague, (8) Hepatitis by virus in duck	<i>Operating to find lesions in poultry</i>	<i>Diagnosis and prevention of diseases:</i> (7) Hog Cholera, (8) Foot and Mouth Disease, (9) Enzootic pneumonia, (10) Swollen head in piglets, (11) diarrhea syndrome in piglets	<i>Operating to find lesions in pigs</i>	<i>Diagnosis and prevention of diseases:</i> (2) Foot and Mouth Disease, (3) Bloating, (4) Dyspepsia, (5) Ulcerated skin and curly ear, (6) Diarrhea caused by enteritis in cattle/buffalo, (7) Cyanide poisoning	<i>Examining cattle/buffalo</i>	<i>Diagnosis and prevention of diseases:</i> (3) Foot and Mouth Disease, (4) Ulcerated mouth	Artificial insemination for pigs and cattle
Participate in control slaughtering and veterinary hygiene regulation under guidance from SDAH		Skill diagnosing animal diseases		<i>Skill of giving medicine to poultry through mouth, intramuscular</i>		<i>Skill of giving medicine to pigs through mouth, intramuscular injection,</i>		<i>Skill of giving medicine to cattle/buffalo through mouth, intramuscular</i>		Treatment of wounds and abscess

Roles & responsibilities	General requirements	Basic Veterinary Knowledge	Poultry diseases	Pig diseases	Cattle/buffalo diseases	Goat diseases	Other skills
			<i>injection, subcutaneous injection</i>	<i>subcutaneous injection</i>	<i>injection, subcutaneous injection</i>		
Propagandize and support farmers in animal husbandry and animal health	Skills in liaising and working with farmers	Properties, storage, transfer and use of some kinds of vaccines					Delivering techniques for pigs and cattle
Report epidemic diseases to Commune authorities (CPC) and AHS	Report writing skills	Techniques for disinfecting and septics for veterinary tools	Prevention of parasitic diseases in poultry	Prevention of parasitic diseases in pig	<i>Prevention of blood parasites, Ascarid in calves, Fascioliasis in cattle/buffalo, Mange</i>		Treatment of reactions caused by vaccination
		Use of thermometers, syringes and needles					
		Estimating animal body weight					
		Dissolving and use of antiseptics					

Roles & responsibilities	General requirements	Basic Veterinary Knowledge	Poultry diseases	Pig diseases	Cattle/buffalo diseases	Goat diseases	Other skills
		Medical properties and principles for using different types of medicines for treatment					

Annex 2: Paravet Competency Assessment Methodology³

‘Questionnaire to Assess the Theoretical Knowledge of Paravets’

1. For each of the following diseases, please indicate whether it is caused by a parasite (P), virus (V) or bacteria (B). *(1 point)*

- Newcastle Disease	V	- Leptospirosis	B
- Avian Influenza	V	- Diarrhoea in piglets by E. coli	B
- Gumboro	V	- Enzootic pneumonia	B
- Pasteurellosis in poultry	B	- Palsy in sow	-
- Duck plague	V	- Foot and Mouth Disease	V
- Hog Cholera	V	- Hemorrhagic septicemia	B
- Swine Salmonellosis	B	- Trypanosomiasis	P
- Erysipelas	B	- Fascioliasis in cattle/buffalo	P
- Pasteurellosis in pig	B	- Ascarid in calves	P
- Taenia in pig	P	- Anthrax	B

@ Marking direction: 0.1 point for correct answer; maximum of 1 point

2. What are the common causes of diarrhoea in piglets? *(1 point)*

- Food for sows: **insufficient, unbalanced**
- Food for piglets: **lacks milk, mineral (Fe), sudden changes**
- Drinking water: **insufficient, dirty**
- Stable: **dirty, wet floor, draught**
- Weather: **too hot, cold, wet**

@ Marking direction: 0.2 point for each correct item; 1 point for all

3. What is meant by “Incubation period”? What does an animal look like during the “Incubation period”? *(1 point)*

³ Marking directions are given and the correct answers are highlighted.

- Show the concept of incubation
- During the incubation period the animal does not show symptoms

@ Marking direction: 0.5 point for each correct answer; 1 point for all

4. How do you disinfect veterinary equipment (pin, scissor, syringe and needles)?

(tick the correct answers; as many as required) (1 point)

Wash with clean water

R Boil 30 minutes

Boil 15 minutes

Disinfect with Formol

Dip in boiling water

@ Marking direction: 1 point for the correct answer; minus 0.25 point for each incorrect answer

5. How do you disinfect a stable? (tick the correct answers; as many as required)

(1 point)

R Apply concentrated lime solution

Spray and wash with clean water with high pressure

R Use Chloramin 2%

R Use Formol 2-5%

R Use BKA 1-2%

@ Marking direction: 0.25 point for each correct answer; minus 0.25 point for the incorrect answer

6. What is the purpose of vaccination? (tick the correct answers; as many as

required) (1 point)

To treat diseases

R To prevent diseases

To stimulate growth in livestock

@ Marking direction: 1 point for the correct answers; minus 0.25 point for each incorrect answer

7. How do you store and transport vaccines correctly? (tick the correct answers;

as many as required) (1 point)

R Store the vaccine in the refrigerator at 2-8 °C

Store the vaccine in the freezer compartment of the refrigerator

R Transport the vaccine in a cooling container with ice

Transport the vaccine in a cooling container without ice

Keep it on a shelf together with drugs

@ Marking direction: 0.5 point for each correct answer; minus 0.3 point for each incorrect answer

8. Should syringes and needles be disinfected with Alcohol before using them for vaccination? (1 point)

Yes

No **R**

Why? Alcohol will spoil the vaccine.

@ Marking direction: 0.3 point for the correct answer; 0.7 point for the correct explanation; 1 point for all

9. What are the normal body temperatures of following animals: (1 point)

- Buffalo: 38.0 - 38.5 °C
- Cattle: 38.0 - 39.0 °C
- Pig: 38.5 - 39.0 °C
- Piglet: 39.5 - 39.8 °C

@ Marking direction: 0.25 point for each correct answer; 1 point for all

10. In order to make a good diagnosis of a diseased animal, we need to: (tick the correct answers; as many as required) (1 point)

- R** Ask the farmer questions about the diseased animal
- Ask the value of the animal
- R** Observe the animal
- R** Take the body temperature of the animal
- Inject it with antibiotics immediately

@ Marking direction: 0.3 point for each correct tick; 1 point for all answers being correct; minus 0.3 point for each incorrect answer

11. a) List the clinical signs of Hog Cholera

(tick the correct answers; as many as required) (0.5 point)

Breathe normally

- R** Haemorrhage like “mosquito bites” on the thin skin
- Swollen fauces and face

- R** Diarrhoea with watery and fetid faeces

@ Marking direction: 0.25 point for each correct answer; minus 0.25 point for each incorrect answer

b) List the lesions of Hog Cholera

(tick the correct answers; as many as required) (0.5 point)

Spleen is blue-purple, swollen in the middle, pliable but strong like rubber when being cut

- R** Circle shaped ulcers at the ileum- caecum valve

@ Marking direction: 0.5 point for the correct answer; minus 0.5 point for the incorrect answer

12. a) List the characteristics and clinical signs of Newcastle disease

(tick the correct answers; as many as required) *(0.5 point)*

Spreads very quickly with high mortality in chickens, ducks, swans and geese

R Diarrhoea with green-white faeces

R Breathes very hard

Swollen head and crest

@ Marking direction: 0.25 point for each correct answer; minus 0.25 point for each incorrect answer

b) List the lesions of Newcastle disease *(tick the correct answers; as many as required)* *(0.5 point)*

Subcutaneous haemorrhage in the leg and spaces between toes

R Haemorrhage on holes of pre-ventriculus

R Haemorrhage in intestine with ulcers

@ Marking direction: 0.25 point for each correct answer; minus 0.25 point for the incorrect answer

13. a) List the characteristics and clinical signs of Trypanosomiasis in cattle/buffalo *(tick the correct answers; as many as required)* *(0.5 point)*

Cause by a bacteria

R Progress slowly

High fever continuously for several days

R The animal is very thin with pale mucous membrane

@ Marking direction: 0.25 point for each correct answer; minus 0.25 point for each incorrect answer

b) Medicines for treating Trypanosomiasis in Cattle/ Buffalo *(tick the correct answers; as many as required)* *(0.5 point)*

Ampicillin

R Azidin

Levamisol

R Trypamidium

@ Marking direction: 0.25 point for each correct answer; minus 0.25 point for each incorrect answer

14. What do you use antibiotics for? *(tick the correct answers; as many as required)* *(1 point)*

Disease prevention

Treatment of viral diseases

R Treatment of bacterial diseases

Treatment of parasitic diseases

@ Marking direction: 1 point for the correct answer; minus 0.3 point for each incorrect answer

15. What is the minimum duration of an antibiotic treatment?

(tick the correct answers; as many as required) (1 point)

1 day

2 days

R 3 days

1 week

@ Marking direction: 1 point for the correct answer; minus 0.3 point for each incorrect answer

16. Identify from the following list of drugs: Antibiotics with an ‘A’ and Parasiticides with a ‘P’ (1 point)

Penicillin	A	Analgin		Tetracyclin	A
Levamisol	P	Streptomycin	A	Calmaphos	
Dextran-Fe		Trypamidium	P	Dexamethasone	

@ Marking direction: 0.2 point for each correct answer; minus 0.2 point for each incorrect answer

17. What is important for the use of antibiotics?

(tick the correct answers; as many as required) (1 point)

R The body weight of the animal

R The age of the animal

The sex of the animal

Gradual increase of the dose

Combination of at least 3 antibiotics

@ Marking direction: 0.5 point for each correct answer; minus 0.3 point for each incorrect answer

18. What is the purpose of Iron injections (Dextran Fe) for piglets? (1 point)

Prevent anaemia in piglets.

@ Marking direction: 0.5 point

At what age do you usually inject Piglets with Iron injections?

3 and 10 days of age

@ Marking direction: 0.5 point

19. Why and when are vaccines not effective?

(tick the correct answers; as many as required) (1 point)

R Bad storage and transportation

R Expired

R Injection needle is too short for intramuscular injection

R Vaccination is given during incubation time

R The vaccine dose was not enough

Wrong sex of the animal

@ Marking direction: 0.2 point for each correct answer; minus 0.2 point for the incorrect answer

20. True or false? (tick the true statements) (1 point)

R Prevention is better than cure

After examining a group of pigs with Hog Cholera it is not necessary to disinfect your hands/shoes before going to another pig farm

R Avian Influenza cannot be cured by antibiotics

Calves should not be fed colostrum

Do not let piglets with diarrhoea drink

@ Marking direction: 0.5 point for each correct statement; minus 0.3 point for each incorrect statement

'Content and Methods to Assess Practical Skills of Paravets'

- 1. Collecting information about a sick animal from the owner** (1.5 points)
 - The evaluator gives a situation: a household has a sick flock of chickens, a sick pig or a sick cow/buffalo; the paravet is called to help.
 - The evaluator plays the role of the owner and requests the paravet to provide questions that he/she can use to collect information about the sick animal.

- 2. Using thermometers** (1.5 points)
 - Preparation: a thermometer (can be set above the normal temperature of the animal)
 - Requirement for paravets:
 - Demonstrate the usage of a thermometer (for pigs and cattle/buffaloes).
 - Read the number on the thermometer scale.
 - The evaluator gives the different temperatures of each type of animal (pigs and cattle/buffaloes) and requests the paravet to answer if it have a fever.

- 3. Using syringes and needles** (1.5 points)
 - Preparation: a syringe (metal), needles of several sizes, 5 ml ampoule of distilled water, pin.
 - Requirement for paravets:
 - Disassemble and then assemble the parts of the syringe. Check for suitable tightness.
 - Pull the medicine up into the syringe cylinder (replaced by distilled water).
 - Show the intramuscular, subcutaneous injection sites for chickens, pigs and cattle/buffaloes (if possible, request the paravet to show the injection sites on live animals).
 - Disinfection of syringes and needles.

- 4. Calculating, diluting and using antiseptics** (1.5 points)
 - Preparation: a 100 ml bottle of BKA antiseptic, an 8-10L sprayer, a bucket of water.
 - Requirement for paravets:
 - Calculate to dilute 1%BKA in 5L.
 - Perform the dilution and spraying.

@ You can test the paravet's knowledge of other kinds of antiseptics!

- 5. Some commonly used medicines for treatment** (1.5 points)
 - Preparation: Some antibiotics (e.g. Penicillin, Streptomycin, Ampicillin, Tylosin) in both powder and liquid forms; some parasiticides (e.g. Tayzu, Azidin, Dertil-B); vitamins, minerals, hydration powder.
 - Requirement for paravets:
 - Classify medicines into groups (Antibiotics or Parasiticides)
 - Show the main medical properties of specific medicines.
 - The evaluator gives some situations and requests the paravet to answer:
 - o How do you measure the right dose of Tayzu (4 g packet) to worm a household's chickens at different ages?

- How do you measure the right dose of Penicillin (1 million IU bottle) to cure a pig suffering from Erysipelas?
- How do you measure the right dose of Streptomycin (1 g bottle) to cure a cow suffering from Hemorrhagic septicemia?

6. Knowledge of live and inactive vaccines (1.5 points)

- Preparation: Some live vaccines (e.g. Lasota, Hog Cholera, etc) and some inactive vaccines (Hemorrhagic septicemia).
- Requirement for paravets:
 - Dilution: levels and quantities with distilled water/NaCl 0.9%?
 - Administering: eye, nose drops, intramuscular or subcutaneous injection?
 - Storage and transportation of each type of vaccine.

7. Administering medicines through an animal's mouth (1.5 points)

- Preparation: a medicine packet in powder form (e.g. Tayzu) and tablets (e.g. Dertil-B)
- Requirement for paravets:
 - Mixing a small amount of powdered medicine into feed for chickens/pigs.
 - Dissolving powdered medicine into drinking water for chickens.
 - Administering tablet and liquid medicines to chickens, pigs and cattle/buffaloes.

8. Knowledge of some important chicken diseases (2 points)

- Preparation: some colour pictures (20x30 cm) of symptoms and lesions of some important poultry diseases (e.g. Newcastle, Gumboro, Avian Influenza, etc)
- Requirement for paravets:
 - Comment on the pictures (Name of organs? Characteristics of different diseases?)
 - Common symptoms of different diseases (differential diagnosis)? How to distinguish?

9. Knowledge of some important pig diseases (2 points)

- Preparation: some colour pictures (20x30 cm) of symptoms and lesions of some important pig diseases (e.g. Hog Cholera, Swine Salmonellosis, Erysipelas, Swine Pasteurellosis, Leptospirosis, Ascariasis)
- Requirement for paravets:
 - Comment on the pictures (Name of organs? Characteristics of different diseases?)
 - Common symptoms of different diseases (differential diagnosis)? How to distinguish?

10. Knowledge of some important cattle/buffalo diseases (2 points)

- Preparation: some colour pictures (20x30 cm) of the symptoms and lesions of some important cattle/buffalo diseases (e.g. Foot and Mouth Disease, Hemorrhagic septicemia, Anthrax, etc.)
- Requirement for paravets:
 - Comment on the pictures (Name of organs? Characteristics of different diseases?)

-
- Common symptoms of different diseases (differential diagnosis)? How to distinguish?

11. Writing report *(1.5 points)*

- Preparation: some report formats (on epidemic diseases, vaccination in the commune)
- Requirement for paravets:
 - Explain some items in reports.
 - How to collect data (as a paravet/Head of Commune Animal Health Committee)?
 - Fill in the reports.

12. Operating poultry *(2 points)*

- Preparation: a chicken or duck, scissor, scalpel, pin, straw and fresh water.
- Requirement for paravets:
 - Perform the operation.
 - Show the organs.
 - Describe some possible lesions and characteristics of different diseases.

Annex 3: Paravet Competency Assessment *ToT* Course Outline

Table 7: Paravet Competency Assessment *Training-of-Trainer* Course Outline

Time	Content	Responsibility
Day 1		
08.00 – 08.15	Introduction	RUDEP
08.15 – 08.30	Activities conducted by SDAH in cooperation with RUDEP	SDAH
08.30 – 08.50	Significance of the objective of Paravet Capacity Profiles	RUDEP
08.50 – 09.10	Findings of the workshop on Paravet Competency Profiles (29 April 2004)	Animal Health Trainer
09.10 – 09.30	Break	
09.30 – 11.30	Discussion on the Paravet Competency Profile content	All participants
13.30 – 14.30	Group presentations	All participants
14.30 – 15.00	Plenary discussion	All participants
15.00 – 15.15	Break	
15.15 – 16.30	Plenary discussion (cont.)	All participants
Day 2		
08.00 – 08.30	Draft content to evaluate theoretical knowledge of paravets	Animal Health Training
08.30 – 09.00	Group discussions	All participants
09.00 – 09.30	Group presentations	All participants
09.30 – 09.45	Break	
09.45 – 10.30	Plenary discussion	All participants
10.30 – 11.30	Methods to evaluate theoretical knowledge of paravets	All participants
13.30 – 13.50	Plenary discussion on feasible practical skills	All participants
13.50 – 14.10	Draft content to evaluate practical skills of paravets	Animal Health Trainer
14.10 – 15.00	Plenary discussions	All participants
15.00 – 15.15	Break	
15.15 – 16.05	Assessment methods	All participants
16.05 – 16.30	Review of the Workshop	Animal Health Trainer

Annex 4: Preliminary Assessment of Animal Health Services Outline

Seasonal Calendar:

- Facilitate a Seasonal Calendar of Livestock Diseases with participants at the meeting.
- Once a Seasonal Calendar exercise has been completed, identify the main period of time and livestock varieties when disease occurs:
- When the seasonal occurrence of all livestock diseases is agreed, highlight the main diseases and discuss:
 - Estimated prevalence;
 - Mortality/morbidity;
 - Symptoms of disease;
 - Timing and frequency of infection;
 - Methods used to prevent and treat the disease.
- Once the main diseases are highlighted and the additional information requested is recorded, ask the participants to discuss on which of the diseases is considered the most significant (and *why*).

Problem – Cause – Effect – Solution Tree

- Place in the centre of an A0 sheet a coloured card with ‘Livestock Diseases’ clearly written on the Card – this is the problem that will be analysed.
- Ask the participants about some of the ‘Causes’ of livestock diseases in the Commune. For each ‘Cause’ that is clarified and agreed, write the ‘Cause’ on a coloured ‘Cause Card’ and place it above the ‘Livestock Diseases’ card. Draw an arrow to show a link to the ‘Livestock Diseases’ Card.
- Each ‘Cause Card’ may have many contributing causative factors – therefore, each ‘Cause Card’ should be discussed to outline if there are any other contributing factors to the problem. This will help to develop a ‘Cause Tree’ showing links between the different problem and associated causes.
- Ask the participants ‘What are the effects of the livestock diseases?’. Write each effect on a card – an ‘effect card’ (different colour to the ‘cause cards’). Attach each of the ‘effect cards’ below the problem and draw an arrow to show the links to the problem and other ‘effect cards’.
- Each ‘Effect Card’ may have many contributing factors – therefore, each ‘Effects Card’ should be discussed to outline if there are any other follow-on consequences of the problem. This will help to develop an ‘Effects Tree’ showing the links between the different effects and consequences.
- Ask the participants about activities that could be implemented to overcome the Cause of ‘Livestock Diseases’ in the Commune.
- Write each solution or activity on a card – a ‘Solution Card’ (different colour to the ‘cause’ and ‘effect cards’). Place the ‘solution cards’ on top of the ‘cause card’ and the problem that it will solve.
- Once all possible solutions have been raised, make sure that these are recorded and easily seen – they are needed for the next exercise.

Matrix Analysis of Options to Build Animal Health Services in the Commune

- Record the options ('Solutions') identified through the Problem – Cause – Effect – Solution Tree and place these on the Matrix attached below.
- Criteria are placed on the top row and explained to the participants clearly and repeated to make sure that they understand them. The purpose of this exercise is to conduct a preliminary assessment of the feasibility and sustainability of the options proposed.
- For each of the activities identified, assess:
 - Specific activities involved;
 - Perceived benefit and outputs;
 - Immediate beneficiaries and users;
 - Risks associated (sustainability, access, availability, application, etc);
 - Sustainability (*will the outputs of the activity be sustainable*);
 - Feasibility (*assess resources necessary, sustainability and risks to discuss and rank the feasibility of the activities*)
- Discuss the final results outline some of the options raised and necessities to make the activities sustainable.

Annex 5: Paravet Competency Assessment Results

Table 8: Paravet Competency Assessment Results; Paravets in 14 RUDEP Communes

Paravet Competency Assessment Results; Paravets					
Commune	Total	Critical	Concern	Consolidated	Competent
Long Son	6	3	2	1	0
Ba Le	0	0	0	0	0
Ba Nam	0	0	0	0	0
Son Bua	0	0	0	0	0
Nghia Son	1	0	1	0	0
Tra Hiep	0	0	0	0	0
Nghia Tho	1	0	1	0	0
Tra Lam	2	2	0	0	0
Tra Trung	0	0	0	0	0
Tra Lanh	0	0	0	0	0
Son Mua	2	0	2	0	0
Son Giang	6	6	0	0	0
Son Hai	4	4	0	0	0
Son Trung	5	3	2	0	0
Duc Phong	14	4	5	5	0
Tinh Tho	3	0	1	2	0
Hanh Phuoc	10	0	6	4	0
Binh Minh	5	0	2	3	0
Pho Chau	6	0	3	3	0
Total	65	22	25	18	0

Table 9: Competency Assessment Results with households in 19 RUDEP Communes

Competency Assessment Results with Households					
Commune	Critical	Concerned	Consolidated	Competent	Total
Long Son	6	0	0	0	6
Ba Le	12	0	0	0	12
Ba Nam	12	0	0	0	12
Son Bua	9	0	0	0	9
Nghia Son	5	0	0	0	5
Tra Hiep	12	0	0	0	12
Nghia Tho	12	1	0	0	13
Tra Lam	10	0	0	0	10
Tra Trung	11	0	0	0	11
Tra Lanh	9	0	0	0	9
Son Mua	9	1	0	0	10
Son Giang	6	0	0	0	6
Son Hai	8	0	0	0	8
Son Trung	9	1	0	0	10
Duc Phong	0	0	0	0	0
Tinh Tho	6	2	0	0	8
Hanh Phuoc	0	0	0	0	0
Binh Minh	0	4	1	0	5
Pho Chau	1	3	0	0	4
Total	137	12	1	0	150

Table 10: Paravet Competency Assessment Results; Theoretical Knowledge

Question	Topic	Assessed Knowledge and Competency	Level of Paravet Competency		
			Lowland	Upland	Total
No. 1	Causes of livestock and poultry disease	Knowledge of bacterial, viral or parasitic causes of disease or infection	Concern	Critical	Concern
No. 2	Diarrhoea in piglets	Contributing and causative factors of diarrhoea in piglets	Critical	Critical	Critical
No. 3	Incubation Period	Understand concept of incubation period	Critical	Critical	Critical
No. 4	Disinfection of veterinary equipment	Know how to disinfect veterinary equipment safely and properly	Concern	Critical	Concern
No. 5	Disinfection of Stables or Stys	Correct methods and treatments for disinfecting stables and stys	Consolidated	Concern	Concern
No. 6	Purpose of Vaccinations	Purpose of vaccinations to prevent disease	Consolidated	Concern	Consolidated
No. 7	Storage and Transportation of Vaccines	Correct methods for storing and transporting vaccines	Consolidated	Concern	Consolidated
No. 8	Use of Alcohol in Sterilisation	Use of alcohol in sterilising needles is <u>inappropriate</u>	Concern	Critical	Concern
No. 9	Body Temperature	Normal body temperature of buffaloes, cattle, pigs and chickens	Critical	Critical	Critical
No. 10	Preliminary diagnoses of diseased animals	Consulting households, observing the animal and taking body temperatures	Consolidated	Critical	Concern
No. 11	Hog Cholera	Clinical signs and lesions of Hog Cholera	Consolidated	Critical	Concern
No. 12	Newcastle Disease	Clinical signs and lesions of Newcastle Disease	Concern	Critical	Concern
No. 13	Trypanosomiasis	Clinical signs and treatment of Trypanosomiasis	Concern	Critical	Concern
No. 14	Antibiotics	Purpose of antibiotic use	Consolidated	Critical	Concern
No. 15	Antibiotics	Duration of antibiotic treatment	Consolidated	Critical	Concern
No. 16	Antibiotics and Parasiticides	Correct use of antibiotics and parasiticides	Concern	Critical	Concern
No. 17	Antibiotics	Body weight and age to determine dosage amounts	Consolidated	Critical	Concern
No. 18	Iron injections for piglets	Purpose and age at administration	Critical	Critical	Critical
No. 19	Vaccines	Factors affecting vaccine quality	Consolidated	Critical	Concern
No. 20	True or False	Five statements (indicate true or false)	Consolidated	Critical	Concern

Table 11: Paravet Competency Assessment Results; Practical Topics

Question	Topic	Assessed Skill and Competency	Level of Paravet Competency		
			Lowland	Lowland	Lowland
No. 1	Preliminary Disease Diagnosis	Correct questions to ask households to facilitate diagnosis and understanding of the disease problem	Consolidated	Critical	Concern
No. 2	Use of Thermometers	Correct usage of a thermometer and knowledge of fever in different livestock varieties	Concern	Critical	Concern
No. 3	Syringes and Needles	Assembling, correct administration site (intramuscular and subcutaneous of chickens, pigs and cattle) and disinfection/sterilisation	Consolidated	Concern	Concern
No. 4	Antiseptics	Calculating and diluting antiseptics	Concern	Critical	Concern
No. 5	Treatment Medicines	Desired use of medicines and dosage levels of parasiticides and antibiotics	Concern	Critical	Critical
No. 6	Vaccines	Knowledge of live and inactive vaccines and correct administration sites and dosage	Concern	Critical	Concern
No. 7	Oral Inoculation	Preparation and administration of orally-administered medicines and treatment	Concern	Critical	Concern
No. 8	Chicken Diseases	Knowledge of visual signs of chicken diseases (Newcastle Disease, Gumbaro, Avian Influenza, etc.)	Concern	Critical	Critical
No. 9	Pig Diseases	Knowledge of visual signs of pig diseases (Hog Cholera, Salmonellosis, Erysipelas, Pasteurellosis, Leptospirosis, etc.)	Concern	Critical	Concern
No. 10	Cattle/Buffalo Diseases	Knowledge of visual signs of cattle/buffalo diseases (FMD, Haemorrhagic Septicaemia, Anthrax, etc.)	Concern	Critical	Critical
No. 11	Reporting	Collection of data, understanding of reporting formats and compiling reports	Critical	Critical	Critical
No. 12	Poultry	Post-mortem of poultry, knowledge of organs and sites where lesions of different diseases occur	Critical	Critical	Critical