OFFICE OF EVALUATION
Project evaluation series

Final Evaluation of “Progressive Control of Peste des Petits Ruminants in Pakistan”

ANNEXES

October 2017
Final Evaluation of “Progressive Control of Peste des Petits Ruminants in Pakistan”
GCP/PAK/127/USA

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Annexes

Annex 1. Potential research areas for Peste des Petits Ruminants (PPR) in Pakistan.

1 With the tools and skills provided by project GCP/PAK/127/USA and with widespread PPR throughout much of the country, a future project is well placed to carry out significant practical research into the control and eradication of PPR. The main goal should be to increase the chance of eradication of PPR from Pakistan through field based research leading to improved and more cost-effective control of the disease. Specific issues that could/should be studied include:

Clinical disease

2 Currently, most outbreaks of PPR being identified and reported in Pakistan are characterized by typical clinical signs including high mortality. This clear clinical picture is, fortunately, simplifying recognition of the disease. However, with rinderpest, especially in Africa but also in Asia, milder and less typical forms of the disease proved more difficult to recognize and eventually predominated the final foci of infection. To date mild and subclinical forms of PPR have been less widely reported but there are indications that they do occur including in Pakistan.

3 Research would concentrate on finding, characterizing and describing these atypical clinical syndromes.

Epidemiology

4 Applying the rinderpest example again, some authorities believed that if attention had initially been focused on known endemic areas then eradication might have been achieved earlier and more affordably. Much of this thinking applied to Africa and had the benefit of several decades of prior effort to control the disease. Endemic areas were those with significant numbers of highly mobile cattle that were not always easily accessible for control. With PPR the process of mapping and understanding the movements of the virus is much more recent, nevertheless, the same principles will apply: large numbers of animals, significant animal movement and inaccessibility. So, with some confidence, it is possible to point to highly mobile sheep and goat populations in North and West Pakistan as likely reservoirs of infection for the rest of the country. However, small ruminant populations replace themselves more quickly than cattle do, and the epidemiology of PPR may have other endemic mechanisms (as did rinderpest in Pakistan where it persisted in a perfect man-made ecosystem in the middle of Karachi for several decades).

5 Research would record and study the seasonal incidence of the disease and relate this to climatic (hot-v-cold-v-dusty etc.), socio-economic (market forces, festivals, etc.), agricultural (availability of post-harvest fodders etc.) and pastoral (seasonal transhumance) factors and practices.

6 Small ruminants in Pakistan are reared under two or perhaps three different systems: sedentary or local, transhumant and nomadic. Which of these are most suited to persistence of the virus, to transmission of the virus to distant populations, and which will be the most difficult to eradicate virus from?

7 If milder forms of the disease are detected the epidemiology of these must be studied in greater depth – how long can they be present for in a village or an “area” before detection?

8 Are some frequently infected areas (for instance parts of Punjab and Sindh near major markets) acting as sentinel populations for repeated introductions of the virus from specific endemic sources much further afield?
9 The mechanisms of virus maintenance in endemic populations (once identified) could lead to improved methods of breaking the chain of virus transmission. What size of sheep and or goat population is sufficiently large enough to maintain PPR virus (say for two years) without re-introduction from other sources?

10 In Pakistan currently, PPR seems to be causing more disease in goats than in sheep, both in terms of numbers of animals affected and severity of infection. Antibodies to PPR are also found in other species especially cattle, buffaloes and camels (wildlife are also infected in Pakistan but their numbers are too low to have any major epidemiological significance).

11 What is the role of sheep in the transmission of PPR? Do they maintain the virus or are they simply infected by nearby goats thereby acting as sentinels? Can cattle and buffaloes provide useful serological surveillance data at this stage of the control and eradication programme?

Control

12 Immunization with vaccine will be the main tool to reduce and, hopefully, stop the transmission of PPR virus. Vaccination to produce sufficiently high levels of immunity that stop transmission of other morbilliviruses eradicated rinderpest from cattle globally and measles from large groups of mankind (though often temporarily). In theory, a key factor in this was and is balancing the rate of immunization to the rate of addition of new susceptible cattle and buffaloes, or people. However, as mentioned above, small ruminants reproduce themselves considerably faster and more numerously than cattle or man. Since this will favour virus persistence and endemicity it will, probably, make herd immunization more difficult to achieve with PPR.

13 What levels of herd immunity are required to stop transmission of PPR virus? Work carried out by GCP/PAK/127/USA shows that very high levels of immunity can be achieved but these were in closely managed “trials” in relatively small and manageable populations. Studies now need to investigate how these levels can best be achieved in a routine manner across bigger populations. For instance, how often should a herd be immunized: can vaccination of only young stock achieve these high levels of immunity etc.?

14 How soon do herd immunity levels fall after a successful or even a less than optimum vaccination of the herd? The rate of decline in herd immunity could be easily studied in several different husbandry systems in Pakistan where herd structure and dynamics would be quantified and in the absence of any immunizing challenge from wild virus. Such information would be of global interest.

15 What benefits might there be in compulsory vaccination of all sheep and goats at markets? Is it necessary to immunize sheep or can vaccination of goats only be sufficient to stop transmission in some areas? In some areas where control is more easily implemented, could control of the disease in goats alone be a more economical temporary measure, allowing some degree of infection in sheep, until the final stage of complete eradication?

16 Could effective outbreak control, possibly with some form of cost-recovery from affected herd owners, offer a cost-effective way of controlling the disease in some areas – before a final push for eradication?

17 In inaccessible areas could immunity be raised to sufficient levels through methodologies not being widely used in Pakistan today.

18 Could the use of community based animal health workers and/or drone delivered vaccine be of use in these areas? What potential use is there for thermostable vaccine or other novel preparations of vaccine?

19 A small number of outbreaks of PPR will occur in vaccinated herds and must be fully investigated (this should be a vital routine exercise but does have a research aspect).
The investigation must explain whether the breakdown is due to a failure of vaccination technique (i.e., incorrectly stored, reconstitutes or administered vaccine) or of the vaccine itself (which batch number, when used and produced) or of changes to the composition of the herd (rapid herd replacement rates, and purchase of non-immune stock) or a property of the infecting field virus (it should be isolated and characterized, especially, antigenically). What was the source of the infection?

Much of this proposed research could be carried out by the existing project or its replacement (with suitable funding incorporated within the new project). Another approach would be to consider managing (and financing if funds allow) the research through a broader network comprising the provincial field services plus the research institutes already working with or intending to work on PPR in Pakistan - a “national PPR research and experience network”.
Annex 2. Review of vaccination approaches for Peste des Petits Ruminants in Pakistan

The progressive control pathway (PCP) and a tactical approach to the use of PPR vaccine in Pakistan.

The scale of the challenge in Pakistan.

22 The FAO and World Organisation of Animal Health “Global Strategy for the Control and Eradication of PPR” provides comprehensive guidelines for a country wishing to eradicate this disease using the recommended “progressive control pathway”. Some small countries or countries with relatively few sheep and goats will be able to adapt the PCP almost immediately to their whole territory or a few zones. In Pakistan, however, applying it to some 100 million small ruminants will require more nuanced management because of the geography and different administrative units including provinces, divisions and districts.

Mass vaccination

23 There must be a clear purpose for using widespread mass vaccination and where possible it should be carried out as quickly as possible - sometimes called “pulse” vaccination - rather than gradually over months. Such a pulse can induce high levels of herd immunity sufficient to stop the transmission of the virus leading to a very significant decrease – sometimes a complete halt - in the incidence of new outbreaks of the disease in the population. Subsequent surveillance then reveals any remaining pockets of infection that can be "mopped" up with targeted or outbreak control. This approach is being used successfully in countries such as Ethiopia and India. The Global Strategy for the Control and Eradication of PPR recommends mass vaccination for one to two years in most areas followed by continued vaccination of young stock. In Pakistan, mass vaccination of whole divisions or even provinces could be a useful first step where the disease is widespread and prevalent – with a resulting drop in incidence of the disease which could then be controlled through a more targeted approach. Mass revaccination might also be required as part of a final push to eradicate the disease from known endemic areas. It can be carried out by public veterinary services with public funds, or by public-private partnerships utilizing public funds to employ private veterinary staff. Mass vaccination is already planned for several divisions of Punjab.

24 However, mass vaccination is expensive and experience shows it cannot usually be continued for long as it becomes progressively less effective when its becomes institutionalized. As mentioned the Global Strategy for the Control and Eradication of PPR recommends mass vaccination in stage 1 and/or stage 2 for one to two years followed by annual vaccination of young stock, and foresees that a country may spend less than three years in stage 1 and, on average, two to three years in stage 2. In Pakistan, however, the control of the disease may take much longer than this especially in the North and West. For the managers of PPR eradication in Pakistan this will pose the challenge of how best to afford and maintain high, protective levels of immunity by mass vaccination in some districts and divisions whilst waiting, probably for many more years than envisaged in the Global Strategy for the Control and Eradication of PPR, for the rest of the country to catch up.

Targeted vaccination

25 With increasing disease surveillance national understanding of the distribution and epidemiology of PPR throughout the country will steadily increase as Pakistan moves through the PCP. Directing or “targeting” vaccination to endemic areas, including "hotspots" (Global Strategy for the Control and Eradication of PPR) should then reduce the transmission of the virus in these areas, along with reduced risk of movement of virus to other areas, and reduced overall costs of vaccination at a national level. As mentioned above, targeted vaccination of the known hotspot of infection in Tharparkar-Mithi in Sindh province was extremely successful. Targeted vaccination, like mass vaccination, would be carried out by public veterinary services with public funds, or through a private-public partnership.
As with mass vaccination, if the PCP is prolonged, the challenge will be to maintain the high levels of immunity in targeted areas to prevent the population from becoming susceptible to reinfection from outside. This is a serious threat because, by definition of having been hotspots or endemic areas, these are populations in which the virus will thrive given a slight chance thereby undoing all previous work to control the disease there.

**Outbreak control**

This method was and is still widely used in Pakistan. It is a rapid response to stamp out episodes of clinical disease at village or very local levels through immunization of the infected and immediately surrounding herds. Efficiently used, this method might also maintain control of PPR in areas that have first been subject to mass vaccination, and at much lower cost than continuing mass vaccination year after year (if morbidity and mortality rates can be kept as low as possible). Conceivably, when combined with the levels of disease surveillance and rapid outbreak response instituted by GCP/PAK/127/USA, it might also prove a cheaper alternative to all mass vaccination in relatively low risk populations (something which a future project in Pakistan should research). It could be carried out by public and/or private services, and there could be some payment for vaccination by the stock owners who are usually prepared to pay for this service when they consider their animals threatened.

Whether outbreak control on its own could lead to local or even large-scale eradication is uncertain but its potential for this especially in low risk areas should be studied.

**Private vaccination**

Stock owners must have the opportunity of immunizing their own stock against PPR if the authorities are unable to so (because of shortages of resources and budget, or policy) and the Global Strategy for the Control and Eradication of PPR strongly recommends this. Some stock owners will do this simply as good practice whilst others only when they believe their animals are at high risk. Nationally produced PPR vaccine has been sold through the private market in Pakistan in the past and should continue to be supplied in this way. Imported PPR vaccines have also made their way onto the private market in Pakistan and after their successful use by GCP/PAK/127/USA may well increase their “market share”. Most other veterinary vaccines including foot and mouth disease vaccine are sold in this way in Pakistan. Private vaccination should be available throughout the country until the final stages of the PCP when its use will have to be strictly controlled and then stopped. Where it might be of most strategic benefit, bearing in mind that control in some areas may last for many years, is where public services have brought about a significant level of control of the disease but then need to share the cost burden with the stock owner until the final eradication is feasible. Wherever private vaccination is used but especially where it is chosen as a major tactical vaccine delivery system it will be essential that all stock owners and private veterinary services in these areas are made fully aware of the disease and trained in its control including the requirements for quality assured vaccine and maintaining a cold chain.

Vaccine would be purchased by stock owners or private veterinarians from commercial pharmacies and agro-vet suppliers and administered by private veterinary services or (suitably trained) stock owners. The public veterinary services, however, must still carry out two essential functions. They must ensure the quality of the vaccines supplied through the open market (poor vaccines will lead to a loss of farmer confidence in them with a consequent increase in disease and renewed efforts to regain confidence in vaccine), and maintain epidemiological surveillance throughout the area.

Private vaccination should induce high levels of immunity in the individual herds involved but the amount of stock owner participation is very unlikely to be sufficient to raise herd immunity across wide areas to levels that will eradicate the disease. However, it could be promoted where public services have brought about a significant level of control of the disease and need to share the cost burden with the stock owner until a final campaign to eradicate the disease is feasible (which, as mentioned, may be several years in some areas). If the progressive control pathway in Pakistan is protracted, then private vaccination and or various forms of cost recovery will become increasingly economically attractive and important.
Choosing the right vaccination tactic

32 Besides choosing which of the different vaccination tactics is most appropriate for an area or situation, the PPR eradication team in Pakistan will also have to determine who will be responsible for doing what. This will include roles for the federal, provincial and private veterinary services. The federal veterinary authorities will be responsible for overall direction and management of the PCP in Pakistan and therefore responsible for how vaccination is best delivered. To do this the federal veterinary services will need epidemiological information to define areas with different risk of the disease: for instance, unknown; known difficult or hotspot; known achievable; known “easy” or, after time on the PCP, stage 1 or stage 2 or stage 3 etc.

33 The public veterinary services must direct their (assumed) limited resources to where they will have most impact for the PCP. There would be little advantage in spending too much of the federal resources on the “achievable” and “easy” areas and responsibility for these should be passed as soon as possible to the provincial veterinary services which can then decide (with project/federal advice) how they will maintain control there. Future research and experience (Annex 1) will show whether control in the “achievable” areas requires preliminary mass vaccination followed by other vaccination tactics or whether sufficient control in these areas can be achieved from the outset by targeted or outbreak control prior to a final push for eradication. Control in the “easy” areas might be brought about with outbreak control only or even left to private immunizations.

34 In principle, the federal service must now focus its full attention and resources to the control of PPR in unknown and difficult areas leaving the areas where control is achievable or easy to provincial services who must, in turn, decide whether to use their own public veterinary service or, where appropriate, private veterinary services. Future federal project resources should be used in the easier areas (most of the eastern part of the country) only for research purposes or to problem solving for the provincial services. In unknown areas and areas still under study the federal service (project) in partnership with the provincial service will assess the situation and advise and support the provincial veterinary service who will then assume responsibility for this area allowing the federal service to redirect its attention and resources to other locations.

35 In summary, the project/federal services must lead and sustain the fight against the virus on the frontline in the most difficult and challenging areas leaving the more achievable and easy areas behind the frontline to the provincial services. All of this will require very close cooperation with and coordination from a strong central epidemiology unit. It goes without saying that the project/federal services must complete the task of raising awareness about PPR with all stock owners and complete the PPR related training of all veterinary staff. And, where necessary, continue to demonstrate good vaccination before handing this fully over to the provincial authorities.
Annex 3. Terms of Reference

General Background and Context

Livestock is an extremely important sector for Pakistan’s economy and a vital source of income and food security for rural households. The sector accounts for around 11 percent of national gross domestic product (GDP) and over half of agricultural GDP. Livestock are an integral part of the farming systems across the country and for many farmers it is their main asset. Buffaloes and cattle are mainly kept for milk, while also providing draft power, meat and hides. Most farm families would also have sheep, goats and poultry for home consumption as well as for sale (particularly as a safety mechanism in times of disaster). Fodder, wheat straw, maize thinning and stover are used as animal feed. Where and when possible, animals are also grazed on pastures and crop stubble. Smallholder farmers dominate the livestock subsector. More than 50 percent of the buffaloes and cattle are maintained in a herd size of less than six animals and over 60 percent of the goat population are kept in herds of less than 30 animals. However, in Balochistan and southern Khyber Pakhtunkhwa Provinces there are often large herds of goats and sheep that are grazed in the arid and semi-arid areas.

FAO livestock sector interventions

Given the importance of livestock in the rural economy, virtually all FAO field activities include an activity or component which support animal health and production. Two regional projects have also been implemented with a specific focus on capacity development for the control of transboundary animal diseases. Overall, interventions in the livestock sector cut across all four priority areas of FAO’s Country Programme Framework.

FAO livestock assistance to internally displaced persons (IDPs) from the Federally Administered Tribal Areas (FATA)

Assistance to internally displaced persons from FATA targeted registered IDPs in camps and host communities in Khyber Pakhtunkhwa. Displacement from FATA has been occurring for decades, due to conflict, recurrent natural disasters and extreme poverty, however there was a substantial increase in 2014 following the large military operation by Pakistan army (Operation Zarb-e-Azb) when around one million additional IDPs fled the conflict areas. Most IDPs (around 80 percent) chose to settle in host communities rather than in camps, thereby further complicating the relief efforts. According to the findings of Multi-cluster Initial Rapid Assessment Report, around 70 percent of the families brought about 75 percent of their livestock with them. However, they faced severe shortage of fodder, shelter and water for their animals which in turn threatened life, health and productivity of their livestock. In addition to the nutritional stress, livestock productivity was further challenged by the lack of veterinary support. Moreover, the likelihood of diseases outbreak amongst livestock was increased in displacement areas, as most of the livestock were unvaccinated and susceptible to diseases.

FAO's support to the livestock of the IDPs included the following activities.

a. Provision of animal feeding packages including animal compound feed and urea molasses blocks sufficient to support two to three large animals and four to six small animals for first two months.

b. Replenishment of critical livestock inputs i.e. milking kits for hygienic collection of milk and feeding kits (comprising water trough and feeding trough).

c. Provision of temporary shelter materials for the most vulnerable families whose livestock were exposed to adverse impact of weather and environmental condition.

d. Veterinary support for small and large ruminants owned by IDPs and their hosting families to protect their livestock from lethal livestock diseases prevailing in the project target areas through vaccine and dewormers. Large ruminants were vaccinated against Black Quarter vaccine, hemorrhagic septicemia and foot and mouth vaccine while small against Enterotoxaemia, foot and mouth disease and Paste des-Petites Ruminants vaccines.
The key projects through which these activities were implemented are:

<table>
<thead>
<tr>
<th>No.</th>
<th>Project Code</th>
<th>Start-End</th>
<th>Budget (USD)</th>
<th>Target Beneficiaries and Districts</th>
<th>Status (Dec 2016)</th>
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<td>1</td>
<td>GCP/PAK/113/USA - Baby 1</td>
<td>2014-2015</td>
<td>1,850,003</td>
<td>IDPs: Bannu (KP) F.R. Bannu (FATA)</td>
<td>Completed</td>
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<td>2</td>
<td>GCP/PAK/113/USA - Baby 2</td>
<td>2015-2016</td>
<td>7,800,000</td>
<td>Returnees: Khyber, North Waziristan and South Waziristan (FATA)</td>
<td>Completed</td>
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<td>4</td>
<td>UNJP/PAK/136/UNJ</td>
<td>2015-2017</td>
<td>2,970,298</td>
<td>Returnees: Khyber, Kurram, South Waziristan, North Waziristan, Mohmand and Bajaur (FATA)</td>
<td>Ongoing</td>
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<td>5</td>
<td>OSRO/PAK/401/CHA</td>
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<td>Returnees: Khyber, Kurram (FATA)</td>
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<td>6</td>
<td>OSRO/PAK/301/BEL</td>
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<td>Returnees: Kurram (FATA)</td>
<td>Completed</td>
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<td>7</td>
<td>OSRO/PAK/303/CHA</td>
<td>2013-2013</td>
<td>344,358</td>
<td>IDPs from Tirah (Khyber Agency - FATA) displaced in Kohat (KP) and Kurram (FATA)</td>
<td>Completed</td>
</tr>
<tr>
<td>8</td>
<td>OSRO/PAK/403/BEL</td>
<td>2014-2015</td>
<td>300,000</td>
<td>IDPs from North Waziristan (FATA) displaced in Bannu, D.I. Khan, Karak and Lakki Marwat (KP)</td>
<td>Completed</td>
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</table>

In mid-2015 the government began returning the displaced population back to their areas of origin. Most returnees are smallholder farmers with few resources to produce food and earn income. The loss of livelihoods and reduced opportunities for full recovery is a major constraint preventing their successful return. About 30 percent of the affected experienced a displacement duration of more than four years. During the time of military operations and displacement, agricultural infrastructure (irrigation channels, water storage structure) has been destroyed and agricultural lands have become barren scrubland due to abandonment over the last many years. In addition there is limited access to quality inputs because of the supply chains disruption, as well as the low purchasing power of the farmers. Similarly, the livestock subsector has been severely affected due to lack of veterinary services, supplies and non-availability of fodder. This has resulted into high rate of livestock mortality and distress selling of very invaluable assets hence seriously threatening the food security of FATA region. The FAO projects aim at enabling conflict-affected households to jump start productive activities and restore their livelihood.

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**Number of families returned since 16 March 2015**

<table>
<thead>
<tr>
<th>Location</th>
<th>Jan-Dec</th>
<th>Total Return</th>
<th>Total Remain</th>
<th>% Female headed Household in Returns</th>
<th>% Return</th>
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</thead>
<tbody>
<tr>
<td>Khyber</td>
<td>11,358</td>
<td>77,627</td>
<td>9,524</td>
<td>23%</td>
<td>80%</td>
</tr>
<tr>
<td>NWA</td>
<td>41,741</td>
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<td>29,360</td>
<td>7%</td>
<td>72%</td>
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<tr>
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<td>Kurram</td>
<td>15,075</td>
<td>18,113</td>
<td>5,457</td>
<td>17%</td>
<td>77%</td>
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<td>Oratkai</td>
<td>14,526</td>
<td>15,226</td>
<td>7,965</td>
<td>11%</td>
<td>66%</td>
</tr>
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<td>FR Tank</td>
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<td>0</td>
<td>322</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>114,511</td>
<td>227,284</td>
<td>76,507</td>
<td>16%</td>
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FAO’s support to the livestock of the returning IDPs included the following activities.

**a. Animal feeding support:**

- Immediate animal feeding support (animal compound feed and urea molasses block) sufficient to support two to three large animals and four to six small animals for two months.
• Improved Fodder seed for Rabi and Kharif season to families having land available for fodder cultivation.
• Mineral supplements, in feed scarcity period - Nov-Jan/Jun-July to the livestock in areas where fodder resources were meagre.
• Feeding kits (comprised of water trough and feed trough) to the affected families.
• Manually operated chopping machine to communal groups of five to ten families.
• Developing and managing communal pasture land through capacity development and provision of fodder trees and seed.
• Milking kits were provided for hygienic collection and processing of milk at household level.

b. Veterinary services:
• Livestock assets owned by displaced and hosting families protected through major livestock diseases and worm infestations. Large ruminants were vaccinated against black quarter vaccine, hemorrhagic septicaemia and foot and mouth vaccine while small against enterotoxaemia, foot and mouth disease and Peste des Petites Ruminants vaccines.
• Veterinary centre whose limited resources were either lost due to crisis in affected areas or subjected to extra-burden due to relocation of large number of livestock owned by IDPs replenished.

c. Restocking of lost livestock assets:
• Poultry restocking: lost poultry resources of affected families were restocked in their place of origin through provision poultry packages each comprising of 12 birds (ten females, two male), one feeder, one drinker, three eggs collection trays, chicken wire mesh and 50 kg poultry feed sufficient to support the poultry; capacity of project beneficiaries were developed through training session delivered through livestock department.
• Small animals restocking: returned families whose livelihood were based on livestock and had lost their livestock assets were provided comprehensive package of small ruminants (sheep and goats). Small ruminants package comprised of three female and one male animal at the age of five/six months;

d. Breed improvement: sexed semen is procured to improve non-descript and low productive livestock cattle breed of FATA.

Transboundary Animal Diseases – FMD and PPR

Specific projects on the control of transboundary animal diseases, specifically FMD and PPR, were implemented across the country during the Country Programme Framework period. TADs are a very significant threat to livelihoods and household food security, as outbreaks continue to cause huge morbidity and mortality in cattle, sheep, goats and poultry in Pakistan and the South and Central Asia Regions as a whole with significant disruption of trade in livestock and meat and dairy products.

Based on the past experience of rinderpest eradication in Pakistan, as well as lessons from other regional and national projects, FAO has designed its activities around the following areas of work:

a. Enhancing the capacity for laboratory diagnosis and vaccine production for mitigating against FMD/PPR at the provincial/regional level.

b. Improving disease surveillance for diagnosis, treatment and control of the diseases.

b. Controlling the spread of TADs through vaccination campaigns demonstrated in different production systems of sheep and goat husbandry.
Emergency Response interventions

45 During emergencies, livestock is often exposed to extreme weather conditions (e.g. continuous rainfall, direct sunlight) which may increase stress and cause morbidity and mortality. The livestock sector has suffered colossal losses from past disasters in Pakistan, with more than 140,000 animals lost in the 2010 floods. As a result, many food insecure families have adopted negative coping strategies (distressed selling and slaughtering of livestock) due to disease outbreak and increased mortalities. During the emergency responses to the 2012 floods in Sindh, Balochistan, FAO implemented emergency support and livelihood restoration projects which included significant livestock components due to its importance for the affected population.

46 In this context, FAO’s goal was the immediate resumption of the agricultural production cycle through the provision of inputs critical for the production of food and cash crops; increased access to a diversified and nutritious diet for beneficiaries to prevent further deterioration of the nutritional status of children, women and women-headed households living in the most severely flood affected areas; and mitigate the impacts of future floods on the agriculture-based livelihoods of flood prone communities through appropriate disaster risk reduction measures. The main activities included:

a. fodder production: Sorghum seed and NPK fertilizers
b. provision of milking kits: milk can and milking pail and yogurt tray
c. mineral supplement for livestock (only in Jacobabad)
d. livestock vaccination: Deworming Vaccination (Haemorrhagic Septicaemia in large animal and Enterotoxaemia in small ruminants)
e. distribution of manually operated chopping machine for fodder chuffing
f. distribution of poultry and related packages (feeder, drinker, eggs trays, chicken wire mesh)

47 FAO’s experience and positive track-record in supporting livelihoods in emergencies has led to its involvement in the multi-year consortium (2015-19). This programme prepositions funds for emergency response and established a coordination structure and division of responsibilities which can be quickly and effectively activated should a natural disaster occur. In this consortium FAO is responsible for intervening in support of agricultural and rural livelihoods, which is the case of livestock. The main activities carried out in previous emergency responses are listed below, and are also the areas where FAO will be expected to provide assistance should further disasters strike in the future.

a. Providing tarpaulin sheet for temporary shelter for livestock will be provided to vulnerable livestock owners.
b. Vaccination: FAO has learned from past emergencies that the incidence of infectious/contiguous diseases like Black Quarter Disease/Anthrax, Septicaemia, FMD, PPR and
Enterotoxaemia are more prevalent and require immediate response to induce immunity in livestock. The vaccination will not only protect the livestock assets of the affected communities and maintain their productivity but help minimizing the economic losses incurred due to these diseases.

c. **Deworming:** During emergencies, the livestock owners gather at common places along with livestock. The crowding of livestock and human, especially in humid weather, increases the chance of worm infestation manifold which makes the animal emaciated, decreases in production (weight gain, milk yield, calving) and susceptible to rage of diseases. Therefore, prophylactic measure to control the dewormers is essential. FAO will use the broad-spectrum dewormers against worm infestation.

d. **Mineral supplement:** During the emergency particularly, feeding resources are greatly disturbed which increases the chances of mortality and distress selling. High producing, pregnant and young animal are not getting feed, especially the micro nutrient at the right quantity hence both their health and productivity decline. To replenish the nutritional deficiency in livestock, mineral supplement containing essential macro and micro minerals will be provided to the most vulnerable livestock owners for 45-60 days.

<table>
<thead>
<tr>
<th>No.</th>
<th>Project Code</th>
<th>Start-End</th>
<th>Budget (USD)</th>
<th>Districts</th>
<th>Status (Dec 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OSRO/PAK/304/UK</td>
<td>2013-2015</td>
<td>6,362,905</td>
<td>Kashmore, Jacobabad (Sindh) and Jafferabad (Balochistan)</td>
<td>Ongoing</td>
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<tr>
<td>2</td>
<td>OSRO/PAK/206/UNO</td>
<td>2013-2016</td>
<td>2,863,401</td>
<td>Dadu (Sindh), Mirpurkhas (Punjab)</td>
<td>Completed</td>
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<tr>
<td>3</td>
<td>OSRO/PAK/601/UK</td>
<td>2016-2018</td>
<td>2,647,001</td>
<td>Ghotki, Kashmore (Sindh), Rajanpur, Muzaffargarh (Punjab)</td>
<td>Ongoing</td>
</tr>
<tr>
<td>4</td>
<td>OSRO/PAK/503/IOM</td>
<td>2015-2019</td>
<td>3,813,206</td>
<td>To be selected based on needs</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

**Balochistan agricultural development projects**

48 The projects implemented in Balochistan differ significantly from all other FAO activities due to the context and objectives in which they are established. They were not responding to an emergency situation (although Balochistan often experiences natural hazards as well as some internally displaced persons from the Federally Administered Tribal Area and Afghanistan) although there are extremely high poverty rates and it is the most sparsely populated area of the country. The goal of the project is to reduce poverty and inequality through community organizations (including women organizations), strengthening crop and livestock productivity and natural resource management, and establishment of small market-oriented agri-businesses.

49 Livestock production is a major source of income of 70 percent of the rural population in Balochistan. About 92 percent of the area of the province is rangelands, providing grazing to around 25 million sheep and goats. 95 percent of the livestock owners are transhumant (commute between winter and summer quarters) or nomadic and are entirely dependent on livestock for their livelihoods. Livestock also accounts for a major portion of income for the farmers who typically keep five to seven heads of livestock per household. Most of them are subsistence farmers who have no specialized management systems for their livestock. The main challenges for livestock production in Balochistan are lack of feed, drought, diseases and overgrazing of rangelands.

50 In this context, FAO’s livestock-related activities include the promotion of improved and healthy animal feeding and supplemental feed at a cost share basis; vaccination and animal health services and chickens for egg production, in close collaboration with the Livestock and Dairy Development Department of the Government of Balochistan. In addition, the AusABBA project in the six southern districts has moved in wool value chains including sheep rearing, shearing skills and shearing equipment.

51 Importantly, livestock is more evenly spread across rural households than agricultural land resources. This means that productivity gains in livestock are more likely to be pro-poor than productivity gains of major crops. According to the 1996 Livestock Census, the majority of livestock owners throughout the country as a whole were small farmers: 83 percent of households that owned cattle and/or buffaloes owned six or fewer animals.
Whereas in Balochistan the major species held are sheep and goats (small ruminants). There is also a strong gender dimension to the livestock sector, as rural women play a major role in the care of livestock. As a result, there is a higher likelihood that livestock-based project interventions, including large and small ruminants and poultry, will reach women as compared to crop-based activities.

<table>
<thead>
<tr>
<th>No.</th>
<th>Project Code</th>
<th>Start-End</th>
<th>Budget (USD)</th>
<th>Districts</th>
<th>Status (Dec 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GCP /PAK/113/USA (BAP)</td>
<td>2009-2016</td>
<td>32 000 003</td>
<td>Mastung, Quetta, Pishin, Killa Saifullah, Loralai, Zhob, Sherani (Balochistan)</td>
<td>Ongoing</td>
</tr>
<tr>
<td>2</td>
<td>GCP /PAK/126/AUL (AusABBA)</td>
<td>2012-2017</td>
<td>10 993 301</td>
<td>Nushki, Kharan, Washuk, Chagai, Panjgur, Kech (Balochistan)</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

The PPR Project context and background

52 Peste des Petits Ruminants is a highly contagious viral disease of sheep and goats. The disease is caused by a virus that belongs to Morbillivirus. It was reported in Pakistan for the first time in 1991. Initially taken as rinderpest-like disease, it was confirmed in 1994. Since then the disease is considered to be endemic in the country with periodical epidemics waves. It is estimated that PPR causes annual losses of more than USD 342 million through high levels of morbidity and mortality and the resulting depletion of genetic stock. A recent countrywide serologic study of 206 villages undertaken by the Government of Italy-funded and Food and Agriculture Organization of the United Nations-implemented project revealed that 60 percent of the villages had PPR outbreaks during 2011 and 45 percent of six to 18 months old sheep and goats in those villages had been exposed to the PPR virus.

53 The project is funded by the United States of America, implemented between March 2013 and March 2017, with an overall budget of USD 1 655 000. The expected outcome of the Project is to contain the current spread of PPR in Pakistan and mitigate its impacts to safeguard small ruminant-based livelihoods. In this regard, project activities would demonstrate and develop an approach for the progressive control of PPR in Pakistan. It is anticipated that the Project will build the capacity of animal health institutions at all levels and 600 of their veterinarian staff. It is further anticipated that more than 50 000 farm families from the Project’s target areas would significantly reduce their household food and nutrition insecurity and increase their income generating capacity through the increased livestock productivity (i.e. sheep and goat meat milk, wool, hair, skins, etc.). The project has three main outputs. These outputs and various activities to achieve these outputs are:

Output 1. Enhanced capacity for laboratory diagnosis and vaccine production for mitigating against PPR at the provincial/regional level in Pakistan. Activities under this output include: a) strengthen one veterinary laboratory from each of the six administrative units of the country (i.e. province or region) for the diagnosis of the PPR; b) evaluate reliable on-spot diagnostic aid or animal-side tests under field conditions, where available; c) strengthen the country’s veterinary laboratory network in order to enhance communication between the national and provincial/regional laboratories; d) train at least two veterinarians from each of the six selected provincial/regional laboratories in enzyme-linked immunosorbent assay (ELISA) and other diagnostic techniques at a national facility; e) upgrade facilities for molecular diagnosis, reverse transcription polymerase chain reaction and virus isolation at the National Veterinary Laboratory, Islamabad; f) strengthen PPR vaccine manufacturing at Veterinary Research Institute, Lahore; g) provide minor equipment and consumables to the National Veterinary Laboratory to evaluate PPR vaccine; and h) train four to six laboratory managers and technicians in PPR vaccines evaluation.

Output 2. Improved disease surveillance for PPR outbreaks. Activities include a) assist provincial/regional livestock departments to raise awareness amongst selected groups of sheep and goat herders; b) train 525 district-level government and private sector veterinarians, para-veterinarians/veterinary assistants in clinical disease, transmission, epidemiology, diagnosis, differential diagnosis, treatment and control of PPR, including the collection, dispatch and transportation of samples from sick and dead animals for PPR
diagnosis; c) diagnose and report any PPR outbreaks, including the collection of samples and their submission to the nearest diagnostic laboratories; and d) undertake epidemiological investigation of selected PPR outbreaks.

Output 3. Effective control of PPR through vaccination campaigns demonstrated in different production systems of sheep and goat husbandry. Activities include a) select one district/territory from each of the province/region in Pakistan for PPR control; b) provide veterinarians and para-veterinarians of the respective livestock offices/units and private sector veterinarians from the selected districts/territory with the necessary equipment and vaccines for PPR vaccination; c) undertake increased follow-up surveillance for PPR in the vaccinated areas; and d) determine the socio-economic benefits of PPR vaccination towards the end of the project.

Project Stakeholders

The project would bring together relevant stakeholders (at national, provincial/regional and district levels as well as the public and private sectors) with complementary competences in addressing the control of PPR in Pakistan. The major stakeholders would be: Ministry of National Food Security and Research, Provincial and Regional DoLDDs (i.e. Azad Jammu and Kashmir - AJK, Balochistan, Federally Administered Tribal Areas, Gilgit-Baltistan, Khyber Pakhtunkhwa, Punjab and Sindh), and their national and provincial veterinary laboratories and services; international organizations and institutions with livestock production and animal health-related programmes and monitoring responsibilities in Pakistan (e.g. FAO and its Emergency Centre for Transboundary Animal Disease and the World Organisation for Animal Health); and resource partners such as the United States Department of Agriculture.

Project Area

The project would develop the capacity of project stakeholders to improve their control of PPR in all seven provinces/regions of Pakistan, i.e. AJK, Balochistan Province, the Federally Administered Tribal Areas, Gilgit-Baltistan, Khyber Pakhtunkhwa, Punjab and Sindh Provinces. The selection of 150 DLOs to be strengthened in PPR disease surveillance would be confirmed by the Ministry of National Food Security and Research and the seven provincial/regional diagnostic laboratories during the inception phase of the project (Output 2, Section 2.3).

During the inception phase of the project, the Ministry of National Food Security and Research, the seven DoLDDs and FAO Representation would also select one district/territory from each of the seven provinces/regions for the control of PPR through the implementation of pilot vaccination campaigns. Selection criteria for these districts/tribal areas will be based on the risk factors to be identified.

Target Beneficiaries

The primary beneficiaries of the project would be some 600 animal health and production professionals of Pakistan as it would enhance their knowledge and capacity for participation in the control of PPR and other TADs, viz: i) the managerial and technical staff of government PPR diagnostic laboratories; ii) professionals in the field of animal disease testing and control; iii) national and provincial/regional policy makers for the control of PPR and other TADs; iv) administrators of national surveillance authorities; and v) technical personnel of livestock support service providers (i.e. DoLDD veterinary services, community-based animal health services and para-veterinarians, processors, wholesalers, importers, exporters, etc.).

The secondary beneficiaries would be: i) more than 50,000 poor smallholder sheep and goat farmers/herders of Pakistan who would be provided with improved PPR control and healthier and more productive livestock and benefit from an increased demand and acceptance of their products in domestic as well as in international markets; and ii) the consumers, who would benefit from improved food quality and safety. Better quality
produce would earn higher prices, the benefit of which would ultimately pass down to the producers. Increased production of higher quality product would reduce food insecurity and minimize food hazards and foodborne illnesses. Better quality produce would also help increase market access at the higher end of sophisticated markets, help in diversification to hither to untapped markets in South and Central Asia and the Gulf States and increase foreign exchange earnings.

Institutional framework and coordination

62 The project would be implemented on behalf of the Government of Pakistan and its Ministry of National Food Security and Research and provincial/regional DoLDDs by FAO. The FAO Representative to Pakistan would be the project budget holder, responsible for general administration and financial supervision of the project. Specialized technical divisions of FAO’s Regional Office for Asia and the Pacific and headquarters would be mobilized to provide needed technical backstopping to project activities.

63 The AHC (Animal Health Commissioner) of the Ministry of National Food Security and Research and DoLDDs of AJK, Balochistan Province, Federally Administered Tribal Areas, Gilgit-Baltistan, and Khyber Pakhtunkhwa, Punjab and Sindh Provinces would be the primary government counterpart agencies responsible for project execution – as is the case for the United Stated Department of Agriculture-funded and FAO-implemented “Support to Increased Sustainable Livestock Production Project”. The AHC would act as the project’s national focal point. The seven Director Generals/Directors of the provincial/regional DoLDDs would remain as focal points for project activities in their respective provinces/regions. Each Director General would, in turn, designate a TAD Officer as government counterpart for liaising with the Project Management Unit on the implementation of the project’s PPR control activities.

64 The project would provide additional support to the existing Project Management Unit of the Support to Increased Sustainable Livestock Production Project, which is physically located within the Animal Sciences Institute at the National Agricultural Research Centre in Islamabad, for the coordination, supervision and administration of the Project’s PPR control activities. The enlarged Project Management Unit would be led by the same full-time FAO international Project Coordinator (of the Support to Increased Sustainable Livestock Production Project) and comprise the part-time national focal point, the six part-time provincial/regional project counterparts (in absentia), and the same full-time National Project Director and additional national consultants recruited by FAO. The Project Management Unit would be further supported by part-time FAO international technical and operations staff in its headquarters and Regional Office for Asia and the Pacific and short-term FAO international and national consultants as required.

65 A Project Steering Committee would be established to provide overall guidance, coordination and facilitation to project implementation – this could be the same Project Steering Committee as for the Support to Increased Sustainable Livestock Production Project (to be decided at the Project Inception Workshop). The Project Steering Committee would be chaired by the Secretary of the Ministry of National Food Security and Research and consist of representatives of the AHC, the seven Provincial/Regional DoLDDs, FAO Representation in Pakistan and the United States Department of Agriculture Country Office. FAO’s international Project Coordinator and national Project Director would be ex officio members of the Project Steering Committee, with responsibility for meeting organization, information sharing and minute taking. The Project Steering Committee would meet in Islamabad every six months or every year, at a time suitable for approving work plans and budgets and reviewing progress reports.

66 The project would assist the Ministry for National Food Security and Research to form an Advisory Technical Group (for PPR control) similar to that established for FMD control by the Support to Increased Sustainable Livestock Production Project. The group would address specific technical and research issues which might arise and could require consultations with specialists beyond the Project Management Unit’s capacity. The group would be composed of the Animal Husbandry Commissioner of the Ministry of National Food Security and Research, United States Department of Agriculture Country Adviser (on Animal Health), FAO international Project Coordinator, FAO National Director, FAO
disease management officer (Lead Technical Unit), the Director Generals/Directors of the seven provincial/regional DoLDDs and representatives of the Pakistan Agricultural Research Council and National Veterinary Laboratory. The group could also request the participation of other qualified specialists and/or representatives of livestock farmers as might be necessary (but, especially in times of any PPR outbreak). It is expected that the group will meet one to two times per year.

Evaluation purpose

67 The main purpose of the final evaluation is to provide accountability to donors and partners by assessing FAO contribution to the overall improved progressive control of PPR in Pakistan and to draw lessons from the implementation processes that could inform future decisions by the United States of America and FAO on the formulation of a second phase or follow-up intervention. This evaluation will also strategically inform the upcoming PPR/FMD interventions funded by Pakistan under a UTF and the overall positioning of Animal Health interventions in the next Country Programme Framework. Box 1 highlights the purposes established and the intended users according to the purposes.

Box 1. Main purposes and intended users of the evaluation

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Intended user</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountability: to respond to the information needs and interests of policy makers and other actors with decision-making</td>
<td>Inform decision making, Provide Accountability</td>
</tr>
<tr>
<td>Improvement: Program improvement and organizational development provides valuable information for managers or others responsible for the regular program operations</td>
<td>Improve program</td>
</tr>
<tr>
<td>Enlightenment: In-depth understanding and contextualized the program and its practices normally caters to the information needs and interests of program staff and sometimes participants</td>
<td>Contribute to knowledge</td>
</tr>
</tbody>
</table>

Evaluation scope

68 The evaluation will assess the entire implementation period of the project, from March 2013 to March 2017. The evaluation will cover all key activities undertaken within the framework of the project as described in the project document. The focus will be on output and outcome results. The evaluation will cover all the activities implemented and planned at national, subnational, institutional and community levels within the provincial and regional Livestock and Dairy Development Departments, and district local governments and communities in the eight project districts (Punjab – D.G. Khan Tehsil, Sindh – Mithi, Tharparkar, KP – Mansehra District, Baluchistan – Tehsil Kingri of District Musa Khel, AJK – District Kotli, Federally Administered Tribal Areas – Two Tehsils of Khyber Agency, GB – Gilgit District and Islamabad rural areas).

Evaluation objective and key questions

69 The objectives of the evaluation will be to:

a. assess the appropriateness of the project’s design and approach;

b. assess the project’s achievements and contributions vis-à-vis its objectives;

c. assess the actual and potential impact of the project and its contribution to safeguard small ruminant-based livelihoods;

d. assess the programme contribution to the development of institutional capacity;
e. identify key success areas and lessons, and make the appropriate recommendations to
the project team, FAO, the donor and other stakeholders to guide decision-making and
planning for subsequent phases or similar projects under the Animal Health sector.

Evaluation questions

To what extent were the project design, approach and implementation arrangements (including partnerships) relevant and efficient?

To what extent was the capacity of laboratory diagnosis and vaccine production for mitigating against PPR at the provincial/regional level in Pakistan strengthened?

To what extent were the livestock disease surveillance of PPR outbreaks, diagnostic capacity, and veterinary services strengthened?

How effective were the vaccination campaigns demonstrated in different production systems?

To what extent did the project respond to women needs?

Evaluation questions must be agreed upon among the evaluation manager and principal stakeholders, and accepted or refined in consultation with the evaluation team. Questions related to mainstreaming gender equality in line with FAO Gender Policy, should be included in all cases, in which gender is relevant to the evaluated project/programme.

Methodology

The evaluation should adhere to the UNEG Norms & Standards and be in line with the Office of Evaluation Manual and methodological guidelines and practices.

This evaluation will use a mix of quantitative and qualitative methods, using a bottom-up case study approach. The methodologies that the evaluation will draw on are multiline of evidence, together with beneficiary assessment methods. This is as an addition to the usual quantitative evidence collected from secondary data.

In order to answer the key evaluation questions, the evaluation will utilize the Pipeline Design approach to assess the overall impact of the project on the disease surveillance and diagnostic capacities. The project was implemented in phases over a period of time, the segments of the districts that only benefited by the latter phases of the project will be used as comparison groups for the earlier phases. The project implementation strategy depended on using national systems, the Provincial and Regional Livestock and Dairy Development Departments were directly responsible of the implementation of the field activities.

In order to answer the key evaluation questions, the evaluation questions will be broken down into sub-questions that will be presented in an evaluation matrix. The evaluation will use of the following tools to collect primary data and evidence that answer the evaluation questions:

a. desk-review of existing project documents, reports and studies conducted by FAO and other partners;

1 The following questions are suggested to align with FAO Gender Policy:
   • Were gender equality considerations reflected in project objectives and design to address the needs, priorities and constraints of both women and men, and in the identification of beneficiaries?
   • Were gender equality considerations taken into account in project implementation and management?
   • Have gender relations and equality been or will be affected by the project? Particular attention will be devoted to the four FAO Gender Equality Objectives attainable at the level of initiative or thematic area: i) equal decision-making; ii) equal access to productive resources; iii) equal access to goods, services and markets; iv) reduction of women’s work burden.

2 http://www.uneval.org/document/detail/21

3 Swiss Agency for Development Cooperation (contributors Cathy Shutt, IDS and Laurent Ruedin, SDC, SDC How-to-Note: Beneficiary Assessment, May 2013 (available at: https://www.shareweb.ch/site/Poverty-Wellbeing/Documents/SDC%20How-to-Note%20Beneficiary%20Assessment%20May%202013.pdf)
b. semi-structured interviews with key informants, stakeholders, including project partners and beneficiaries at the national, district and local level, supported by checklists and/or interview protocols that will be developed at the beginning of the evaluation mission;

c. direct observation during field visits to the project sites selected with the project team and set in the evaluation mission schedule in the six districts.

75 The evaluation team will start by researching whether the project was based on a preliminary assessment of the needs of different stakeholders: e.g. Government, communities, and vulnerable households. It will then research what these needs were, and whether the programme responded to them. To gather information related to the questions the team will conduct semi-structured interviews and review relevant documents. Through stakeholder mapping carried out with the support from the country office, the team will identify who is best able to respond to each question.

76 Field work will be conducted in six project districts, the evaluation team will meet direct beneficiaries and assess changes brought by an intervention on their lives and livelihoods. In so far as possible, considering time, logistical and methodological constraints, the team will assess short- and long-term impacts and negative and positive results at community level. Project sites for field visits will be selected in consultation with the Country Office, aiming at relevance and geographic variety. During site visits the team will use different evaluation tools, including semi-structured interviews and focus group discussions, to collect the views of the beneficiaries and of communities at large. The team will also meet with non-beneficiary households to explore targeting issues and spill-over effects. The issue of sustainability will also be looked into, as well as what lessons can be learned from the intervention.

77 Emphasis will be placed on assessing the capacity development dimension in the design, implementation and results of the project at individual, organizational and enabling environment levels, focusing on provincial and regional Livestock and Dairy Development Departments capacity on livestock health management i.e. surveillance, diagnostic, early warning systems.

78 The evaluation team will triangulate its findings with the project results framework outcome and output level indicators (baselines, targets and the progress).

79 The evaluation will adopt a consultative and transparent approach with internal and external stakeholders throughout the evaluation process, including FAO and national partners. Triangulation of evidence and information gathered will underpin its validation and analysis and will support conclusions and recommendations.

Roles and responsibilities

80 The Office of Evaluation in consultations with the Budget Holder and the Project Manager will finalize the Terms of Reference, identify and recruit the consultants and organize of the team’s work; it is responsible for the finalization of the Terms of Reference and of the team composition; it shall brief the evaluation team on the evaluation methodology and process and will review the final draft report for Quality Assurance purposes in terms of presentation, compliance with the Terms of Reference and timely delivery, quality, clarity and soundness of evidence provided and of the analysis supporting conclusions and recommendations. The Office of Evaluation also has a responsibility in following up with the Budget Holder for the timely preparation of the Management Response and the Follow-up to the Management Response.

81 The project team, which includes the FAO Budget Holder, the Lead Technical Officer and the Project Task Force of the project to be evaluated, are responsible for initiating the evaluation process, providing inputs to the first version of the Terms of Reference, and supporting the evaluation team during its work. They are required to participate in

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5 The responsibility for the administrative procedures for recruitment of the team will be handled by the Office of Evaluation.
meetings with the evaluation team, make available information and documentation as necessary, and comment on the draft final Terms of Reference and report. Involvement of different members of the Project Task Force will depend on the respective roles and participation in the project. The Budget Holder is also responsible for leading and coordinating the preparation of the FAO Management Response and the Follow-up Report to the evaluation, fully supported in this task by the Lead Technical Unit and Project Task Force. Office of Evaluation guidelines for the Management Response and the Follow-up Report provide necessary details on this process.

82 The evaluation team is responsible for conducting the evaluation, applying the methodology as appropriate and for producing the evaluation report. All team members, including the Team Leader, will participate in briefing and debriefing meetings, discussions, field visits and will contribute to the evaluation with written inputs for the final draft and final report. The evaluation team will agree on the outline of the report early in the evaluation process, based on the template provided by the Office of Evaluation. The evaluation team will also be free to expand the scope, questions and issues listed above, as well as develop its own evaluation tools and framework, within time and resources available. An evaluation report is not subject to technical clearance by FAO although the Office of Evaluation is responsible for Quality Assurance of all evaluation reports. The team members will also be responsible of completing an anonymous and confidential questionnaire requested by the Office of Evaluation at the end of the evaluation to get their feedback on the evaluation process.

**Evaluation team composition and profile**

83 The evaluation team will comprise of one international expert with multidisciplinary range of expertise:

- transboundary Animal diseases (FMD and PPR)
- livestock production support
- rural livelihoods development
- resilience (building and measurement)
- institutional capacity development

**Evaluation products (deliverables)**

- **Draft evaluation report**: the project team and key stakeholders should review the draft evaluation report to ensure that the evaluation meets the required quality criteria.
- **Final evaluation report**: should include an executive summary and illustrate the evidence found that responds to the evaluation issues and/or questions listed in the Terms of Reference. The report will be prepared following the Office of Evaluation template for report writing.

**Evaluation timeframe**

84 The evaluation will take place from the period February to May 2017. The main evaluation mission will last three weeks, from 1 to 22 March 2017 in Pakistan.

<table>
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<tr>
<th>Task</th>
<th>Timeframe</th>
<th>Responsibility</th>
</tr>
</thead>
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<td>Terms of Reference finalization</td>
<td>End of January 2017</td>
<td>Office of Evaluation in consultation with FAO</td>
</tr>
<tr>
<td>Team identification and recruitment</td>
<td>Early February 2017</td>
<td>Office of Evaluation</td>
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<tr>
<td>Mission organization</td>
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<td>Evaluation team</td>
</tr>
<tr>
<td>Reading background documentation</td>
<td>February 2017</td>
<td>Evaluation team</td>
</tr>
<tr>
<td>Mission to Pakistan</td>
<td>1-22 March 2017</td>
<td>Office of Evaluation, evaluation team and FAOPK</td>
</tr>
<tr>
<td>Karachi - Hyderabad</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lahore – Bahawalpur, DG Khan and Multan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peshawar – Mansehra and Kotli</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First draft for circulation</td>
<td>Last week of April</td>
<td>Office of Evaluation</td>
</tr>
<tr>
<td>Final draft</td>
<td>Last week of May</td>
<td>Office of Evaluation</td>
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