FINAL BASELINE REPORT

Independent Evaluation Services in Support of the Niger PRAPS (Regional Sahel Pastoralism Support Project) Activity

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS

AH	Animal Health
AE	Auxiliares d'Elevage
AVA/PR	Animatrices Villageoises en Agriculture et en Elevage de Petits Ruminants
CBPP	Contagious Bovine Pleuropneumonia
EDR	Evaluation Design Report
FAO	Food and Agricultural Organization of the United Nations
FMD	Foot and Mouth Disease
GoN	Government of Niger
GDP	Gross Domestic Product
KII	Key Informant Interview
MAF	Market Access Facilitation
NRME	Natural Resource Management Enhancement
OIE	World Organization for Animal Health
PPR	Peste des Petits Ruminants
PRAPS	Projet Régional d'Appui au Pastoralisme au Sahel/Niger
SIM Bétail	Système d'Information sur les Marchés a Bétail - Niger
SVPP	Service Vétérinaire Privé de Proximité (Private Veterinary Services of Proximity)
VSF-B	Vétérinaires Sans Frontières Belgium

EXECUTIVE SUMMARY

Background

MCC's Niger Compact is a five-year (2018-23) program implemented by the Millennium Challenge Corporation (MCC) designed to reduce poverty in Niger by promoting economic growth. The objective of the Niger Compact is to increase rural incomes by improving the sustainable productive use of natural resources for agricultural production and improving trade and market access for agricultural products. The Niger Compact seeks to address the water constraint for productive uses such as agricultural productivity and household food security, raise agricultural and livestock production by increasing the areas under cultivation and for grazing, and improve yields. The Niger Compact aims to achieve the planned objective through the two projects, namely, the Irrigation and Market Access (IMA) project and the Climate-Resilient Communities (CRC) project. CRC's objective is to increase incomes for families that depend on small-scale agricultural and livestock production in the Eligible Communes and Livestock Corridors in rural Niger. The Project includes two Activities: Climate-Resilient Agriculture (CRA) Activity and the Regional Sahel Pastoralism Support (PRAPS) Activity.

Under the MCA-Niger Compact, the PRAPS Activity aims to support pastoralist groups to enhance their income and welfare. The plan to reach this final objective involves enhancing regional integration, improving livestock health, upgrading water and rangeland resources along major transhumance livestock corridors, and modernizing local livestock market infrastructure. PRAPS Activity is one of the 2 components of the Climate-Resilient Communities Project of the Millennium Challenge Corporation (MCC) Niger Compact. It consists of 3 sub-activities to achieve its objectives: Animal Health (AH), Natural Resource Management Enhancement (NRME), and Market Access Facilitation (MAF). This project is implemented in Dosso, Maradi, Tahoua, and Tillabéri regions in Niger.

Livestock plays an essential role in the national economy of Niger, with its contribution varying from 11 to 14% of the GDP during the last decade. In 2019, the size of Niger's livestock population was estimated at 50,528,787 heads of all species, for a capital value estimated at over 7 billion USD (Ministry of Agriculture and Livestock, Niger, 2019). The sector also has a significant impact in terms of employment, with over 87% of the population practicing livestock activity. Animal resources represent the country's second-largest source of export income. These represent 62% of export earnings from rural products and 21% of all export products (Ministry of Agriculture and Livestock, 2021).

The 3 sub-activities under PRAPS address different challenges faced by the livestock sector to improve the well-being associated with the sector. The AH sub-activity consists of a vaccination campaign against CBPP and PPR and building more sustainable and efficient national veterinary services. The NRME sub-activity aims to upgrade key water points and livestock pasture and rest areas along selected livestock corridors in the four targets. It also includes demarcation (placing of markings) along the corridors according to the boundaries established in the rural code. The

MAF sub-activity focuses on the modernization of existing dilapidated platforms and the construction of new, physical platforms to market livestock in an improved trade environment.

Methodology

A performance evaluation approach is proposed for the Niger PRAPS Activity. The performance evaluation has a quantitative component, involving the pre-post analysis of Animal Health Survey data and econometric analysis of Sim Bétail's data on market indicators. The qualitative component includes the analysis of data collected via in-depth semi-structured key informant interviews (KIIs) with key stakeholders and end-beneficiaries. The assessment of the implementation includes a discussion of how interventions were carried out, and whether the implementation led to the envisaged results. The progress against each output, short-, medium- and long-term outcome, and impact will be assessed after the endline phase, following the PRAPS logic. Potential causes of unachieved results will be investigated after the endline phase. The sustainability of the results will be a key aspect of the analysis of the outcomes and impact. The insights from the previous analytical streams will then be used to review the program design to assess whether lessons can be drawn for the design of future MCC initiatives. This approach will be systematically used for each of the three sub-activities. The findings of these sub-activity level performance evaluations will then be consolidated to inform the PRAPS Activity performance evaluation. The overall performance of the Activity will subsequently be assessed based on five OECD DAC criteria - relevance, effectiveness, efficiency, output/outcome/impact, and sustainability.

This baseline report[1] is part of the overall PRAPS evaluation which will involve three rounds of data collection and analysis to inform the overall performance and results of the PRAPS Activity. The baseline is part of three planned rounds of data collection, which also include an interim and an endline phase. The baseline will be followed by the interim phase, which will involve the monitoring of the implementation of the MAF and NRME sub-activities, along with the progress made on the AH sub-activity related interventions. The interim data collection (which will include qualitative data collection via KIIs and secondary data) and analysis will primarily focus on assessing the medium-term outcomes and the long-term outcomes of the AH sub-activity, and the short- and medium-term (if possible) outcomes of the MAF and NRME sub-activity. The endline phase is planned for the last quarter (Q4) of 2025, two and a half years after the Compact closure in January 2023. The endline phase will be used to collect both quantitative and qualitative information to assess the overall PRAPS performance, as well as the long-term outcomes and the final goal/impact of Activity[2].

[1] For the sake of distinction between each round of planned data collection and analysis, this report is referred to as the "baseline"; however, this report simply presents the analysis of the first round of data collection for the PRAPS Activity evaluation. The implementation of the AH sub-activity under PRAPS already began in 2018, with two rounds of vaccination campaigns completed prior to the 2020-21 vaccination campaign, during which this first round of data collection and analysis was carried out.

[2] PRAPS Evaluation Design Report, 2020.

Even though the AH sub-activity implementation is at an advanced stage, the baseline phase is assumed to be the "baseline" since it is the first round of data collected. While this is not the true baseline, since multiple rounds of vaccination campaigns and recruitment of private veterinarians in target regions have already been undertaken, treating it as such will help differentiate between the different data collection phases. Therefore, the suggested approach, as agreed upon in the EDR, is to consider the first round of data collection as "baseline" and gather data on the existing level of livestock health, mortality and morbidity of the animals from CBPP and PPR, and other factors including production, productivity, and trade opportunities. The endline data collection will facilitate the collection of information on the same indicators post-intervention, to carry out the pre-post analysis for the estimation of the effect of the AH sub-activity on the key indicators of interest.

This baseline report presents the assessment of the current situation of livestock health, market access and natural resource availability in Niger, and implementation progress. This is based on the findings of the qualitative and quantitative data collected, as well as a review of the literature. The assessment of animal health-related issues involved the collection and analysis of survey data on a randomly selected represented sample of 666 herders and their entire herds in the four targeted regions. These were complemented by qualitative information obtained through KIIs with stakeholders and project participants. Since the MAF sub-activity has not begun, the baseline presents the current situation with regards to a randomly selected sample of targeted livestock markets, their management, and access. In addition, econometric analysis of quantitative market indicators data collected from SIM Bétail was undertaken to study supply and demand dynamics. Similarly, since the NRME sub-activity implementation is in the very early stages[3], the baseline phase involves the assessment of the natural resources, their quality, and access, for a randomly selected sample of communities along the four regional livestock corridors targeted. The baseline report also presents an assessment of the perceived contribution of the PRAPS Activity in Niger and sustainability of the results, based on the interviews with the stakeholders, project participants/end-beneficiaries.

Findings of the Baseline Study

Herders

The prevailing livestock systems are classified as purely pastoral with a nomadic and transhumant system, an agro-pastoral system, and an urban and peri-urban system. The nomadic and transhumant systems are based on mobility and the availability of grass and water. Reliable data on the pastoralist population and distribution by region is not available, but qualitative information on the traditional geographic distribution and ethnicity exists. The main ethnolinguistic groups engaged in pastoralism in Niger are the Fulani, Tuareg, Arab, Tubu (Teda),

[3] Social Agreements have been signed between community members, leaders and MCC under the NRME Sub-activity. See Annex 5 for further details.

and Buduma (Yedina). Traditionally, Tuareg and Tubu are more specialized in camels and occupy more arid areas, while the various Fulani clans own most of the cattle stock and are in more semi-arid areas (UNOWAS, 2018).

Climate change, degrading soil quality and growing volumes of agricultural lands have been contributing towards a gradual shift towards agro-pastoralism in Niger. Decreased soil fertility has been contributing to additional pressure on land as yields decline and areas under cultivation increase (Dyner, 2008). An increasing number of pastoral communities have started cultivating crops to diversify their livelihoods, thereby increasing the competition for land. The ecological and weather crises that severely affected the Sahel in the 1970s and 1980s set in motion the shift towards agro-pastoralism. Livestock breeders began agricultural activities to reduce the risks of confining themselves to livestock (OECD, 2007). Decentralization and transfer of natural resource management to rural communities further led to the shift towards agro-pastoralism (ibid).

Other factors such as poverty have been contributing to the shift towards agro-pastoralism. Regions in the pastoralist zone have experienced a decade-long growth of an agro-pastoral class (formerly pastoral) who are very poor and have limited mobility (Anderson, 2007). This group of people carries out semi-extensive production as one element of a diverse range of activities undertaken by poor families. Similar trends have been observed in regions in the agro-pastoralist zones, where fields were cleared up on the margins of pastoral and agro-pastoral lands. Very poor pastoral women who no longer have or have never had livestock have increasingly become engaged in crop cultivation in very precarious conditions (Diarra, 2006). The existing literature also suggests that some parts of pastoral communities are sedentarising to access services, health, education, etc., gain political/administrative recognition (establishment of villages), or capture emergency relief aid. Poverty and droughts, coupled with the inability of some former transhumance pastoralists to replenish their herds have led them to move towards sedentary pastoralism; as it requires a certain herd size to make the effort to undertake long-distance transhumance (Dyner, 2008).

The shift towards agro-pastoralism is also reflected in the animal health survey data, with 50% of the sampled herders reporting agro-pastoralism as their main source of livelihood. About 22.5% of the sampled herders stated that they practiced transhumance pastoralism[4]. Another 22.5% mentioned sedentary pastoralism as their main source of livelihood. On average, sedentary pastoralists in the AH survey have the largest herd, followed by agro-pastoralist, and transhumance herders reported the smallest herd. Similar observations are made for sheep and goats in the herd. Transhumance herders make the most profit by selling their cattle, as compared to agro-pastoralist and sedentary pastoralists. The average profit from selling cattle was about 54,298 CFA, 55,788 CFA, and 74,281 CFA for sedentary herder, agro-pastoralist, and transhumance herder, respectively. Among the small ruminants, selling sheep leads to higher average profits. According to the AH survey, the average profit from selling sheep was about

[4] Sedentary pastoralism involves keeping livestock near farms and villages all year-round while transhumance includes the seasonal movement of animals and people.

14,073 CFA, 12,970 CFA, and 13,680 CFA for the sedentary herders, agro-pastoralists, and transhumance herders, respectively. The average profit from selling goats was about 3,571 CFA, 5,800 CFA, and 3,385 CFA for sedentary herders, agro-pastoralists, and transhumance herders, respectively.

Sedentary and transhumance pastoralism are being practiced by the same group of herders, as suggested by the AH survey data, who have been forced to sedenterise their families and selected animals due to growing insecurities. About 53% of the herders who reported sedentary pastoralism as the main source of their income had transhumance pastoralism as the secondary source. Similarly, 83% of herders with transhumance pastoralism as the main source of income had sedentary pastoralism as the secondary source. Herders with transhumance pastoralism as the main source of income had higher average profits by selling livestock than herders with sedentary pastoralism as the main source of their income. Insecurity has reduced mobility of pastoralism, and less mobile pastoralism is also less profitable (World Bank Blogs, January 21, 2020). According to the AH survey, average production costs are highest in transhumance pastoralism, while average transportation costs are usually the lowest. Transportation costs are highest among sedentary pastoralists, who have to pay for the travel to the market to sell their animals. There is a possibility of agro-pastoralists being located closer to the markets, which automatically lowers their transportation costs. In terms of average profits, herders in Dosso reported the lowest numbers, as well as older animals and high average mortality and morbidity rates. This suggests that poor animal health status has an impact on animal sales.

In the AH survey, Tillabéri has the highest reported number of transhumance and sedentary herders among the 4 regions. Transhumance activities are concentrated around the rainfall season due to the availability of pasture and water. Over 90% of the community members interviewed in the targeted regions observed the highest transhumance activities in the rainy season, with activities beginning as early as March. Around 40% of transhumance herders ended their journey in Benin, and approximately 7% and 6% finished their route in Burkina Faso and Mali, respectively. The absence of Nigeria in the survey is a potential result of border closures and insecurity which disrupted the route for transhumance herders.

The transhumance corridors in all 4 regions are reported to be demarcated for the most part, with some degree of regional variation. More than 87% of members of the community-level governance stated that the transhumance corridors are demarcated. Around 13% of the herders declared that the transhumance corridors are not demarcated, and all of them are in the region of Tillabéri. Concerns were also raised about the corridors becoming increasingly narrow and the demarcations being disregarded by pastoralists. Rest areas along the livestock corridors are reported as either scarce or non-existent, making the journey challenging. Around 73% of the community members along livestock corridors say that there are allocated rest areas, compared to 31% of the livestock herders. In Tillabéri all community members stated that there was no livestock rest area.

Natural resources along the livestock corridors are in poor condition, which often leads to conflicts around the use of water by both farmers and herders. Around 26% of the members of local governance interviewed for the baseline stated that water bodies are in bad condition and are shared among the two groups, particularly in Maradi and Tahoua. In addition, all the herders from Tillabéri and 25% of those from Maradi declared that water bodies were in bad condition and not shared in a peaceful matter. More than 75% of the interviewed community members stated that the pastureland in their commune is in bad shape and that the transhumance herds of livestock aggravate the problem. In the regions of Maradi, Tahoua, and Tillabéri, almost all herders (transhumance and sedentary) are dissatisfied with the state of the pasturelands and their space. While governance and community members from 3 of the 4 regions reported satisfactory land administration, those in Dosso stated a lack of land registration procedure. Around 42% of the community members interviewed were involved in the conflict or its resolution. Governance and community members indicate herders' non-adherence to the corridor limits and movement into local fields as the leading cause of trouble in the region. With the highest number of transhumance and sedentary herders and lack of water resources and pasturelands, Tillabéri is fertile ground for conflicts.

The already shrinking transhumance pastoralism practice in Niger has been further exacerbated by climate change, insecurity, and the pandemic. Climate change and increasing insecurity in the region continue to negatively affect transhumance in the region. Climate Change Risk Index, estimated by USAID ranks Niger at 175 out of 183 countries (USAID, 2021). Increasing violence in the region is mainly associated with competition over natural resources along with the transformation in the modes of production. As borders closed to contain the spread of COVID-19, herds of cattle could not return to their homelands, thereby leading to significant animal health risks, as pastoralists concentrated at the borders. Beyond the immediate loss of income, some pastoralists risk losing their reproductive nucleus and the depletion of their herds. This would mean a partial collapse of the pastoral sector in the Sahel (Clingendael, July 2020). Insecurity, pandemic, unilateral decisions of States, and absences of pasture on the planned route has led to herders being stranded along the central transhumance corridor (Réseau Billital Maroobé, February 2021).

Reduced and/or non-existent pastureland and low education rates are among the biggest challenges faced by the herders in the region. Pastoralists often must sell some of their livestock to buy animal feed, gradually depleting their wealth (UNOWAS, 2018). There are concerns over whether pastoralism can be sustained for the next generation. Low education rate among Nigerien pastoralists restricts growth and traps them in a cycle of poverty[5]. Nigerien pastoralists usually have large families as suggested by the animal health survey finding that the average family size among the herders was about 10 members. Most of the respondents of the survey never attended school; around 7% of male and 5% of female respondents attended primary school (UNOWAS, 2018).

[5] The Guardian, 2017

Livestock Markets

Livestock markets in Niger can be categorized into four main types, collection, consolidation/cluster, export, and consumer or terminal markets. Collection and consolidation/cluster markets are the most common types of livestock markets in the country, with each comprising about 36% of the total number of livestock markets in the country, according to SIM Bétail. The market leaders/market managers play an important conciliatory role in resolving disputes related to commercial transactions and provide significant support to the administration for tax collection. Other important market actors include pastoralists, collectors, foot conveyors or shepherds, intermediaries, canvassers or speculators, traders, and exporters.

Since none of the reconstructed markets are expected to be collection markets, herders may not be the biggest beneficiary of the MAF sub-activity. Of the 18 markets to be reconstructed, 11 will be cluster markets, 6 will be export markets, and 1 will be a consumer market. There will still be herders' presence in the reconstructed markets, but these are expected to be dominated by intermediaries, livestock product sellers, exporters, consumers, and foreign importers.[6] Information from the KIIs with the MCA-Niger implementation team suggests that sales intermediaries accrue the largest share of the profits from the trade and impede the efficient functioning of the markets. Moreover, livestock product sellers are reportedly the most common value chain participants in the randomly selected markets for the baseline which include 5 consolidation/cluster markets, and one each of collection, export, and consumer market. These include the marketplaces of Tanda Batako from Dosso, Maradi Com, and Guidan Roumji markets from Maradi, Ibohomane and Tabalak from Tahoua, and Torodi and Wankama from Tillabéri.

Livestock markets lack key market infrastructure as well as safe, designated spots for market participants to store products and carry out business from. Most of the market leaders from the 4 regions reported a lack of fences and asked for general construction and renovations to improve the marketplaces. For instance, markets in Dosso reported a lack of fencing, and permanent market structure, and their hangars for the animals are made of straw. Other key amenities such as toilets water fountains and hangars in the market are also in poor condition, such as those in the Maradi Com market. Tabalak (Tahoua) has no enclosures, water points, or toilets. The market is often crowded with cars parked haphazardly which restricts access to the marketplace. While 62% of market participants had a designated spot to conduct their business, only 28% of respondents had a shaded space to do so. While many livestock markets have toilets on the premises, they are often non-operational or not free to use. All the respondents in both markets in Tillabéri declared that there are no toilets in the marketplace. They reported that there aren't even toilets close to or around the market, which forces the market participants to use the woods. Drinking water, when available, has to be purchased from the mobile sellers in the market, as reported by the market participants in Dosso and Maradi. Respondents in Tillabéri and Tahoua primarily declared that there was no drinkable water in the market.

[6] Breeders breed and raise livestock whereas an intermediary buys livestock or livestock product to sell it.

Veterinary services are available in varying degrees at the livestock markets in the 4 regions. In the Guidan Roumji marketplace, respondents mentioned that the veterinarian does not have a fixed spot. Most markets do not have an adequate supply of safe and secure space with access to water to store the animals, thereby resulting in the loss of animals. For the markets in Dosso, as high as 56% of the respondents lacked any storage space with water for their animals. About 45% of the respondents in the Maradi markets lost their animals. In Tahoua, all the respondents reported that the livestock is not stored in a place with access to water. Market manager/management usually charges a fee from market participants in all markets, except the Maradi com market. Market leaders in both the markets in Dosso mentioned that the fee depends on the type of livestock item sold. In Guidan Roumji, there is an entry tax of 100 CFA for small ruminants and 250 CFA for large animals. There is an additional sales tax of 250 CFA for small ruminants and 500 CFA for large animals. Ibohamane has a tax on livestock sellers, which is determined by the number of animals, whereas other value chain actors pay a fixed tariff. Fees in Tabalak range between 50 to 200 CFA for small ruminants and between 200 and 500 CFA for large animals. Torodi market charges 500 CFA on sellers and 200 CFA per animal. Wakama reported a fee between 50 to 200 CFA. There is a general willingness among market participants to pay taxes for the maintenance of the marketplace and security in the premises.

All 4 regions targeted by PRAPS have reported excess supply for the two most prevalent animal categories, namely, cattle and small ruminants, for over a decade. Movements in market supply and demand have a correlation with transhumance practices and the rainy season. For instance, the supply and demand for cattle in the livestock markets are highest at the beginning of the year, while they are highest around mid-year for small ruminants. While excess supply is not uncommon, its persistence over a long period suggests market inefficiencies. Usually, excess supply in the market should lead to a fall in prices leading to an increase in quantity demanded. However, based on time-series data, it does not seem like prices adjusted to the high supply. A plausible reason for prices not adjusting in these markets could be that prices are artificially set at higher levels by market intermediaries. This could be due to information asymmetries in the livestock market system in the four target regions, and perhaps even beyond, in other regions in Niger. The findings of the time series data analysis suggest that Tillabéri is expected to have the highest regional demand and supply in the cattle market in the next 5 years. Tahoua and Dosso are expected to have the lowest demand and supply in both bovine and small ruminant markets in the next 5 years.

Despite the export potential in livestock, exports have fallen in recent years. Border closures due to insecurity along the national border were the leading cause of a fall in exports. Nigeria is the major exporting partner for Nigerien livestock, with about 80% of animal export in 2018 going to Niger (World Integrated Trade Solution, 2021). However, in August 2019, Nigeria unexpectedly closed all of its land borders with Niger, Cameroon, and Benin, to stop all movement of goods, except oil, from import or export. Less than 2% of the herders in the AH survey reported exporting any livestock in 2020. Of the 13 herders that exported livestock, 12 are from the Dosso region, and one is from the Tahoua region. Nearly half of the exporters exported cattle, and a

similar proportion reported exporting sheep. About 31% of the exporters exported goats. Limited export opportunity in the target regions was also reported during market participants' interviews, with the highest levels in Dosso. About 72% of the respondents in Dosso reported having the opportunity to export livestock and related products, whereas only about 5.5% reported positive export opportunities in Tillabéri. Insecurity in the region also restricts the efficient functioning of the markets, by restricting herders' mobility.

Animal Health Issues

Niger has several livestock diseases that have a significant impact on the country's economic status due to the losses they generate and/or their zoonotic nature. Due to the transboundary nature of livestock production, prophylactic measures are difficult to implement; consequently, livestock exports into neighboring countries can be negatively impacted by disease outbreaks. Literature suggests that both CBPP and PPR have had an impact on Niger's pastoral livelihood and export earnings in the last 10 years.

Periodic droughts, desertification, climate change, and increased diversion of land to cultivation have wiped out pasturelands and water sources, and, in turn, forced pastoralists to alter their transhumance routes in search of food and shelter for their herds. Niger has experienced land degradation caused by environmental stress, which has put additional stress on pastoral livestock production (Gnoumou & Bloch, 2003). The growing population, and the demand for food, combined with the deterioration of the country's soil quality, have caused a need to expand the areas of cultivated land. Conflicts have been observed in the region arising from several factors, including disputes related to natural resource use between pastoralists and agro-pastoralists, armed conflicts, trafficking as well as terrorism (Tall, 2018). The disputes (primarily related to the management of waterholes and pastureland, as well as land rights) between pastoralists and agro-pastoralists are especially prevalent in the area that stretches from the north of Tillabéri to the north of Abala, in the Filingue strip, in Tahoua, Abalak, Baleyara and toward Zinder (Mercy Corps Niger, 2016). According to the interviewed veterinarians/SVPPs, aside from diseases, malnutrition in animals and cross-boundary disease transmission are key animal health concerns. Severe lack of animal feed in the hot season, lack of isolation of herds, etc. deteriorate animal health and easily transmit diseases from one animal to another. This is exacerbated by the cross-boundary movement of animals, such as between Niger, Benin, and Nigeria.

There are several other prevalent livestock diseases in Niger besides CBPP and PPR, as identified by the data and the literature. Other common diseases that were mentioned as prevalent in the target regions included Pasteurellosis, Anthrax, Sheep Pox, Sheep Fever, FMD, Dermatitis, Blackleg Disease, and Trypanosomiasis. Veterinarians/SVPPs, AEs, and AVA/PRs mentioned diseases such as Tuberculosis, New Castle Disease, Sheep Mouth Diseases, and parasitism. Based on the AH survey, 11% of sheep in the age group 6-8 years had PPR; in comparison, about 3% of goats in the same age group had PPR. About 7.4%, 10%, and 13.7% of cattle owners stated that their cattle had CBPP, Trypanosomiasis, other diseases, most commonly

Pasteurellosis and FMD, respectively. Other diseases, such as Anthrax, Foot and Mouth Disease (FMD), and Brucellosis have been regularly breaking out in the country at endemic rates. These diseases are found to be less virulent in terms of mortality and case fatality rate. Data on Brucellosis is missing, although the disease is known to be at an endemic level in Niger. Moreover, it is a zoonosis and its transmission to humans is aided by the mishandling of aborted fetuses, and by cultural habits such as drinking raw milk. Anthrax is another zoonosis that breaks out regularly, including in 2019. Based on preliminary information from the DGSV in Niger, the disease, and its mitigation have not been focused on as much by the GoN.

The majority of herders reported that they have access to veterinary services and medication for their animals. Over 90% of the respondents belonging to Tahoua and Tillabéri have access to veterinary services, as well as 75% and 80% of respondents belonging to Dosso and Maradi, respectively. The majority of respondents, except in Tahoua, can access veterinary services within 1-2 hours. However, veterinary services are reportedly limited in scope in the region. Veterinarians stated that they can treat diseases, but do not have the equipment and required training for advanced surgeries. Auxiliaries added that herders usually visit them for animal births, treating intoxication, injuries, and trauma. It was noted that herders often do not avail these services readily, due to trust issues and the inability to afford them. Veterinarians are often reluctant to intervene in remote pastoral areas which require covering long distances to reach livestock keepers. Lack of key infrastructures, such as clinics and medical facilities, and transportation have also affected the delivery of medical help and vaccinations. Moreover, the mobility of transhumant pastoralists exposes healthy animals to new viruses thus exacerbating the transboundary disease burden (Sherman, 2017; Apolloni, et al., 2018; Bouslikhane, 2015).

While the vaccination rates reported by the Directorate General of Veterinary Services (DGSV) show a decrease over last three campaigns under PRAPS, the rates are still higher than those prior to the PRAPS implementation[7]. The 2018-19 vaccination campaign was the first to be funded under the PRAPS activity, which led to a rise in the vaccination rate from 31% in the previous year to 71% for CBPP and from 61% previously to 85% for PPR. For the last campaign in 2020-21, the vaccination rate for CBPP was reported to be 54% and for PPR was 59%. According to the AH survey findings, vaccination coverage during the 2020-21 campaign for CBPP was 47% and for PPR was 52%. The lower vaccination rates captured by the AH survey is because it was conducted between March and April, with the expectation that the annual vaccination campaign would end on March 31st, 2021, as originally planned. However, the annual vaccination campaign was later extended till the end of May.[8] The vaccination coverage is the proportion of vaccinated

[7] Security is an ongoing issue in the region and may have had an impact on both the ability to conduct vaccination camps in certain areas along the Nigerien border in the south, and the ability of pastoralists to travel to the camps to get their animals vaccinated. However, due to the unavailability of adequate data to ascertain causality, it is currently not possible to either confirm or deny any potential effect of security issues on falling livestock vaccination coverage rates.

[8] For the calculation of the vaccination coverage of the 2020-21 campaign, the vaccines received by animals since Jan 31, 2021, were counted. This is because this is the official start date for the third vaccination campaign. There were around 100 observations with vaccination in Jan 2021, which were excluded from this calculation.

animals in each population during a vaccination campaign. But this population should exclude all animals which are not eligible to vaccination, like sick animals and young animals having maternal antibodies (under 3 months for small ruminants and under 6 months for bovine). In terms of overall vaccination coverage, Tahoua is the only region to report an 80% targeted vaccination rate for all animals. Survey findings suggest that old (defined as above 60 years of age) herders had the highest vaccination rates under PRAPS programs among the three different age groups for cattle (50%) and sheep (65%).

Table 1: Regional Vaccination Rates (2020-2021) against CBPP for Cattle and against PPR for Sheep and Goats

Region	Cattle	Sheep	Goat
Dosso	34%	56%	42%
Maradi	67%	40%	33%
Tahoua	84%	87%	85%
Tillabéri	42%	48%	47%

Source: AH baseline survey

Mortality rate is reportedly highest among sheep and goats, as compared to cattle. According to the survey, mortality rates in 2020 among goats and sheep were 8.7% and 9.7% respectively, while it was only 5.4% for cattle. Mortality rates in Niger start increasing in April, reaching a peak in July and decreasing again by September for cattle. Among sheep, there are two peaks observed, one in June and one in September, and for goats, a peak in March was observed (Ministry of Agriculture and Livestock, Niger, 2019). According to World Organization for Animal Health (OIE), during the last notified outbreak of PPR, a mortality rate of 6.8%, and a morbidity rate of 6% were recorded. Similarly, a mortality rate of 8.5% and a morbidity rate of 20.5% were recorded during the last CBPP outbreak. Data suggests a prevalence of PPR in the Dosso region. Mortality rates due to PPR among sheep in Dosso increased from 5.3% in the year 2020 to 8.3% in the first 3 months of 2021; among goats, the rate increased from 1.5% in 2020 to 2.23% in the first 3 months of 2021.

Table 2: Overall morbidity rates in Niger for the first 3 months of 2021

Overall Morbidity Rates in Niger	Cattle	Sheep	Goat
The morbidity rate for all diseases in the first 3 months of 2021	7.9%	7%	8.5%
The morbidity rate for PPR or CBPP for the first 3 months of 2021	1.45%	1.62%	1.1%

Source: AH baseline survey

Table 3: Morbidity Rate in Cattle due to CBPP and in Sheep and Goats due to PPR by Region in first 3 months of 2021

Region	Cattle	Sheep	Goat
Dosso	0	3.1%	9.87%
Maradi	2.86%	1.4%	1.16%
Tahoua	2.4%	0.82%	0.81%
Tillabéri	1.8%	1.1%	0.73%
Overall	1.45%	1.62%	1.1.%

Source: AH baseline survey

LABOCEL has carried out 3 rounds of seromonitoring on behalf of the AH sub-activity for CBPP, and the results of this effort are awaited. Seromonitoring is used to measure the gradual reduction in the prevalence rate of herds infected with CBPP and the increase in the post-vaccination serological prevalence rate for PPR. It also makes it possible to measure the seroconversion rate for the two targeted diseases. The serological test used for the detection of antibodies in the collected sera is the Competition ELISA (cELISA), using monoclonal antibodies. This cELISA is recommended by OIE World Animal Health Organization) for this purpose. LABOCEL was responsible for vaccine quality control during the annual vaccination campaigns and their assessment report is awaited. Reportedly, they have been monitoring the quality of vaccines in the field, which consists of taking samples (vials) throughout the distribution chain and verifying the number of microbial organisms in the sample and their sterility. This makes it possible to assess the storage conditions of the vaccines.

If vaccination is the main available and applicable intervention against CBPP, then there is a possibility that it may not be sufficient to overcome the disease. The reason lies in the low immunogenicity of the vaccines available to date (the duration of post-vaccine immunity is 3-6 months). This has led to a loss of confidence on the part of farmers in this vaccination and the use of antibiotics for curative treatments which improve the condition of the animal without ensuring its microbiological cure. Thus, all the countries which have eliminated CBPP have had to resort to sanitary slaughtering (i.e., the elimination of the sick) as the only strategy, or in combination with vaccination. Similarly, it would be worth noting that the assessment of CBPP vaccination by serology alone might be unreliable given the kinetics of the antibodies. This is because these antibodies may sometimes not appear in all the animals that are vaccinated, and these also disappear after 3 months in animals where they do appear. Therefore, the absence of antibodies in animals more than 3 months after vaccination does not confirm poor/ineffective vaccines, but could also imply the absence of CBPP. But this finding deserves to be confirmed by the absence of CBPP outbreaks in the field through follow-up data collection.

AH sub-activity implementation, outputs, short-term outcomes

The AH sub-activity is the most advanced in terms of implementation, with three nationwide vaccination campaigns (2018-19, 2019-20, and 2020-21) having been completed. The COVID-19 pandemic coupled with the deterioration of security in some areas resulted in the 2019-2020 campaign being delayed. The vaccination campaign started on January 31st and ended on March 31st, 2021. The detailed vaccination report for the 2020-21 campaign, prepared by the Direction Generale Des Services Veterinaires (DGSV), is currently pending. Prior to that, a detailed diagnostic of the issue of animal health was conducted for the four target regions under the AH sub-activity, to shed light on the existing infrastructure and veterinary capacity in each region. This was intended to inform the installation of the 12 new Private Veterinary Centers and strengthening of 16 others in these regions, which was carried out by VSF-Belgium (VSF-B). Training sessions were carried out by VSF-B, intended for the Auxiliares d'Elevage (AEs) and the Animatrices Villageoises en Agriculture et en Elevage de Petits Ruminants (AVA/PRs). In addition,

veterinary camps were set up in remote rural areas, where the necessary facilities may otherwise not exist or be too far to access. MCA-Niger hired a consultant to conduct a due diligence and draft recommendations related to the establishment of a Vaccination (or Animal Health) Fund. The required legal documents were drafted and shared with the Steering Committee and MCA Board.

VSF-Belgium was given the responsibility of undertaking the training of veterinarians, AEs, and AVA/PRs. They first carried out a diagnostic study on the pre-training situation of the SVPPs in the 4 regions covered by MCA-Niger, particularly to clearly understand training needs. VSF-Belgium implemented the 12 new SVPPs and strengthened the 16 old SVPPs. Each SVPP covers a department and relies for its activities, on a network of 30 livestock AEs and village leaders for poultry farming and small ruminants (AVA/PR). The training courses targeting the AEs and AVA/PRs are based on 10 modules validated by the national veterinary services, including module 5 dedicated to livestock vaccination. Four additional modules were taught to private veterinary doctors, which covered topics such as how to run a business, taxation, epidemiology, and clinical aspects (such as animal surgery).

The planned outputs for the AH sub-activity have been partially achieved, but the short-term outcome yet to materialize, given the lower than 80% vaccination coverage rates. The output of "Health infrastructure upgraded, and veterinary capacities strengthened" has been achieved, with the aforementioned creation and development of the SVPPs and the trainings of the AEs and AVA/PRs. However, there is the need for follow-up trainings, while ensuring maximum attendance rates. The second output of "Animal diseases control and surveillance system is supported" has not been achieved. The vaccination coverage rate for both CBPP and PPR has gone down compared to the last two vaccination campaigns, and qualitative data and literature suggest that other livestock diseases are rampant and need addressing to ensure wholesome results in animal disease control. The short-term outcome connected to the AH sub-activity, namely, "Improved animal health for bovines and small ruminants," has not been achieved due to the lower than 80% vaccination coverage (necessary to achieve herd immunity) and other livestock diseases affecting animal health. In this regard, systematic data collection on disease incidence and immunity against key diseases would be helpful. With regard to immunity against CBPP and PPR, the findings of LABOCEL's seromonitoring efforts (report pending) could play a key role in monitoring improvements at the regional and country level.

Progress made on the MAF sub-activity and feedback from market participants

For the MAF sub-activity, progress has been has been made through feasibility and pilot studies to plan specific interventions.[9] Four pilot studies were completed in April 2019 to estimate the effectiveness of the potential market management interventions in raising the selling price of livestock.[10] These interventions include disseminating livestock price information among herders, disseminating animals' weights prior to sales, enhancing the market coordination and negotiation skills of herders, and privatizing the management structure of livestock markets. These studies are expected to be used to finalize the implementation plan to rehabilitate 18 markets spread across Lot 1 (Dosso and Tillabéri) and Lot 2 (Maradi and Tahoua). MCA-Niger hired a consultant to carry out technical feasibility studies, socio-economic and environmental studies, architectural and technical design, and the development of detailed technical files for the construction of 11 livestock markets in Lot 1. This will span across nine departments in the two regions, and began in 2019-2020; however, study progress has been delayed due to the COVID-19 pandemic. In April 2021, MCC stated that the tender documents for construction were expected to be completed by July. However, there are concerns over the slower than expected progress of the sub-activity.

About 50% of the market managers/leaders interviewed are aware of the PRAPS Activity and of the fact that implementation will take place in the future. Construction has been reported in the Guidan Roumji market in Maradi and the Tabalak market in Tahoua. However, these are not part of the MCC-funded PRAPS Activity work. Market managers/leaders recommended forming management committees to ensure the sustainability of the market and amenities after the project is complete. The proposals to ensure the collection of revenue after the PRAPS Activity is completed, varied by region. The plans ranged from depending on the intermediaries and tax collectors to set up a financial manual, to improve monitoring, to greater sensitization of the market participants. There were also suggestions regarding setting up a committee that would collaborate with the commune on the agreement over how to best manage the market. Most market participants and market management/leaders think that the direct effect of the PRAPS implementation will lead to an increase in revenues. The market leaders envision increased revenue, space, and security as the primary advantages of the PRAPS activities. Overall, they anticipate these factors to lead to better management of the market activities. Livestock sellers are perceived to be the primary beneficiary of MAF sub-activity.

[9] As per the PRAPS program logic, 22 markets were prioritized by the Ministry of Agriculture and Livestock for modernization in the four regions, which were selected from an inventory of current market infrastructure and livestock trade flows. Four of them were dropped due to security concerns, and interventions will be targeted for up to 18 marketplaces. Three additional sites were pre-selected to potentially develop milk collection centers. Each of these markets and centers were to be evaluated through feasibility studies to determine their eligibility for rehabilitation. However, the milk collection centers will no longer be developed due to a lack of evidence on their impact on productivity.

[10] In September 2018, MCC designated Cultivating New Frontiers in Agriculture (CNFA) to provide agricultural and livestock assessment services to evaluate different types of complementary investments that will modernize the livestock markets in Niger.

Progress made on the NRME sub-activity and feedback from community members, local governance, and herders

The NRME sub-activity is in the initial stages of implementation. The NRME interventions will be implemented in four International Transhumance Corridors (identified by the Rural Code) – two in the regions of Dosso and Tillabéri and two in Maradi and Tahoua. Following a period of consultation with the community members, representatives, and key stakeholders, the signing of social accords with community members has been ongoing in these corridors.[11] The four pilot social accords delivered for Lot 1 were not aligned with MCC requirements. Based on MCC and MCA-Niger's guidance, the social accords are now being signed in accordance with MCC Environmental Guidelines, including the IFC PS. The pilot consultations for the communes in Lot 2 have been delayed due to the COVID-19 pandemic. The main interventions under the NRME sub-activity will include demarcation of international transhumance livestock corridors and pastureland by laying tags; land recovery by digging half-moon ditches and controlling invasive plants; and de-sanding of water bodies along the livestock corridor.

Local governance and community members, along with herders, expect fewer conflicts, and increased agricultural outputs to be key outcomes of the PRAPS activity. Around 42% of local governance members mentioned fewer conflicts as the future positive result of the NRME sub-activity. About 38% of the community members and 49% of herders report a lesser number of conflicts as the benefit to be reaped from rehabilitating water bodies, rest areas, and pasturelands. About 53% of community members expect more production and increased output from farming and more security for their agrarian stocks. Around 41% of herders stated that they expect increased access to water and pastureland resources after the PRAPS implementation. Local governance and community members think that farmers will be the primary beneficiaries of the PRAPS activity, whereas herders believe that transhumance pastoralists will benefit the most. Community members and herders are optimistic about the sustainability of the interventions. Surveillance, managing committees, and sensitization are the key methods mentioned by the respondents which can ensure the maintenance of natural resources.

Gender

Women own smaller herds of mainly small ruminants and earn considerably less than their male counterparts, on average. This finding of the survey is in agreement with the trends of Niger's livestock sector, where the rearing and ownership of cattle is mostly a man's responsibility, and women mostly rear small ruminants. About 78% of male respondents own cattle compared to only 29% of the female respondents. In addition, women have approximately 4 animals per herd while men have around 10 animals per herd. Survey findings also suggest that women herders have an average monthly income of 26,373 CFA, as compared to an average monthly income of 159,770 CFA earned by men by selling animals. The low-income stems from two causes. First, women earn a lower profit by selling an animal than men. Second, women own

[11] See Annex 5 for further details on results achieved through social agreements and development plans.

and sell more small ruminants than cattle, and profit margins are lower for small ruminants. Sellers of live animals have the highest average income in all four regions[12]. Women were found to be selling milk in the targeted baseline markets, which generates low earnings in these markets. Among the group of milk sellers, those in the Torodi market in Tillabéri earn the highest average income.

Female herders in the survey have higher access to veterinary services, but male herders can access these services in relatively less time and use these services more often than women herders. About 90% and 86% of women and men herders, respectively, stated that they had access to veterinary services. However, about 59% and 71% of female and male herders, respectively, can access these services within 2 hours. More female herders reported vaccinating their animals against PPR than male herders. About 64% and 60% of women herder vaccinated their sheep and goat against PPR, respectively. In comparison, 55% and 44% of male herders got their sheep and goat vaccinated, respectively.

Women are often restricted from working as veterinarians or AEs due to family responsibilities, taboos, and socio-cultural blockages. The Dosso and Tillabéri regions have no women veterinarians, and women AEs are rare. In Dosso, a veterinarian claimed that he does not work with women as "they don't do the job like a man does". In Tillabéri, gender inequality is exacerbated due to insecurity issues. In the region of Maradi, there is one woman veterinarian who was interviewed, and she works with only one AVA/PR, to treat small ruminants and poultry. She stated that she does not encounter any reluctance from the breeders in seeking her help, nor any significant problems in carrying out her tasks. Tahoua, meanwhile, has relatively more women in the sector. According to a veterinarian who was interviewed, only 30% of the AVA/PRs in his commune treat small ruminants and the rest treat poultry. Whereas other big livestock animals are taken care of primarily by men. Most AVA/PRs are women, and many no longer work or conduct fieldwork due to their household or familial responsibilities. Some of these AVA/PRS reported having received training, but are not active due to household work and are reluctant to travel which is sometimes required as a part of the AVA/PR roles and responsibilities.

The livestock market participants are predominantly male, and females usually sell products like water, food, milk, and animal feed. Most of the market managers/leaders in the 8 markets across Dosso, Maradi, Tahoua, and Tillabéri reported that the markets are safe for women to conduct their business. The only exemption is the market leader from Wakama (Tillabéri) who stated that the market is not safe for women and there has been no effort to improve or guarantee the safety of women conducting their businesses there. Market leaders are of the opinion that women will earn higher revenue compared to their current ones, after the completion of the PRAPS program. Apart from higher revenues, other benefits will include better security, secure toilets, and a stocking area for their produce.

[12] The corresponding figure is based on KII with the market leader; the market leader from Maradi com market did not have this information.

Female farmers face economic losses due to the transhumance activities in their communities, according to the community members along the transhumance corridors in the 4 regions. Around 46% of the community members interviewed stated that women face difficulties since transhumance herders, who are typically men, prevent them from getting water from wells and often damage their fields. About 43% of the respondents obtain water from ponds and natural water sources, which can sometimes become difficult given the possibility of conflict with transhumance pastoralists. Development of water sources and separation of water bodies for farmers and herders will particularly benefit women, since they are mainly responsible for fetching water, both for household consumption as well as for small-scale cultivation purposes. Women can run their farms and businesses more profitably with fewer threats to their safety. This could influence greater gainful entrepreneurial activities among women since on many occasions women who lead their households are also the primary earners. Greater labor force participation could have a positive impact on female education, which is currently an impediment for women. About 77% of all female respondents did not receive any education, 5.5% finished primary education, 3.3% completed secondary education, and 1.1% acquired more than secondary education. About 12% of the respondents underwent Quranic studies or alphabetization school.

Feedback on the training of veterinarians and AEs

Half of the interviewed veterinarians/SVPPs and AEs attended training under PRAPS, and there is a need for follow-up training. All 4 veterinarian attendees found the training to be helpful, especially in the management of their clinic. The training included topics such as auxiliary management, stock sheet, payment sheet, invoice management, customer service, etc. Two of the participants are now treating more animals after the training. Among challenges, AEs reported that their transportation costs were covered, which would have helped them out financially. In one center, few AEs fell sick due to malaria. COVID-19 also disrupted and postponed training. Some modules were longer than required for veterinarian training, while others, especially training in stock management tools that included learning software, were too short. Veterinarians, AEs, and AVA/PRs expressed the need for follow-up training on the existing modules and new issues. Most KII respondents expressed the need to be trained in better-equipped training centers, probably outside Niger, with a more advanced veterinarian sector. Veterinarians think that training on issues of livestock health will improve animal mortality and morbidity. By improving the quality of veterinary services and raising awareness, breeders' confidence in these services will increase; they will bring their animals to the clinics more often, reducing mortality and morbidity rates.

Increased guidance and support from the government could improve the implementation of tasks, including traveling to remote areas for vaccinations and/or veterinary assistance. For instance, it was reported that cash advances during the older vaccination campaigns (before 2019) could have helped AEs and veterinarians in traveling to the fields and carrying out their tasks better. Other suggestions included the need to provide animal feed, develop greenery for at least 8 to 9 months of the year so that the animals eat well, and arrange irrigation spaces with

boreholes and other means of irrigation. The need for vaccines should be reviewed; 2 vaccines are not enough to keep animals healthy for a long time. There was a suggestion to allow LABOCEL to produce more vaccines. There is also a need for permanent skills development for vaccination teams and the provision of logistical materials. The setup of a veterinary school can meet the veterinary needs of the country and regions. Capacity building, equipment, and transportation for AEs were also identified as necessary.

Potential program implementation risks and mitigation measures

The PRAPS Activity implementation which has primarily been slow could be streamlined to ensure timely completion. The implementation of the PRAPS Activity in Niger has been slow. The Compact is in its third year of implementation, and the NRME[13] and MAF sub-activities are yet to begin. Security issues, particularly in the bordering regions, have been one of the contributing factors to delays. The ongoing pandemic has also contributed to the delays in implementation. Limited availability of quality local contractors who can tackle the feasibility studies and implementation efficiently, has also been reported as a potential reason for the delays. Therefore, an assessment of the planned interventions and their relevance/value added and streamlining the implementation accordingly could lead to timely completion.

The vaccination coverage rate has been declining over the course of the past three annual vaccination campaigns funded by MCC, even though they are higher than the pre-PRAPS coverage rate on average. According to the baseline AH survey findings, vaccination coverage for CBPP was 47% and PPR was 52%. For the last campaign in 2020-21, the vaccination rate for CBPP was reported to be 54% and for PPR was 59%. Although the numbers reported by DGSV are higher than the AH survey findings, they are lower than the 80% target rate. The statistics suggest that vaccination coverage has been falling over the course of the three campaigns, even though they are higher than the pre-PRAPS coverage rate on average. As per the DGSV reports, the coverage rate for the 2018-19 campaign was 71% for CBPP and 85% for PPR; which dropped to 62% for CBPP and 59% for PPR in the 2019-20 campaign. Periodic data collection and monitoring of livestock disease outbreaks, vaccination coverage, types of diseases covered, etc. could help improve the understanding of the key factors leading to these inefficiencies, to address them in the future.

The observed structural shift in Niger's transhumance practices has potential implications for the NRME sub-activity implementation as well as its potential impact. Climate change, degrading soil quality, and growing agricultural lands have contributed towards a gradual shift towards agro-pastoralism. Poverty and droughts, coupled with the inability of some former transhumance pastoralists to replenish their herds, have led them to more towards sedentary pastoralism, as it requires a certain herd to make long-distance effort transhumance worth the trouble (Dyner, 2008). The shift towards agro-pastoralism is also reflected in the AH baseline survey data, with 50% of the sampled herders reporting agro-pastoralism as their main source of

[13] Social Agreements have been signed in the NRME Sub-activity. See Annex 5 for further details.

livelihood. Only about 22.5% of the sampled herders stated that they practiced transhumance pastoralism. Therefore, the evidence suggests that the relevance of the livestock corridor development interventions needs to be reassessed before beginning any major construction work.

The lack of focus on constructing/rehabilitating collection markets has direct implications on the benefits that pastoralists are expected to realize from the PRAPS Activity. As per program documents, out of the 18 markets to be reconstructed/rehabilitated under PRAPS, 11 will be consolidation/cluster markets, 6 will be export markets, and 1 will be a consumer market. There will still be pastoralist/herders' presence in the reconstructed markets, but these are expected to be dominated by intermediaries, livestock product sellers, exporters, consumers, and foreign importers. Pastoralists/herders mostly bring their animals to the collection markets for sale, and their presence is limited in the three other categories of livestock markets. Therefore, rehabilitation/construction of other types of markets more directly affect the traders and/or sales intermediaries who accrue the largest share of the benefit from livestock trade.

Discussions with key stakeholders in charge of project implementation indicated some potential risks going forward. Several implementation partners pointed out the level of responsiveness and communication as potential areas of improvement, as far as implementation is concerned. At times, there appears to also have been issues with the quality of the work undertaken by some of the contractors. Other partners pointed out that LABOCEL may be able to produce the vaccines in the country, which according to them could increase the efficiency and effectiveness of the vaccination campaigns. In this regard, it was recommended that this be further investigated, as it could potentially also have implications on the sustainability of the PRAPS results.

In terms of animal health, key issues include malnutrition, other livestock diseases, vaccination, and veterinary health-related capacity building. All the veterinarians/SVPPs interviewed for the baseline study mention animal malnutrition as an issue. Lack of animal feed is a major concern according to veterinarians/SVPPs interviewed in the baseline. Veterinarians identified it as one of the leading causes of animal mortality and morbidity. Several other diseases play a key role in animal mortality and morbidity in the region and need to be addressed via vaccinations. Therefore, there is a need to raise awareness among herders regarding the vaccination of animals and seeking timely medical help for their livestock. In addition to vaccinations, it will be beneficial to address the training needs of LABOCEL staff to improve their seromonitoring process, monitoring the quality of vaccines and for the optimal use of the entity overall. Investments could be made towards opening a veterinary school in Niger and supporting SVPPs. Capacity strengthening of the SVPPs and DGSV on the monitoring of the quality of vaccines and the cold chain for storing vaccines could be key to achieving sustainable results. Other key issues are targeted sensitization efforts on land rights, sustainable natural resource use, etc. for farmers and herders using livestock corridors.

Market distortions in livestock markets and conflicts among farmers and herders could also be potential issues that need to be addressed through further investigation and sensitization. The MCA-Niger implementation team has stated[14] that market intermediaries accrue most of the profits in the market. In that case, it will be essential to monitor their contracts with the breeders to avoid exploitation and their ability to distort market prices to benefit themselves. If regulated, intermediaries can facilitate trade and provide market access to remotely based and small-scaled breeders. In addition, the mechanism for a more equitable distribution of profits between different value chain actors in the livestock market may require further study to best study the impact on the expected end-beneficiaries. Apart from separating water and pasture between farmers and herders, targeted sensitization efforts could help reduce the inherent distrust between the 2 groups. Therefore, in addition to the demarcation of the livestock corridor, separate water bodies for the two groups and social awareness or outreach programs for ensuring sustainability would be beneficial.

Table 4: Key Performance Indictors

AH	Veterinaries that completed training or re-training		12 new SVPPs created, strengthened 16 old SVPP
	Vaccination Coverage Rate	CBPP	54%[15]
		PPR	59%[16]
NRME	Organizations trained in management of pastoral land		Pending
MAF	Markets built or rehabilitated		Pending

[14] This was mentioned in the implementation stage KIIs.

[15] The following rates are reported by the DGSV. The survey conducted by the firm found the vaccination rate to be 47% for CBPP. Since the 2020-2021 vaccination campaign went longer than usual and ended after the AH survey, the vaccination coverage rate estimated by the survey is lower than reported by the DGSV.

[16] The following rates are reported by the DGSV. The survey conducted by the firm found the vaccination rate to be 52% for PPR. Since the 2020-2021 vaccination campaign went longer than usual and ended after the AH survey, the vaccination coverage rate estimated by the survey is lower than that reported by the DGSV.

INTRODUCTION

The Millennium Challenge Corporation (MCC) Niger Compact is a five-year program designed to reduce poverty in Niger by promoting economic growth, as agreed to by the Government of Niger and the United States. The Compact will include the Irrigation and Market Access Project (IMAP) and the Climate Resilient Communities (CRC) Project, which will be implemented between January 2018 and January 2023 to enhance agricultural and livestock production in Niger. The CRC Project includes the Regional Sahel Pastoralism Support (PRAPS) Activity, which is also the subject of this evaluation. PRAPS will support pastoralist groups and aim to enhance regional integration by improving livestock health, upgrading water and rangeland resources along major transhumance livestock corridors, and modernizing local livestock market infrastructure. These targets will be achieved through three sub-activities: Animal Health (AH), Natural Resource Management Enhancement (NRME), and Market Access Facilitation (MAF), which will be implemented in Dosso, Maradi, Tahoua, and Tillabéri regions (Ministry of Livestock, 2015).

MCC contracted A2F Consulting to undertake the performance evaluation of the PRAPS Activity. This will involve evaluating the implementation of the Activity and three sub-activities to understand whether there were deviations in the plan, the kind of deviations, and the reasons behind them. The evaluation will also involve studying the results of each sub-activity and thereby the entire PRAPS Activity. The aforementioned evaluation will assess if each sub-activity's short- and medium-term outcomes were achieved and whether they led to the long-term results and the overall goal/impact of the PRAPS Activity. The PRAPS performance evaluation will be based on the OECD DAC criteria of relevance, effectiveness, efficiency, output/outcome/impact, and sustainability. As a part of the PRAPS Evaluation, A2F Consulting assessed the evaluability of the Activity, where they assessed the validity and appropriateness of the PRAPS logical framework based on the existing literature to understand if the underlying assumptions make sense and consider the current country context. Key evaluation risks were also identified, and potential mitigation measures were suggested. Thereafter, the Evaluation Design Report (EDR) was drafted to elaborate the evaluation methodology for the entire Activity and each sub-activity, along with the primary and secondary data collection plan and timeline.

This baseline report is part of the overall PRAPS evaluation, which will involve three rounds of data collection and analysis to inform the overall performance and results of the PRAPS Activity. The baseline is part of three planned data collection rounds, including an interim and an endline phase. The baseline will be followed by the interim phase, which will involve monitoring the implementation of the MAF and NRME sub-activities, and the progress made on the AH sub-activity-related interventions. The interim data collection, which will include qualitative data collection via KIIs and secondary data, and analysis, will primarily focus on assessing the medium-term outcomes and the long-term outcomes of the AH sub-activity and the short- and medium-term (if possible) outcomes of the MAF and NRME sub-activity. The endline phase is planned for the last quarter (Q4) of 2025, two and a half years after the Compact closure in January 2023. The endline phase will be used to collect quantitative and qualitative information to assess the

overall PRAPS performance, as well as the long-term outcomes, and the final goal/impact of the Activity[17].

Even though the AH sub-activity implementation is at an advanced stage, first round of data collection is being referred to as the "baseline", to distinguish it from the interim and endline phases. While this is not the accurate baseline, since three rounds of vaccination campaigns and recruitment of private veterinarians in target regions have already been undertaken, treating it as such will help differentiate between the different data collection phases. Therefore, the suggested approach, as agreed upon in the EDR, is to consider the first round of data collection as "baseline" and gather data on the existing level of livestock health, mortality, and morbidity of the animals from CBPP and PPR and other factors including production, productivity, and trade opportunities. The endline data collection will facilitate the collection of information on the same indicators post-intervention to carry out the pre-post analysis to estimate the effect of the AH sub-activity on the key indicators of interest.

This baseline report presents the assessment of the current situation of livestock health, market access and natural resource availability in Niger, and implementation progress. This is based on the findings of the qualitative and quantitative data collected and a review of the literature. The assessment of animal health-related issues involved collecting and analyzing survey data on a randomly selected sample of 666 herders and their entire herds in the four targeted regions. These were complemented by qualitative information obtained through KIIs with stakeholders and project participants. Since the MAF sub-activity is in the very early stages of implementation, the baseline presents the current situation regarding a randomly selected sample of targeted livestock markets, their management, and access. In addition, econometric analysis of quantitative market indicators data, collected from SIM Bétail, was undertaken to study supply and demand dynamics. Similarly, since the NRME sub-activity implementation is in the early stage of obtaining social agreements between MCC and local residents and community leaders[18], the baseline phase involves assessing the natural resources, their quality, and access for a randomly selected sample of communities along the four regional livestock corridors targeted. The baseline report also presents an assessment of the perceived contribution of the PRAPS Activity in Niger and the sustainability of the results, based on the interviews with the stakeholders, project participants, and end-beneficiaries.

The report follows the following structure: Section 2 presents a discussion of the program logic, program participants/end-beneficiaries, and link to ERR calculations. Section 3 discusses the existing literature on the dimensions of the PRAPS Activity, which have been assessed via the baseline. Section 4 presents the discussion of the evaluation design for the baseline, the evaluation questions, and the data collected using quantitative and qualitative techniques. Section 5 presents the findings of the baseline analysis. The report is concluded in section 6, which offers the discussion of the administrative aspects of the evaluation. Annexes 1 to 4

[17] PRAPS Evaluation Design Report, 2020.
[18] Social Agreements have been signed in the NRME Sub-activity. See Annex for further details.

respectively present the detailed discussions of the performance evaluation methodology, evaluation questions, and the time series analysis, along with the formula for the calculation of animal mortality and morbidity.

OVERVIEW OF THE COMPACT AND THE INTERVENTIONS EVALUATED

2.1 PROGRAM LOGIC (INPUT, OUTPUT, SHORT-TERM OUTCOMES, MEDIUM/LONG-TERM OUTCOMES, ULTIMATE IMPACT)

2.1.1 Compact-level

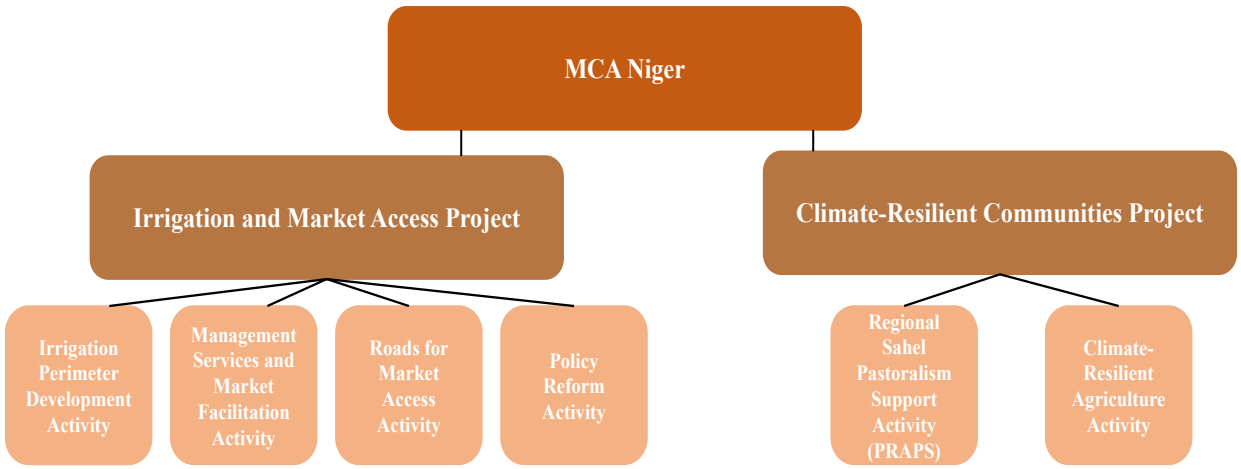
MCC's Niger Compact is a five-year program designed to reduce poverty in Niger by promoting economic growth. The Compact identified three major constraints to the country's economic growth and business development: (i) access to water for agriculture and livestock; (ii) government regulation of business; and (iii) regulatory and institutional barriers to trade (Millenium Challenge Corporation, 2014). The Constraints Analysis identified these constraints, which aimed to inform the Niger Compact development after the success of the Niger Threshold program, which ended in 2013 (ibid). The Compact Program will cover the five years from 2018 to 2023 and enhance agricultural and livestock production in the country. Specifically, it will focus on four regions. In order to achieve the expected compact outcomes, two major projects will be conducted: The Irrigation and Market Access (IMA) project and the Climate-Resilient Communities (CRC) project.

The objective of the Niger Compact is to increase rural incomes by improving the sustainable, productive use of natural resources for agricultural production and enhancing trade and market access for agricultural products. The Niger Compact seeks to address the water constraint for effective benefits such as agricultural productivity and household food security and raise agricultural and livestock production by increasing the areas under cultivation and grazing and improving yields. This is to be achieved through a combination of policy reforms, infrastructure investments, access to finance and services for smallholder producers, facilitation of partnerships, and improvements to agricultural and livestock production and market platforms.

The Niger Compact aims to achieve the planned objective through the two projects, IMA and CRC. The objective of IMA is to increase rural incomes by improving agricultural productivity and increasing sales, from modernizing irrigated agriculture and flood management systems as well as facilitating trade and market access. CRC's objective is to increase incomes for families that depend on small-scale agricultural and livestock production in the Eligible Communes and Livestock Corridors in rural Niger. CRC includes two activities: Climate-Resilient Agriculture (CRA) Activity and the Regional Sahel Pastoralism Support (PRAPS) Activity. The CRA Activity supports sustainable increases in productivity and farm incomes in Eligible Communes by strengthening the resiliency of farmers and agro-pastoralists to the impacts of the climatic event. Meanwhile, PRAPS will support pastoralist groups and enhance regional integration by improving livestock

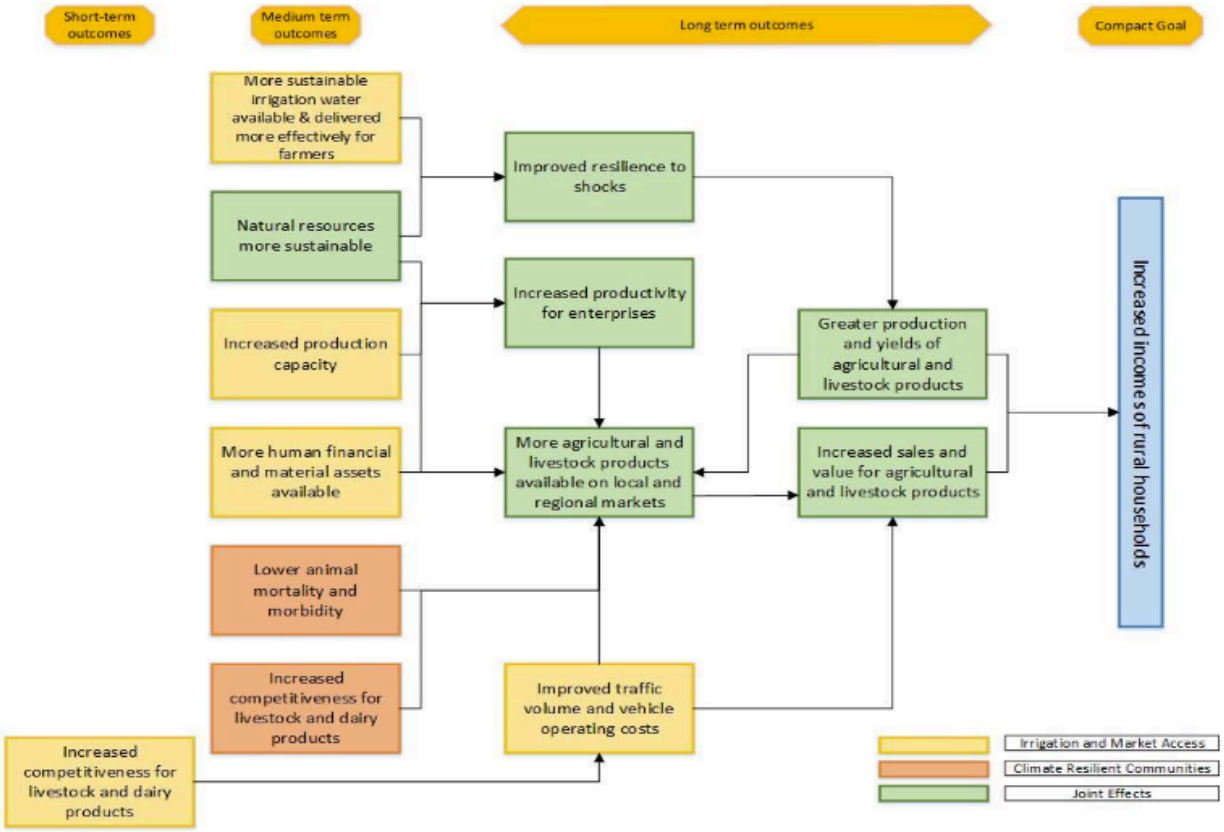
health, upgrading water and rangeland resources along major transhumance Livestock Corridors, and modernizing local livestock market infrastructure.

Figure 1: Projects included in MCC Niger Compact and CRC project activities



The envisaged Compact goal is to be achieved through several short-, medium- and long-term outcomes attached to the two Projects and their joint effects. As per the Compact logic, the short-term outcome of the Compact is to be achieved via the IMA Project via increased competitiveness for livestock and dairy products. The CRC Project, which includes the PRAPS Activity, directly leads to the medium-term Compact-wide outcome of lower animal mortality and morbidity. The CRC Project also leads to increased competitiveness of the livestock and dairy products in the medium-term. Long-term results are expected to be primarily the combined effects of both the Projects. Therefore, timely completion of IMA and CRC and the Activities under each will be important to achieving the different levels of intermediate results, ultimately leading to the realization of the Compact goal of increased income of rural households in Niger.

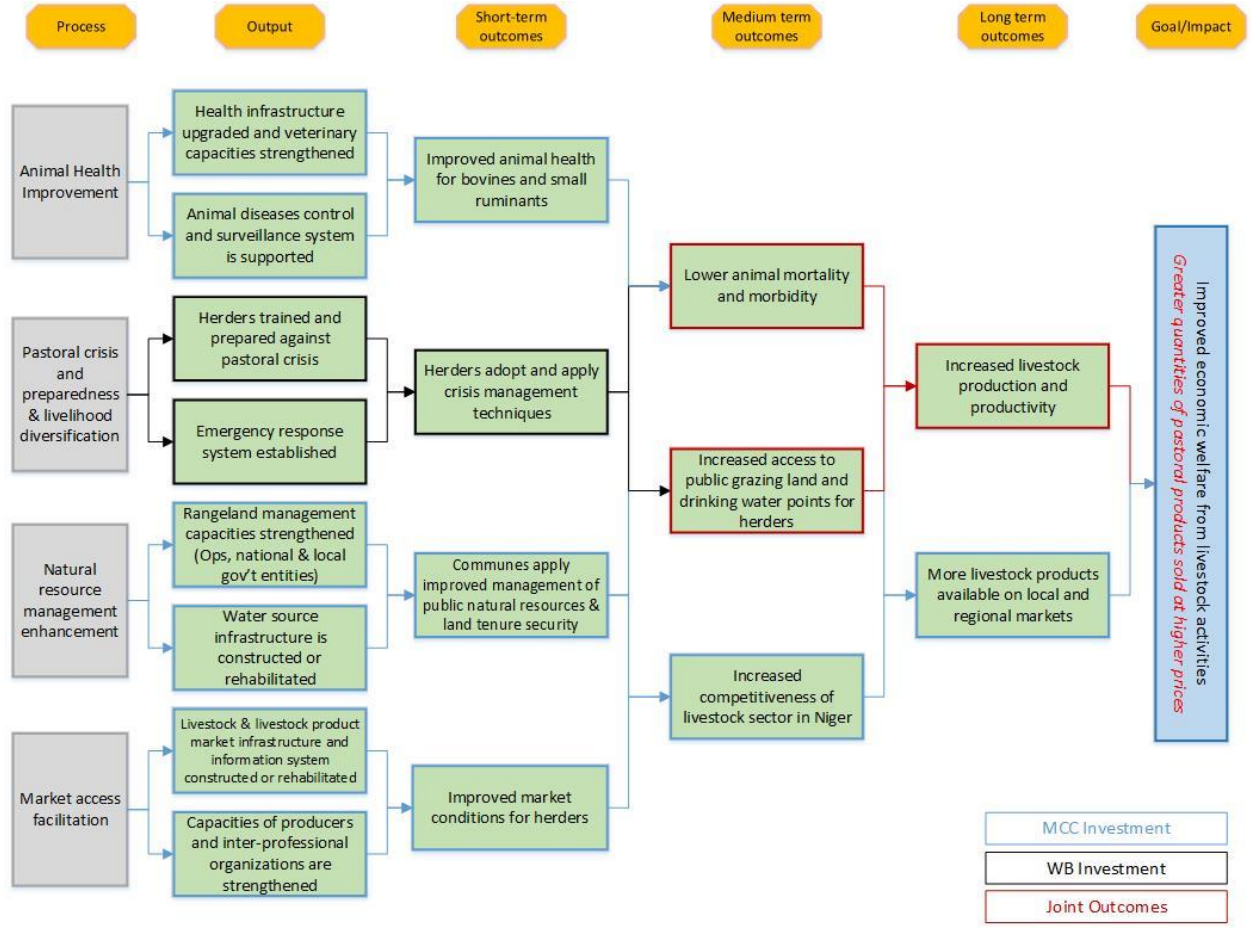
Figure 2: Niger Compact Logic



Source: Millennium Challenge Corporation, 2019

2.1.2 PRAPS Activity

Figure 3: PRAPS Activity Logic



Source: Millennium Challenge Corporation, 2019

The PRAPS Activity aims to address the key issues affecting the growth of the livestock sector and the income of the pastoralists engaged in livestock production. The program logic separates the outputs according to three sub-activities, which are tied to the short-, medium-, and long-term outcomes, and thereby the program's impact. The PRAPS logic is based on several assumptions used to establish the links between the program inputs to outputs, outcomes, and impacts.

The AH sub-activity is geared toward reducing the prevalence of CBPP and PPR through vaccination campaigns, and the expansion of efficient and sustainable private veterinary services. The sub-activity aims to raise the share of vaccinated animals against the contagious

diseases CBPP and PPR to 80% in the short term.[19] Other interventions include building veterinary clinics and reinforcing the capacity of selected existing clinics by training staff and providing veterinary equipment and materials. The plan is to develop up to two veterinarian border posts. These interventions are expected to expand veterinarian services to areas not served by the veterinarians under the Ministry of Agriculture and Livestock. The enhanced veterinary services are expected to facilitate basic prevention services such as deworming, vaccines, and feeding/nutrition advice to improve livestock health and reduce mortality and morbidity in the medium term. MCA-Niger will also undertake the research and drafting of the legal and policy documentation for the foundation of the Vaccination Fund. The updated policy will allocate a portion of the taxes collected from the import-export of livestock products towards the fund, which will be exclusively invested in livestock vaccination efforts. The expected long-term outcome is the increase in livestock production and productivity, leading to the envisaged Activity-level impact of increased quantities of pastoral products sold at higher prices and generating higher livestock income.

The NRME sub-activity is geared towards enhancing access to natural resources, sustainable resource management, and increased mobility of livestock along livestock corridors. This will include the construction and rehabilitation of infrastructure (waterbodies, pasture lands, rest areas along the livestock corridors, etc.), including supporting access to drinking points and developing plans and regulations for organizing and managing rangeland users' natural resources.[20] The expected short-term outcomes are improved communal management of public natural resources and enhanced land security, which is expected to increase public grazing areas and drinking water. In addition, Niger's livestock sector is projected to see an increase in competitiveness. The expected long-run outcomes include the availability of healthier animals and more livestock products in the local and regional markets, leading to enhanced economic welfare and income for livestock producers.

The MAF sub-activity aims to facilitate access to competitive livestock markets with transparent and efficient management structures. For this, interventions will be targeted towards livestock market infrastructure development and rehabilitation and strengthening the capacity of producers and inter-professional organizations. These interventions are expected to improve market conditions for herders in the short term. The medium-term outcomes of the sub-activity include increased competitiveness in the livestock sector, which is expected to lead to the long-term outcome of increased availability of livestock products in local and regional

19 The design of the Animal Health sub-activity draws upon findings and recommendations from the PVS Pathway reports for each participating country. OIE's PVS Pathway program is a global initiative to enable NVS to comply with international quality standards for veterinary services. PVS Pathway reports provide objective evidence to identify priorities and guide investments. Information from the six PVS Pathway reports was consolidated to design a consistent regional program for PRAPS (World Bank report PAD1091).

20 The management of these interventions, as well as the efforts to resolve conflicts, will be handled by the Directorate of Pastoral Development. This sub-activity will involve the preparation and the funding of the implementation of livestock corridor investment plans ("Corridor Investment Plans"). These investment plans will include upgrading key water points and livestock pasture and rest areas along the livestock corridors, and the demarcation (placing of markings) along the corridors.

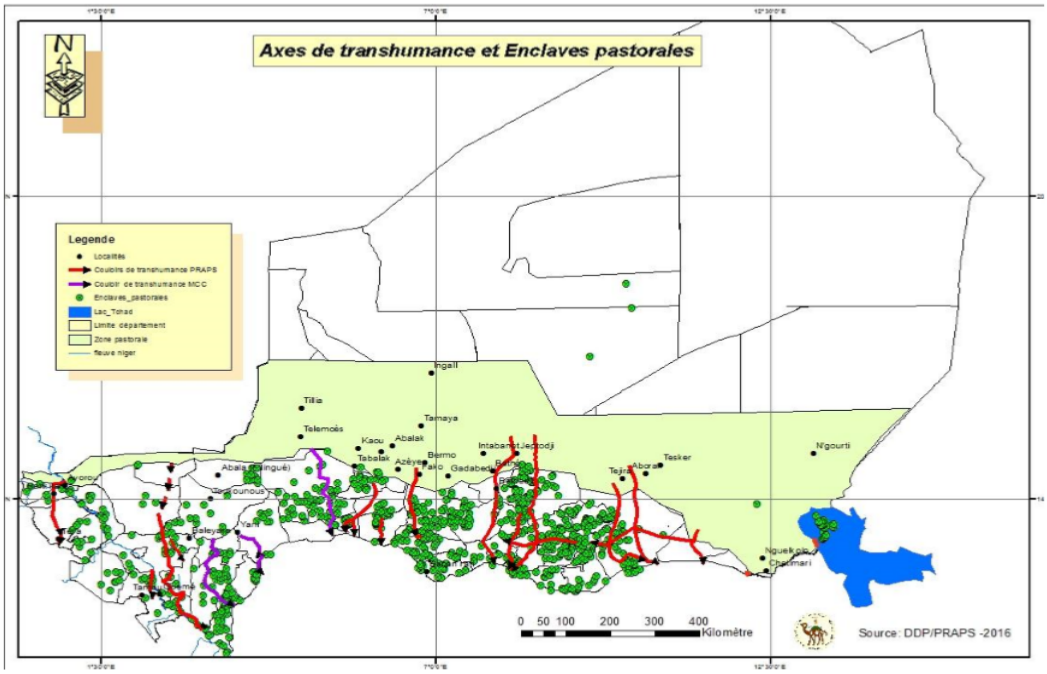
markets (MCA-Niger M&E Plan, 2019). The envisaged impact is improved economic welfare and increased livestock income.

2.1.3 Geographic Coverage of the PRAPS Activity

The PRAPS Activity targets the Dosso, Maradi, Tahoua, and Tillabéri regions in Niger (Ministry of Livestock, 2015)**, while the World Bank-financed PRAPS sub-activities will cover the regions of Zinder, Diffa, and Agadez[21].** The geographic distribution of the PRAPS intervention was decided in a meeting in September 2017 with the participation of the Ministry of Agriculture and Livestock (MAGEL), Unité de Coordination des Programmes du Millennium Challenge (UCPMC) (precursor to MCA-Niger before European Investment Fund), World Bank, and MCC. The rationale for selecting Dosso, Maradi, Tahoua, and Tillabéri under the Compact was to align it with the coverage of the CRA activities in those four areas and security concerns (which was a key criterion in the original selection of CRA regions to cover).

Figure 4: Niger Administrative Map

CARTES DES RESSOURCES PASTORALES (Zone pastorale, enclaves pastorales, couloirs de transhumance...)



Source: Millennium Challenge Corporation, 2020

[21] The World Bank is implementing all five sub-activities in the remaining three regions (Agadez, Diffa, and Zinder) and the two remaining sub-activities in the four regions covered by MCC.

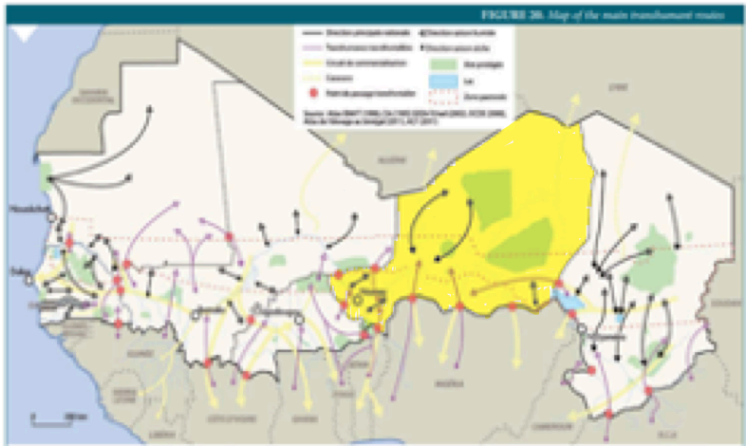
2.1.4 Program Participants

For broad-based investments, MCC considers project participants and beneficiaries to be the same. Therefore, in this case, the project participants are the end-beneficiaries (estimated number of households presented in the MCA-Niger M&E Plan) whom the PRAPS Activity will positively impact.

The intended target group of beneficiaries for the AH sub-activity is pastoral livestock producers who receive vaccination services for their livestock through this activity and their households. According to the PRAPS M&E Plan, the group of AH end-beneficiaries will comprise an estimated 426,804 households or 3,414,436 individuals. These figures are based on the proportion of animals in the endemic areas and the vaccination coverage.

The NRME sub-activity will benefit the pastoralists who will use the designated livestock corridors to bring their animals to market areas. According to the M&E Plan, the total number of beneficiaries will range between 238 herders (and 1,904 herder household members) to 14,286 herders (and 114,288 herder household members), depending on the amount of time (two months versus a day) animals spend feeding on forage, given the assumed carrying capacity of the pasture lands and herd sizes. However, there will be an overlap between the end-beneficiaries of the AH and NRME sub-activities and the factors that affect the number of animals using the developed infrastructure under NRME. Furthermore, the estimated number of end-beneficiaries may change depending on the extent to which the intervention to improve the management of the natural resources was implemented and how well the pastoralists and farmers comply with the plans for sustainable resource use to avoid conflicts.

Figure 5: Important Transhumance Routes in the Sahel



(*Source: FAO 2017)*

Figure 6: Destruction and Blocking of Livestock Corridors in Madaoua, Niger.

Source: Snorek, 2016.

The MCA-Niger M&E Plan does not include specific estimates of the number of beneficiaries under the MAF sub-activity due to a lack of reliable information on the universe of people attending targeted markets. While the sub-activity aims to improve the trade environment and greater sales for livestock producers, the interventions, as per the literature, will most likely benefit large-scale livestock producers and traders due to the structure of the value chain. In most cases, the larger-scale livestock owners are responsible for the bulk of the trading, maintaining a dynamic production system through transhumance to ensure that their herd has water and pasture lands (UNOWAS, 2018). Larger and well-off livestock owners possess the majority of the livestock population in the country (nearly 100% of the cattle and nearly 70% of the small ruminants) (Hea-sahel.org, 2017). Lack of market access has been identified as a key factor impeding the generation of a steady source of income for pastoralists and market intermediaries, thus making it difficult for them to survive through economic challenges.

2.2 Link to ERR and Beneficiary Analysis

The expected ERR for the AH sub-activity was estimated to be 57%, as per the initial M&E Plan. The estimated ERR at the time of the Compact's signing amounted to 19.27%. Thereafter, the ERR calculations were revised based on the progress in the vaccination campaign implementation and the development of the Vaccination Campaign Fund. The assumption is that MCC funds the annual vaccination campaign for three years and puts the institutional structure in place so that the GoN can continue the funding of the campaigns beyond the three years and beyond Compact closure through a functional Vaccination Fund.

The expected ERR for the NRME sub-activity remains at the pre-Compact estimate of 13%. The ERR calculations for the sub-activity were done at the Compact signing and have not been updated. The underlying assumption is that the rehabilitation and upgrade of the transhumance livestock corridors will increase income through improved animal health and productivity, and the reduction in the cost of animal feed. This will be facilitated through greater access to improved water points and pasture lands. However, some evidence in the literature suggests that it may not be common practice for transhumance herders to purchase livestock feed for animals

that rely mainly on pasture lands for food. Therefore, the rehabilitation of pasture lands may not significantly affect herders through improvements in their ability to buy feed[22]. MCC will be exploring other channels of benefits from the NRME sub-activity besides animal health and productivity gains. These may include ecological benefits such as carbon sequestration, improved water, and air quality, erosion control, and improvements in wildlife habitat.

MCC will calculate the ERR for the MAF sub-activity once adequate data is available. This was expected to have been completed by the end of 2019 but has been delayed. The calculation of the ERR for the sub-activity will need to take into consideration the loss of market revenues due to key constraints such as the remoteness of marketplaces, security threats from transboundary insurgence, armed rebellions, terrorist activities, and limited mobility caused by the state of emergency declared by the GoN owing to security issues.

Once the existing ERR calculations by MCC become available, the evaluators will assess the Economic Rate of Return (ERR) Analyses with respect to three fundamental aspects: (i) underlying assumptions of the analyses; (ii) design of the analyses; and (iii) quality of data used for the analyses. To the extent feasible, a sensitivity analysis could be carried out, particularly with respect to model parameters that are difficult to measure and/or significantly affect ERRs. The team will assess how the data collection for the performance evaluation can be used to collect information to improve and/or update the calculations of the ERRs. After the endline evaluation, A2F will advise MCC whether the ERR analyses can be updated with the performance evaluation findings. If deemed feasible, the evaluators will reiterate and update the analyses. Moreover, the economic model will be reviewed by comparing the ex-ante assumptions on program implementation with the results achieved to extract key lessons for the future.

[22] During the dry season or droughts, when pasture lands is limited in quality and quantity, animals die/suffer due to lack of food/nutrition.

LITERATURE REVIEW OF THE GAPS IN THE EVIDENCE

The literature suggests a positive correlation between vaccinations, access to veterinarian services, and reduced prevalence of diseases. For instance, CBPP vaccination, combined with terminating sick animals, has been documented to effectively reduce the disease prevalence in the Netherlands since the late 19th century (Thiaucourt, et al., 2003). The efficacy of the CBPP vaccine ranges from 52% to 77% after three months and can reach more than 80% with repeated vaccination (Tesfaye, 2017; Nkando, et al., 2012). In addition, for PPR, vaccination has proven to raise the resistance of animals to the virus in Bangladesh and India (Kabir, et al., 2016; Govindaraj, et al., 2019). The benefits of vaccinations and enhanced veterinary services include reducing the expected costs of treating animals, such as labor and medications (March, et al., 2016) [23]. Furthermore, the combination of vaccination and effective disease control can prevent economic loss due to movement bans that can be detrimental to the pastoralist nature of livestock herding in Niger (Mariner & Catley, 2004). The disease-quarantine method has been used in several countries to isolate CBPP, including Senegal and Zambia (Ahmed, 2016). The eradication of CBPP requires a combination of mass vaccination and proven treatment regimes.

This baseline phase provides updated data on mortality and morbidity rates and access to veterinary services for the four target regions in Niger. Moreover, the baseline assessment presents a case where there is a combination of vaccinations for CBPP and PPR and improvements in veterinary services. This is an important gap in the literature, which does not provide evidence for this exact scenario. The existing literature provides evidence on positive correlations between disease prevalence and either vaccinations or veterinary services, separately. The baseline also sheds light on the issue of data requirements to conduct periodic assessments of animal health, mortality, and morbidity and the existing situation of veterinary services and related capacity building needs.

This baseline phase provides evidence of other livestock diseases, which are essential and can seriously affect overall animal health but are not focused on under the PRAPS Activity. Immunization against CBPP and PPR does not reduce the threat of other transboundary diseases to which the livestock are exposed, which can seriously affect animal mortality and morbidity. Prevalence of some of these diseases, such as FMD, Brucellosis, Anthrax, etc., are also not well monitored (marked by missing data on annual disease incidence) by the government, which makes it difficult to estimate their potential impact on livestock health and productivity in the country. Other diseases which are extremely common and have been reported by veterinarians, and other stakeholders interviewed for the baseline, include Pasteurellosis. However, the PRAPS Activity does not consider it in terms of the vaccination efforts. Therefore, vaccination programs for other diseases, combined with regular monitoring and data collection efforts, will be critical in ensuring livestock health and productivity improvement overall.

[23] In the case of the highly infectious CBPP, treatment would require the use of antibiotics or multiple injections of Tylosin.

A completed vaccination campaign may not necessarily lead to a reduction of disease prevalence, which is also dependent on other issues such as malnutrition. Important factors to consider are the overall health condition of the animal, quality of the vaccine (potency, purity, quality, and date of expiry), handling of the vaccine (exposure to high temperature, chemicals, and other drugs), skill and experience level of the vaccine administrator, route of administration (specific muscle where the antigen is to be injected) (Rice, et al., 1997) and reliability of the vaccination data. Furthermore, monitoring of vaccination activities, as well as disease monitoring post-completion of vaccination, are key for the success of vaccination campaigns and reduction of disease incidence (Smits, 2013). As a matter of fact, sero-monitoring data in Niger has been pointing to reduced immunization rates. LABOCEL is currently investigating whether it is due to measurement problems, vaccine quality aspects, or implementation issues, and their report is awaited. These issues make it difficult to ensure that the recommended 80% vaccination coverage requirement (Sery, et al., 2018) to achieve herd immunity against the disease is adhered to.

The baseline assessment is used to check if the findings align with the literature on the PRAPS logic or whether they can explain gaps in the literature. The data collected in the baseline phase was used to understand whether the interventions were carried out as planned, particularly regarding the AH sub-activity at an advanced stage of implementation. The information obtained from multiple sources was triangulated to understand whether the PRAPS logic assumptions hold and whether the expected results were achieved. The aim was also to understand if the findings match the existing literature regarding the program logic and its assumptions. In addition, the baseline assessment is also used to shed light on some of the data gaps.

For the NRME and MAF sub-activities, the baseline aims to obtain information on the current situation regarding livestock market conditions and the availability of natural resources along the livestock corridors. The baseline assessment aimed to capture the livestock market conditions, namely the type of market, market management issues, types of value chain actors operating in the marketplace, market amenities and infrastructure available, security of women, youth, and overall market participants, etc. Similarly, for the communities along the corridor, the aim was to understand the traffic of pastoralists around the year, availability of water and natural resources along the corridors, conflicts and potential reasons behind them, etc. In addition, perceptions of the PRAPS activity, potential needs for improvements, and sustainability issues were also addressed through the data collection and analysis.

BASELINE IMPLEMENTATION METHODOLOGY

4.1 EVALUATION DESIGN

4.1.1 Evaluation Type

The PRAPS Activity evaluation will involve a comprehensive performance evaluation based on the OECD DAC criteria of relevance, effectiveness, efficiency, output/outcomes/impact, and sustainability. The performance evaluation will consist of three phases of data collection and analysis: the baseline, interim, and endline. The baseline phase focuses on assessing the implementation, output, and short-term outcomes of the AH sub-activity, which is more advanced in terms of progress (PRAPS Evaluation Design Report, 2020). Even though the AH sub-activity is in its third year of implementation, this data collection and analysis round is being termed "baseline" to allow for comparative analysis with the interim and the endline phases. This will facilitate the analysis of the intertemporal improvements in the performance indicators of interest (PRAPS Evaluation Design Report, 2020). Since the implementation of the NRME and MAF sub-activities are in their early stages [24], the baseline data collection and assessment focus on the implementation progress, assessment of the current context and perceptions of the stakeholders, project participants/end-beneficiaries, on the results of the Activity and sustainability issues. A detailed discussion of the overall performance evaluation methodology based on the OECD DAC criteria is presented in the Annex in section 7.1.

The baseline assessment is part of the PRAPS Activity's performance evaluation which is informed by the consolidation of the findings of the performance of each sub-activity and its related interventions. Data triangulation techniques have been employed to compile, verify, and consolidate key findings from different data sources to inform the analysis. The baseline will inform the performance evaluation of the Activity through an endline assessment, which will be guided by the DAC criteria: (i) relevance, (ii) effectiveness, (iii) efficiency, (iv) output/outcome/impact, and (v) sustainability.

For the baseline, the evaluation is based on the triangulation of information on each sub-activity obtained from primary and secondary sources. The AH sub-activity was assessed based on primary and secondary information collected on the implementation and results. The primary data was collected via the animal health survey and KIIs with stakeholders and end-beneficiaries/project participants. The AH survey involved 660 herders and their herds across the four targeted regions of Dosso, Maradi, Tahoua, and Tillabéri. The KIIs engaged a sample of SVPPs/veterinarians, AEs, AVA/PRs, as well as stakeholders such as MCA-Niger implementation and M&E teams, contractors responsible for the training of SVPPs, AEs, and AVA/PRs, and representatives of the ministries involved in implementation, and other key stakeholders.

[24] Social Agreements have been signed under the NRME Sub-activity implementation. See Annex 5 for further details.

A comprehensive literature review was undertaken to complement the primary data collection and analysis. This included literature on pastoral practices, animal health and key issues affecting it, natural resource access and related issues, livestock market access, and key issues. The animal health survey was used to collect quantitative data on animal health, prevalent diseases, transhumance activities, access to veterinary services, animal production, productivity, and export activities, along with demographic characteristics of the herder and the composition of the herd. The KIIs were used to collect information on the sub-activity and its interventions undertaken, the current context in terms of animal health issues, prevalent diseases, veterinary healthcare access and availability, key constraints faced by each type of respondent, potential areas of improvement, perceived results of the PRAPS Activity and sustainability.

Regarding the MAF and NRME sub-activities, the information collected using KIIs centered around understanding the baseline conditions. The KIIs for the MAF sub-activity targeted a sample of market managers, value chain actors at the selected markets, contractors engaged in pilots and signing of social accords, and stakeholders such as the relevant ministries within the Government of Niger, MCA-Niger, etc. Similarly, for NRME, the KIIs were used to engage members of a sample of community members along the transhumance corridors targeted by the PRAPS Activity, local governance members, herders, and stakeholders, including contractors involved in pilot studies and signing of social accords, MCA-Niger and representatives from the relevant ministries within the Government of Niger.

All the quantitative and qualitative information was analyzed and synthesized to inform the baseline assessment. This involved the triangulation of the information collected from the different sources, namely the AH survey, KIIs with stakeholders, and the KIIs with the project participants and end-beneficiaries of each sub-activity. First, separate data analysis methodologies were employed for the quantitative data and the qualitative information. Thereafter, the triangulation entailed parsing the information based on a scheme of classifications and theoretical concepts related to the evaluation questions and the PRAPS logical framework to form a cohesive, comprehensive assessment of the baseline situation.

4.1.2 Evaluation Questions

There are 10 overarching evaluation questions in the TORs under three broad dimensions of implementation, outcomes, sustainability, and lessons learned, answered through the PRAPS Activity performance evaluation. For the baseline analysis, the questions related to PRAPS implementation focused only on the AH sub-activity since both the NRME and MAF sub-activities have not started. Similarly, the assessment of PRAPS outcomes revolves around the outputs and the short-term outcome of the AH sub-activity. Table 5 below presents the broad evaluation questions that will be answered by evaluating the PRAPS Activity and will be based on the findings of all three phases, namely the baseline, interim and endline phases. Annex Section 7.2. presents the detailed tables on evaluation questions with the baseline assessments.

Table 5: Evaluation Questions

Evaluation Dimension	Evaluation Question
Implementation	Was the Activity implemented as designed? If not, what changes occurred to the original design during implementation and why?
	How has the PRAPS Activity planning and implementation integrated the gender issue?
Outcomes	Were the expected short, medium, and long-term results in the program logic realized?
	What facilitated achievement of the results if they were achieved? If results were not achieved, why not?
	If possible, through the analysis, what is the differentiated impact between different components (for instance: the impact of vaccination vs. the impact of transhumance corridors vs. the impact of market construction)? Which components had the greatest impact on the outcomes? And why?
	What are the benefits experienced (if any) by the users of the livestock markets in the modernized markets?
	Has the modernized management of a market improved collection and reporting of tax revenue?
	Based on the findings from the evaluation, what is the estimated ERR for MCC's investments in the PRAPS Activity in Niger?
Sustainability and Lessons Learned	How sustainable are the results achieved through PRAPS?
	What lessons can be drawn from the PRAPS Activity to inform future projects and activities?

4.1.3 Methodology

The methodology for the baseline evaluation involved two broad components, namely qualitative and quantitative data collection and analysis.

4.1.3.1. Quantitative Data Collection and Analysis

4.1.3.1.1. Animal Health Survey

The quantitative data collection involved the Animal Health (AH) Survey, which was carried out in parallel to the 2020-21 annual vaccination campaign for security and logistical reasons. This was based on the expectation that the transhumance pastoralists would likely be around the designated vaccination parks to get their herds vaccinated, which would make it easier for the data collection team to track and survey them. A strong team of local enumerators and the vaccination team would collectively understand the region and security issues and coordinate

their efforts accordingly. The local fieldwork team would also be able to gather updated information on the vaccination of the herds by carrying out the survey simultaneously with the vaccination campaign.

The first round of surveys for the AH sub-activity evaluation was assumed to be the "baseline" to gather data on the existing level of overall livestock health, CBPP and PPR incidences, and other factors, including production, revenue, and trade opportunities. While this was not the accurate baseline since multiple rounds of vaccination campaigns and recruitment of private veterinarians in target regions have already been undertaken, treating it will help differentiate between the different data collection phases. Through the endline data collection effort, the team will obtain information on the same indicators post-intervention to carry out the pre-post analysis to estimate the effect of the AH sub-activity.

The planned baseline sampling methodology is based on the following:

1. **Sample unit** – The sample unit is herds of animals, and the respondent is the herder.

2. **Sample size** – The sample calculation is based on the following calculation:

$$n = \frac{Z^2(p)*(1-p)*(1+k)}{c^2} \qquad (1)$$

   Where Z = Z value (1.96 for 95% confidence interval); p = percentage picking the desired choice for the question, expressed as decimal (0.5 used here); k is the attrition rate with k = 10%; and c = confidence interval expressed as decimals (0.4 = +-4). An additional 10% sample observations is included to account for attrition.

   Based on the calculations as per the formula mentioned above, the minimum sample size for the AH sub-activity consists of 660 herds. The calculation is based on the assumption that 50% of the sample will report 80% herd immunity. The final sample size consists of an additional 10% sample size to account for attrition. The calculation of the sample herd size for the survey is derived from the sample of herders because the ERR calculations mention the sample frame of end-beneficiaries in terms of herders/households.

3. **Sample frame** – The sample frame is the expected number of herders who will be affected by the sub-activity by getting their animals vaccinated at the vaccination parks.[25] Under the assumption that there is one herd per household, the sample frame for the AH sub-activity equals 426,804 herds, as per the ERR calculations presented in the M&E Plan.

[25] The high vaccination coverage rate of 95% reported in the 2018-19 nationwide vaccination campaign and the 89% coverage rate reported in the 2019-20 campaign even with the security and COVID-19 related impediments gives the evaluators the confidence that the recommended sampling frame is not an overestimation. Moreover, the positive externality of the vaccinated herds on other pastoralists' herds also means that a vast majority of the livestock population is either directly or indirectly affected by the sub-activity. The proportion of herders that remain unaffected is therefore a very small group and will not affect the evaluation results.

4. **Sampling strategy** – A stratified random sampling strategy was followed for the analysis. The sample is stratified by regions (Dosso, 17.7%; Maradi, 29.6%; Tahoua, 29%; and Tillabéri, 22.1%[26]) so that the sample of herders (and, thereby, herds) is representative of the population of these regions. This is in line with the selection of regions as the enumeration areas (EAs) following the methodology of the Recensement General de l'Agriculture et du Cheptel (RGAC 2005/2007). Thereafter, a sample of vaccination parks was randomly selected from each region as a second layer of stratification.[27] From each stratum, pastoralists are randomly selected by the enumerators for the survey of their herds. The sample selection ensures the representativeness of the population within each region.

Table 6: Estimated Sample Size by region

Region	Percentage	Estimated Sample size
Dosso	17.7	117
Maradi	29.6	195
Tahoua	29	192
Tillabéri	23.7	156
Total	100	660

Note: These percentages represent the population of each region as a percentage of the total population of the four target regions.

The baseline data analysis involves computing summary statistics and visual representation of the data to shed light on baseline conditions and present key data insights. This involves conducting an exploratory analysis of the AH survey, data, and the visual representation of each survey question to present key insights. The analysis focuses on extracting the most important insights on the indicators of interest, such as livestock, disease prevalence, vaccination status, access to veterinary services, prevalent animal types, types of transhumance practices, income, revenues, and export activities, along with other indicators such as herder demographics, herd size, etc., and regional distribution of all of the above. The data is also used to compute mortality and morbidity rates for livestock animals. These statistics will be compared with the endline statistics to inform the contribution of the sub-activity and its interventions.

[26] Based on the Niger 2012 Census the population of the four regions was calculated and then the population percentage of each region is calculated, as mentioned here.

[27] An endogeneity argument could be made here, since only those herds that come to the parks will be sampled, and they may already be vaccinated and in good health (versus those that do not come for the vaccination). However, the annual vaccination coverage reports of previous years (2018-19 and 2019-2020) suggest high vaccination coverage of 95% and 89% (respectively) of the animals. This can be interpreted as most of the animals having received vaccinations and having disease immunity. This reduces the possibility of having significant endogeneity in the sample.

The baseline will inform the pre-post analysis of key indicators to assess the contribution of the AH sub-activity interventions and will be done using statistical tools such as paired t-tests or regression analysis. This analysis will entail baseline and endline surveys of pastoralists, followed by statistical analysis of the data to understand how the vaccination and veterinary health infrastructure improvements affected animal health and livestock production. Pre- and post-intervention values of these key performance indicators will be analyzed to understand if the change was as envisaged, and, if so, whether the change can be connected to the interventions. This will be achieved through t-tests, which will compare the difference between the average values of the indicator across the pre- and post-intervention time periods, in order to estimate the likelihood that the difference in the sample average is the result of the interventions. A regression analysis for a pre-post comparison would also be feasible, and would require repeated cross-sectional observations across the baseline and endline phases to analyze the effect of the interventions on the key performance indicators.

There are two potential analysis strategies, depending on data availability and completeness of the two rounds of data collected.

Strategy 1: The t-test will involve the following calculation of the test statistic:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{s_p \sqrt{\frac{2}{n}}} \qquad (1)$$

Where s_p is the pooled standard deviation of the two samples; X_1 and X_2 are the means of the two samples; and n is the sample size for each group. The value of the statistic will determine the rejection or acceptance of the null hypothesis of no change (attributable to the intervention).

Null hypothesis is, H_0: $\overline{X_1} - \overline{X_2} = 0$

Strategy 2: To estimate the effect on these key indicators of interest, the pre-post analysis using a multiple regression model will be the following:

$$Y_{1i} = \alpha + \beta_j X_{ij} + \gamma Post + \varepsilon_i \qquad (2)$$

For i = 1,2,3,.....n, for a total sample size of N pastoralists, j=1,2,3,...,J is the total number of covariates in the model.

Where Y_i will represent the set of indicator variables of interest; X_i will represent key control variables such as pastoralists' demographic, socio-economic and geographical characteristics, herd size, incidences of other livestock diseases and related mortality and morbidity, transactions costs of transhumance activities, key financial factors (policy or infrastructural improvements in access to finance, improved management and oversight of the process of financial inclusion and the provision of innovative financial products and services), distance from the nearest export and/or domestic market, macroeconomic factors, etc.; "Post" is a dummy variable representing the post-intervention period, with γ as its estimated effect on the outcome indicator; and e_i represents the individual error term.

4.1.3.1.2. Econometric Analysis of SIM Bétail Data

A time-series analysis of SIM Bétail's monthly data on livestock market indicators such as volumes of production and sales and livestock prices is assessed to understand how these indicators behave over time, starting from the pre- Compact phase. The aim is to use available SIM Bétail data on market outcome indicators such as prices by livestock categories, the volume of animals of different categories presented and sold, and the price of production inputs and

selected livestock products (such as meat)[28]. The data is analyzed to record observable trends and changes in trade volumes, prices of inputs and outputs before the commencement of the MAF interventions, and if these are sustained beyond the Compact closure. Moreover, an assessment of the seasonal variations in these key market indicators is also analyzed. The time-series analysis control for noise and trends in the indicators of interest and allow for an assessment on whether a continued improvement can be observed across time as well as whether this is expected to be sustained beyond the Compact.

The time-series analysis presents regional differences in the movement of market outcome indicators over time. SIM Bétail's regional data enables the analysis of the regional differences in historical market behavior and, depending on the quality of the data, to predict regional differences in the key indicators of market behavior. This quantitative analysis could complement the qualitative analysis to inform the evaluation of the MAF sub-activity in the interim and endline phases.

Depending on data availability, an assessment of the differential intertemporal effect of the MAF sub-activity at the market level could be carried out. This may shed light on whether the MAF sub-activity has a comparable impact in different types of livestock markets and, if not, why. Similarly, an analysis of prices and sales of livestock versus finished products could also be carried out to assess correlation and market dynamics along the value chain. However, these analyses are subject to the availability of complete pre- to post-Compact data on market indicators at the individual market and individual value chain level. Correlation analysis to study the market dynamics of livestock versus livestock products and vice versa, or inputs and livestock products could also be carried out.

The planned baseline sampling methodology is based on the following:

1. **Sample unit –** The sample unit will be an individual market.

2. **Sample size –** Primary research suggests that data is available for 12 of the targeted markets. Therefore the sample will include all these marketplaces. The sample will consist of historical data on price and volumes of livestock (and product) categories presented and sold during each phase. The longer the time series, the better it is for improving the precision of results. For the endline analysis, the sample will include intertemporal data (spanning across pre- to post-Compact periods) on the chosen indicators for the 12 marketplaces.

3. **Sample frame –** All livestock marketplaces in Niger covered by SIM Bétail.

[28] Some statistics on prices and volumes of presented animals and sales of livestock products, and key production inputs are shown in the monthly reports, but a full dataset has not been provided yet.

4. **Sampling strategy –** This is secondary data collected by SIM Bétail. Therefore, the aim will be to use as much data for the pre-[29] through post-Compact period, as available.

For the analysis, a basic ARMA (p, q) model is considered as shown below:

$$Y_t = c + \varepsilon_t + \sum_{i=1}^{p} \varphi_i Y_{t-i} + \sum_{i=1}^{q} \theta_i \varepsilon_{t-i}$$

Where Y is the market outcome indicator of interest, such as the price of different livestock animals and products, the volume of animals demanded and sold (supplied), and the price of inputs. In the model, p is the order of the autoregressive polynomial, and q is the order of the moving average polynomial. φ represents the autoregressive model parameter, and θ the moving average model parameter. The c in the model stands for the constant and ε represents the error term or the white noise.

In addition, correlation and cointegration analyses will be considered to understand the long-term relationship between different indicators of interest over time. The extent of the analysis will be dependent on the availability and quality of data available.

4.1.3.2. Qualitative Data Collection and Analysis

The baseline qualitative data collection involves KIIs with stakeholders, end-beneficiaries. and project participants at the PRAPS sub-activity level.

4.1.3.2.1. Key Informant Interview with Stakeholders and Project Participants/End Beneficiaries

The KIIs with key stakeholders for each sub-activity are used in the baseline to obtain qualitative information on the sub-activity implementation, outputs/outcomes/impact, and lessons learned. Anecdotal evidence and perceptions of key stakeholders and end-beneficiaries on key issues such as the relevance of the program design, efficiency, and effectiveness of implementation (as per the current implementation status), and the contribution of program implementation towards the realization of the envisaged outputs, outcomes, and impacts are collected via the baseline KIIs. Unless there is an unexpected external shock, the focus of the KIIs will not change by the round of data collection in order to ensure consistency and comparability of findings. The focus of the KIIs varies depending on the type of stakeholder and the sub-activity. The KIIs aim to obtain the most up-to-date information during each round of data collection to facilitate intertemporal comparison for recording progress.

[29] If available, it would be good to have data from five years prior to the beginning of the Compact, from January 2013 onwards. For the endline phase, the evaluators would be able to work with time-series data spanning from 2013 to 2025. A longer time-series data will have a positive impact on the accuracy of results.

For the AH sub-activity, KIIs with the veterinarians, AEs, and AVA/PRs are used to discuss the current animal health context and perceived improvements in their capabilities due to the training. This includes discussions to gather information on the contents of the training program, the perceived changes in the know-how and technical capabilities of the training recipients under the AH sub-activity. The interviews inform the understanding of the type of services offered by the various veterinary specialists to livestock producers, and the related challenges and needs. The interim and endline rounds will shed light on the perceived changes in their capabilities to provide emergency veterinary services, as a result of the training. The interviews with veterinarians aim to obtain information on patient footfall, types of livestock diseases observed/treated, animal mortality, and morbidity. The results of treatments will also be recorded across each data collection phase for comparability across time to make inferences about the intervention results on the recipients and the livestock producers.

For the KIIs with livestock market participants/value chain actors and market managers for the MAF sub-activity, interviews focused on current market conditions, challenges, and perceived future improvements. These interviews are targeted to understand how the sub-activity will lead to improvements in market conditions, competitiveness, prices, sales volume, and income over time and post-compact closure. Different types of value chain actors are interviewed to obtain individual-level information on sales income, market safety and security perceptions, available amenities, market management, and maintenance. The KIIs are also targeted towards understanding the effect of key market amenities related to gender-based results. This includes asking male and female interviewees about their perceived impact of the increased market access to latrines and shades on women and young producers (dairy products, small ruminant producers, livestock energy drinks sellers, animal consumption product sellers, and caretakers of animals parked in the marketplace). Similarly, perceptions of women's and youth participation in the upgraded markets are also captured through the KIIs.

For the NRME sub-activity, KIIs collect information with transhumance pastoralists, sedentary and agro-pastoralists, community members, and local governance on the current natural resource availability, management context, and perceived PRAPS results. This includes discussions on the current situation with regard to the quality of natural resources, communal management of natural resources, and incidences of natural resource-related conflicts along the livestock corridor. Transhumance and agro-pastoralists are asked about livestock production and related challenges connected to the use of the livestock corridor. Similarly, community members and representatives are asked about the challenges of living around the transhumance corridors. All respondents are asked about their perception of the improvements that the PRAPS Activity will bring about and which issues could be important in this regard.

Across each sub-activity, sustainability of the infrastructure and institutions placed is a key aspect of the stakeholder KIIs. For the AH sub-activity, the quality and quantity of veterinary infrastructure, capacity building support, and their maintenance and funding plan would be the key focus areas. In addition, monitoring and oversight of the vaccination campaigns and status of operation of the veterinary clinics catering to the needs of the remotely located pastoralists

would also be pertinent issues for discussion. For the NRME sub-activity, the key issue of discussion would be the management and maintenance of natural resources. The discussions would cover issues like the roles of customary institutions and the cooperation between local governance, community representatives, and community members in common-property management regimes, and the local challenges to integrating the new management practices. Discussions would include land and water use-related conflicts exacerbated by the COVID-19 pandemic and other external shocks (natural disasters, rising security threats) political (such as a change of government or policy focus) changes and behavioral changes of community members over time. For MAF, the discussions will pertain to how the rehabilitated or newly constructed market infrastructure will be managed and maintained. This will include monitoring and oversight and data collection and reporting functions.

4.1.3.2.2. Sampling Methodology for the Different Groups of KII Respondents

Key stakeholders

1. **Sample unit** – Individuals involved in the design, planning, and implementation of each sub-activity, as well as the management and evaluation of the progress and results. This will include representatives of the MCA-Niger implementation staff, the M&E team, and key PRAPS implementation and management agencies such as the Program Coordination Unit (PCU), the office of the Director General of Veterinary Health (DGSV), Regional Project Coordination Unit (PCU - CILSS), Environmental Assessment and Impact Studies Office (BEEEI), Labocel and private veterinarians, SIM Bétail, management of the livestock markets, local governance of the areas surrounding the markets, the representatives of the entities that will construct and rehabilitate the markets, local community members and representatives, and local governance in the livestock corridors. The sample will also include representatives of the World Bank.

2. **Sample size** – The aim will be to obtain comprehensive qualitative information on the performance of the sub-activity. Therefore, the sample would ideally include representatives of all key entities involved in the sub-activity level intervention implementation, management, and oversight.

3. **Sample frame** – The sample frame would be the entire set of all individuals belonging to the above-mentioned agencies, involved in the planning and implementation of each sub-activity, its management, as well as in the monitoring and evaluation of progress.

4. **Sampling strategy** – This would follow a snowball approach. The evaluators would identify an initial set of key interviewees and subsequently other individuals to interview during their discussions with the initial set of individuals This would be a more comprehensive strategy than fixing the sample of individuals for the KIIs, limiting the number of people approached due to the pre-finalized list of individuals. This way, information from a more complete sample of people who have been involved in the field would be available.

Veterinary training recipients

1. **Sample unit** – Veterinarians, Auxiliares d'elevage (AEs) and Animatrices villageoises en agriculture et en élevage de petits ruminants (AVA/PR), who received the veterinary training or re-training under the AH sub-activity.

2. **Sample size** –30-40% of the veterinarians, AEs, and AVA/PRs receiving the training.

3. **Sample frame** – All veterinarians who received the training.

4. **Sampling strategy** – The aim will be to have sample observations from different regions/departments where the trainings were held, or that will likely be affected by the AH sub-activity

Value Chain Actors in the Livestock Marketplaces

1. **Sample unit** – Different types of actors along key livestock value chains: producers, transporters, sellers, traders, packaging and marketing agents, slaughterhouses, and other intermediaries. These will include transhumant- and agro-pastoralists, collectors, traders, livestock sellers (e.g., cattle, camel, small ruminants), livestock product sellers (e.g., hides, milk and dairy products, slaughterhouses and meat sellers), livestock input traders (e.g., animal feed, water), animal caretakers, transporters, exporters, and other intermediaries involved in different livestock value chains and buyers.

2. **Sample size** – One to two representatives from each value chain actor category will be engaged in KIIs. These will be selected from a maximum of eight marketplaces randomly selected from the target marketplaces (about 50% of the total).

3. **Sample frame** – All market participants in the targeted markets.

4. **Sampling strategy** – Random selection of one to two of each category of livestock marketplaces: collection markets, cluster markets, consumer markets, and terminal markets. For the selection of the value chain actors, a snowball sampling strategy will be employed. The fieldwork team will identify one of each type of value chain actors and then identify others based on the information obtained from the first round of interviews.

Community Members and Representatives Along Target Livestock Corridors

1. **Sample unit** – Individuals who will likely benefit from the interventions, including the users of the livestock corridor and the associated natural resources, and the inhabitants of the communes along the selected livestock corridors. This will include transhumance herders using the corridors, local agro-pastoralists, community members, and representatives.

2. **Sample Size** – Two livestock herders, two community members, and two community leaders will be interviewed from four communes, each from Dosso and Tahoua, and two communes each from Tillabéri and Maradi (about 30% of the targeted communes). This assumes that the number of communes will remain the same as those mentioned in the program documentation availed to the evaluation team.

3. **Sample frame** – The sample frame would include the entire set of all individuals affected by the interventions, including those using the livestock corridor for transhumant activity and those residing in the communes and villages along the livestock corridor

4. **Sampling strategy** – The sample selection will be based on stratification by region. Communes within each target region will be randomly selected. Once this is done, the key community representatives will be selected based on discussions with MCC and MCA-Niger. As far as the community members are concerned, a snowball method of sampling will be followed, wherein the team of enumerators will identify one community member and thereby select others based on the initial round of discussions.

4.2 DATA SOURCES

The following section presents the discussion of the data collected for the baseline evaluation, using the methodology mentioned in section 4.1.3. The discussion in Section 4.2.1. involves the description of the secondary quantitative data and qualitative information employed for the baseline analysis. Thereafter, section 4.2.2. describes the primary quantitative and qualitative data collected during the baseline phase to inform the baseline analysis.

4.2.1 Existing Data Sources Used

4.2.1.1. Quantitative Data

The monthly data on livestock market indicators such as price, demand (animals presented), and supply (animals sold) were obtained from SIM Bétail for time series analysis. There are 144 observations for each variable (animals presented at the marketplace, animals sold, prices, production of livestock product, and prices), starting from January 2008 to December 2019. The data was available at the national and regional levels. This has enabled the analysis of national market trends, and regional variations, along with any seasonality. Seasonality at the national and regional level was studied from the monthly data available for the 11 years. For the analysis, the focus lies on the 4 regions (Dosso, Maradi, Tahoua, and Tillabéri) included in the PRAPS

project. The data covers different animals (including cattle, sheep, goats) and other related outputs such as animal skin and milk.

Geographical distribution of SIM Bétail market indicators

- The data on meat and milk production data was recorded at the regional level
- Data on the production of skin and leather was at the regional level till 2013, and thereafter at the departmental level (and aggregated to the regional level for analysis)
- Data on supply (animals produced) and demand (animals sold) of livestock animals was at the regional till 2014, and thereafter at the departmental level (and aggregated to the regional level for analysis)
- Data on price of livestock animals was available at the regional level till 2014, and thereafter at the departmental level (and aggregated to the regional level for analysis)
- Data on price of skin and leather was available at the regional level till 2014, and thereafter at the departmental level (and aggregated to the regional level for analysis)

4.2.1.2. Qualitative Data

The qualitative information was collected from previous reports, academic literature, and program documentation. Third-party reports produced by all major donors on the issues of livestock sector development in general and the Sahel region were studied to inform the baseline analysis. These included the World Bank, AfDB, FAO, UN, and ECOWAS, among others. Academic literature was reviewed to inform key issues such as pastoralism in the region and the challenges, including market access, climate change, natural resource availability, animal health, and other exogenous shocks such as the COVID-19 pandemic, among other things. This exercise aimed to complement the findings of the primary data collected during the baseline to present the most comprehensive analysis using data triangulation.

4.2.2 New Data Sources Used

4.2.2.1. Quantitative Data (AH Survey)

The AH survey was used to interview 666 herders to record data on animal health, vaccination status, and demographic characteristics. A stratified sampling strategy was followed for the analysis. The sample was stratified by regions so that the sample of herders, thereby herds, represents these regions' populations. After that, a sample of vaccination parks was selected from each region as a second layer of stratification. From each stratum, the enumerators randomly chose the pastoralists for the survey of their herds. Maradi had the highest count of interviews, with 29.43% of the individuals belonging to the region. While 28.83% of the respondents are from Tahoua, 23.72% are from Tillabéri, 18.02% are from Dosso. The final dataset has met or exceeded the targe sample allocation as described in the Evaluation Design Report (EDR).

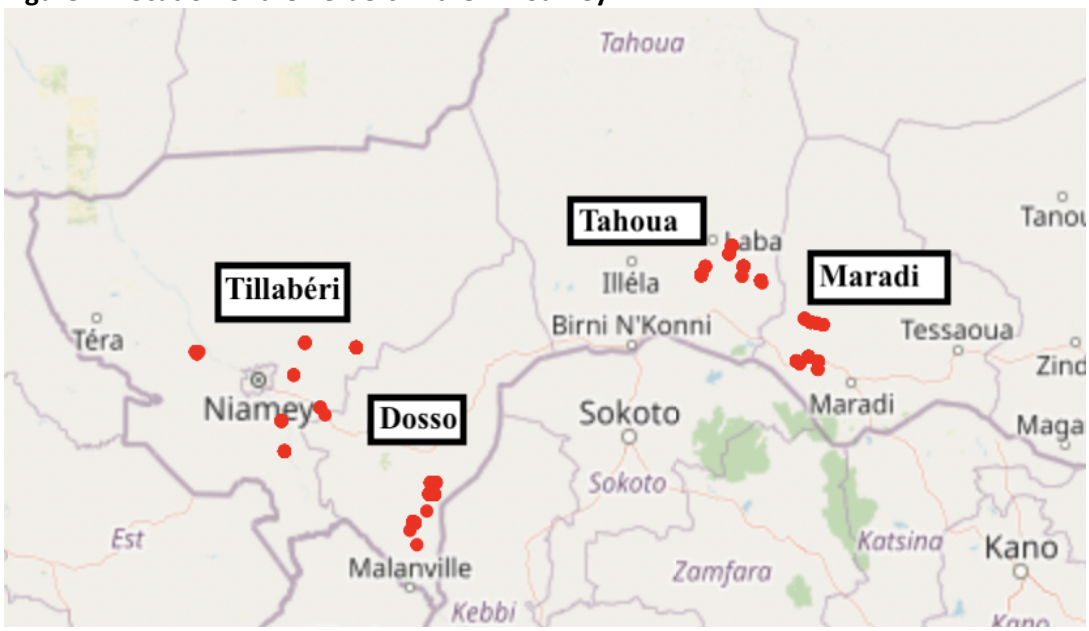
A random selection of vaccination parks from each region was impossible since the fieldwork team reported that the vaccination parks were temporarily active when the vaccination team traveled there to vaccinate the local herds before moving to another location. For the survey, four regional fieldwork teams were created, each under the local supervisor. The team

coordinated with MCA-Niger to identify the vaccination parks that were active in the region at the time. Based on this confirmation, the team traveled there to conduct the survey. Herders were randomly selected at the vaccination park for the survey.

Table 7: AH Survey- Interview Count According to Region

Region	Final Interview Count	Percentage (%)	Sample allocation target
All regions	666	100	660
Dosso	120	18.02	117
Maradi	196	29.43	195
Tahoua	192	28.83	192
Tillabéri	158	23.72	156

Figure 7: Location of the herders in the AH Survey



Using the survey data, vaccination, mortality, and morbidity rates were estimated. The data was also employed to estimate the gender variation in rates. The survey data also provided descriptive statistics on variables like access to medication and veterinary services. Since the respondents of the survey were herders, information regarding average prices and costs of selling their livestock and prevalence of PPR, CBPP, and other common diseases was also provided.

4.2.2.2. Qualitative Data (KIIs)

KIIs were held with veterinarians, AEs, and AVA/PRs to provide an additional perspective on animal health in Niger. They were asked about the current situation of livestock in their region, including major diseases and other causes of animal mortality and morbidity. There were further

questions on their practice, remuneration, and issues faced by them. They were also interviewed about the PRAPS training if received. There were 8 veterinarians in the KII, 2 from each region. There were 2 AEs each from Maradi, Tillabéri, and Dosso and 2 AVA/PRs from Tahoua. Apart from the 2 female AVA/PRs, 1 veterinarian and 2 AEs in the KII were also female. Of the 16 respondents in the KII, 8 received training under PRAPS. The female veterinarian and one of the AVA/PR did not receive PRAPS training.

Table 8: AH Sub-activity KII Participants

Occupation	Region	Gender	PRAPS Training Received	Institution Affiliation (if any)
Veterinarian/SVPP	Maradi	Female	No	Independent/ CAMAVET Cabinet
Veterinarian/SVPP	Tillabéri	Male	Yes	Cabinet Privé
Veterinarian/SVPP	Maradi	Male	No	PROXIVET
Veterinarian/SVPP	Tahoua	Male	No	-
Veterinarian/SVPP	Dosso	Male	Yes	LIPROVET
Veterinarian/SVPP	Tillabéri	Male	No	Private practice / CAPELNI
Veterinarian/SVPP	Dosso	Male	Yes	GANOVET
Veterinarian/SVPP	Tahoua	Male	Yes	Clinique ProVet / Pharmacie Provet
AE	Maradi	Male	No	Independent auxiliary
AE	Tillabéri	Female	Yes	Independent auxiliary
AE	Maradi	Male	No	Independent auxiliary
AE	Tillabéri	Male	No	Independent auxiliary
AE	Dosso	Female	Yes	Independent auxiliary
AE	Dosso	Male	Yes	-
AVA/PR	Tahoua	Female	No	Vendeuse de comprimés pour volaille
AVA/PR	Tahoua	Female	Yes	-

In order to study the MAF sub-activity, KIIs were conducted with randomly selected market participants and members of market management. Different types of value chain actors were interviewed to obtain individual-level information on sales volume, revenue, and income, perceptions on market safety and security, available amenities, market management, and maintenance. The final dataset has met or exceeded the target sample allocation. Two markets from each selected region were randomly chosen for the analysis. For each market, there were 10 interviews, where 9 were for different value chain actors (VC), and the last interview conducted was of a representative of the municipality managing livestock marketplaces (MM).

Table 9: Final Interview Count for MAF KIIs by Region and Market

Region	Market	Sample Allocation Target for Market Managers	Final Market Managers Interviewed	Sample Allocation Target for Value Chain Actors and	Final Value Chain Actor Interviews Conducted
All Regions	All Markets	8	8	72	74
Dosso	Batako	1	1	9	9
	Tanda	1	1	9	9
Maradi	Guidan Roumji	1	1	9	9
	Maradi	1	1	9	11

Tahoua	Tabalak	1	1	9	9
	Ibohamane	1	1	9	9
Tillaberi	Torodi	1	1	9	9
	Wakama	1	1	9	9

For the NRME sub-activity analysis, transhumance pastoralists, agro-pastoralists, community members, representatives, and local community-level governance members were interviewed based on a random selection. During each data collection phase, the interviewees were asked about the current situation regarding access to quality natural resources, communal management of natural resources, and incidences of natural resource-related conflicts along the livestock corridor. Transhumance and agro-pastoralists were asked about livestock production and related challenges concerning the use of the livestock corridor. Similarly, community members and representatives were inquired about the difficulties of living around the transhumance corridors. All participants were also asked about perceived results and challenges to the PRAPS implementation. 2 livestock herders, 2 community members, and 2 community leaders from 4 communes were planned to be interviewed, each from Dosso and Tahoua, and 2 communes each from Tillabéri and Maradi. The final dataset has met or exceeded the target sample allocation. The randomly chosen communes for each region are presented in Table 10.

Table 10: Final Interview Count for NRME KIIs by Region and Commune

Region	Commune	Sample Allocation target	Local governance	Community Member	Livestock herders
All regions	All communes	24	31	28	39
Dosso	Zabori	2	5	2	5
	Falwel	2	2	2	2
	Loga	2	2	2	2
	Sakorbé	2	2	2	7
Maradi	Adjékoria	2	2	2	2
	Chadakori	2	3	3	6
Tahoua	Tahoua	2	2	2	2
	Affala	2	2	2	2
	Bedaguichiri	2	4	5	4
	Tsernoua	2	3	2	2
Tillabéri	Samiri	2	2	2	2
	Kouré	2	2	2	3

KIIs with key stakeholders were used to obtain information on the relevance of the PRAPS Activity and its interventions, implementation, expected/perceived results, and sustainability. Stakeholders were engaged in understanding their involvement in the MCA-Niger PRAPS Activity implementation, the current context in Niger and the relevance of the PRAPS Activity interventions, and how they think it will improve the sector. The stakeholders were also interviewed about the effect of COVID-19 and terrorism on the activities. Information regarding their organization and roles in the project is provided in Table 11.

Table 11: Stakeholders Interviewed

Stakeholders' Description	Their Role in PRAPS Project
The **Millennium Challenge Corporation** is an independent U.S. government agency responsible for foreign assistance.	They support and fund the three sub-activities (AH, NRME, and MAF) under the PRAPS program.
The **Ministère de l'Agriculture et de l'Elevage** in national ministry responsible for agriculture and livestock related issues in Niger.	They are involved in the planning and implementation of all three sub-activities under the PRAPS program.
The **BNEE** is a decision-making aid body whose mission is to promote and implement Environmental Assessment in Niger.	Their role consisted of observation and validation of terms of reference for carrying out environmental and social impact studies as part of their market rehabilitation project.
AGECHRAU is an architectural, civil, and hydraulic engineering company.	They were contracted through a call for applications to conduct technical studies of 18 livestock markets for MCA to achieve bidding for the construction company.
BERIA is a consulting firm in Niger.	They were hired to carry out the pastoral development plan in municipalities in the region of Tillabéri and Dosso.
SONED is a consulting firm based in Niger.	They worked on social agreements of the communes crossed by the international transhumance corridor in Tahoua and Maradi.
VSF Belgium is an international organization that assists livestock farmers.	They trained veterinarians, AEs, and AVA/PRs. They are aiding in setting up 12 new SVPPs and strengthening 16 existing ones.
Directorate General of Veterinary Services (DGSV) is part of the Ministry of Agriculture and Livestock in Niger.	They oversee vaccination control in the field and assess the effectiveness of the vaccination.
Central Livestock Laboratory (LABOCEL) is a public administrative establishment.	They evaluate the vaccination campaign through sero monitoring. They also inspect the quality of the vaccine through vaccine sampling.
SIM Bétail is the department of statistics within the Ministry of Agriculture and Breeding	Their primary role consists of agriculture and livestock market data collection.
CILLS is an international organization consisting of countries in the Sahel region.	They participated in the collection of data on infrastructure.
Department of Development of Industrialization & Commercialization of Livestock Products is responsible for designing and implementing the national policy for the development of animal production and industries.	Their role in the program is to take stock pf pastoral development. They study and maintain the sites, including an assessment of the biomass at the corridors.
High Commission for the 3N Initiative is a large-scale, cross-sectoral enterprise.	They oversee the implementation at national, regional, and local levels. They are a support, monitoring, and evaluation institution.

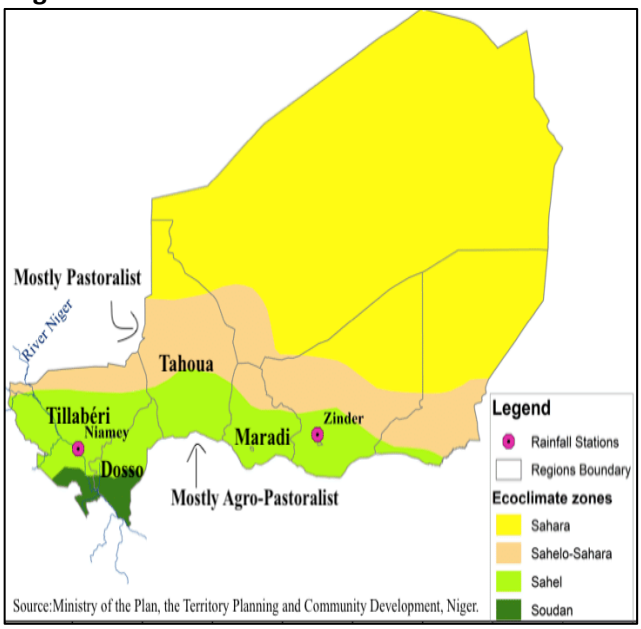
5. FINDINGS OF THE BASELINE ANALYSIS

5.1 HERDERS

5.1.1 Pastoral Systems

The prevailing livestock systems are classified as purely pastoral with the nomadic and transhumant system, agro-pastoral system, and urban /peri-urban system. The nomadic and transhumant systems are based on mobility and the availability of grass and water. The agro-pastoral and peri-urban systems are generally high input systems with market-based production. The ecoclimatic zones of Niger influence the pattern of pastoral production. In the Saharan zone, pastoralism exists at oases and around wells and is mainly limited to camels and goats. The Sahelo-Saharan zone is also arid but, on average, receives slightly more rainfall and can therefore support more pastoralists. The Sahelian zone is mostly agro-pastoral. In part of the southwest of Niger, the Sahel and savanna environments intersect, which accommodates both farmers and pastoralists. Regions under the MCC PRAPS program fall under pastoral and agro-pastoral regions, with most of Tillabéri and all of Dosso belonging to the agro-pastoral zone.

Figure 8: Ecoclimatic Zones and Livestock System of Niger



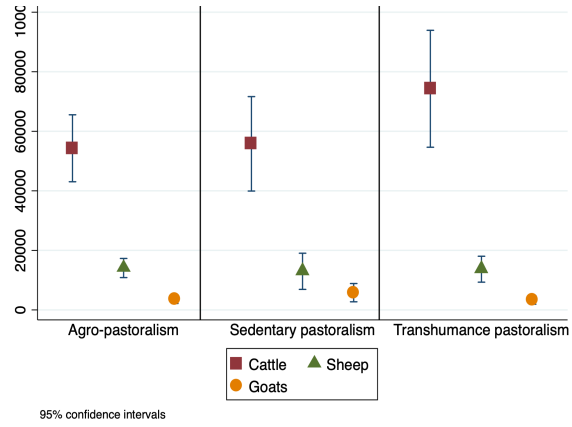
Climate change, degrading soil quality, and growing agricultural lands have contributed towards a gradual shift towards agro-pastoralism. Decreased soil fertility has resulted in additional pressure on land as yields decline and areas under cultivation increase (Dyner, 2008). An increasing number of pastoral communities have started cultivating crops to diversify their livelihoods, thereby increasing the competition for land. The ecological and weather crises that severely affected the Sahel in the 1970s and 1980s set the shift towards agro-pastoralism in motion. Livestock breeders began agricultural activities to reduce the risks of confining themselves to livestock (OECD, 2007). Decentralization and transfer of natural resource management to rural communities further led to the shift towards agro-pastoralism (ibid).

Other factors such as poverty have also been contributing to the shift towards agro-pastoralism. Regions in the pastoralist zone have experienced a decade-long growth of an agro-pastoral class (formerly pastoral) who are very poor and have limited mobility (Anderson, 2007). This group of people carries out semi-extensive production as one element of a diverse range of activities undertaken by low-income families. Similar trends have been observed in regions in the agro-pastoralist zones, where fields were cleared up on the margins of pastoral and agro-pastoral lands. Impoverished pastoral women who no longer have or have never had livestock have

increasingly become engaged in crop cultivation in very precarious conditions (Diarra, 2006). The existing literature also suggests that some parts of pastoral communities are sedentarising to access services, health, education, etc., gain political/administrative recognition (establishment of villages), as well as, in some cases, emergency relief aid. Poverty and droughts, coupled with the inability of some former transhumance pastoralists to replenish their herds, have led them to more towards sedentary pastoralism, as it requires a certain herd to make long-distance effort transhumance worth the trouble (Dyner, 2008).

The shift towards agro-pastoralism is also reflected in the animal health baseline survey data, with 50% of the sampled herders reporting agro-pastoralism as their main source of livelihood. Only about 22.5% of the sampled herders stated that they practiced transhumance pastoralism. Another 22.5% mentioned sedentary pastoralism as their main source of livelihood. On average, sedentary pastoralists have the largest herd, followed by agro-pastoralist, and transhumance herders reported the smallest herd. For instance, transhumance herder has 6.1 cattle in the herd on average, agro-pastoralist has 6.7 cattle on average, whereas a sedentary pastoralist has 7.7 cattle on average. Similar observations are made for sheep and goats in the herd as well.

Figure 9: Average Profit by Selling Livestock by Pastoral system



Transhumance herders make the most profit by selling their cattle compared to agro-pastoralist and sedentary pastoralists.[30] Figure 9 depicts the average profit, calculated as the difference between the average price of the animal and the average costs of livestock production. Costs include both production and transportation costs involved in livestock production. The average profit by selling cattle was about 54,298 FCFA, 55,788 FCFA, and 74,281 FCFA for sedentary herders, agro-pastoralists, and transhumance herders. These figures have been calculated using the AH survey data. Though profits made by agro-pastoralists were lower than the profits made by transhumance herders, it had relatively less variation. While transhumance pastoralists had the highest average profits in the cattle trade, they also had the highest variation. At the same time, agro-pastoralists had the lowest yield and the lowest variation in these profits.

The small ruminant trade has lower profit margins and lower variation in profits, with agro-pastoralists earning higher profits by selling sheep and goats compared to the other two pastoral systems. Among the small ruminants, selling sheep provides higher average yields with relatively higher variation in earnings among all three types of pastoralism. The average profit by selling sheep was about 14,073 FCFA, 12,970 FCFA, and 13,680 FCFA for sedentary herders, agro-

[30] This analysis is based on the AH baseline survey data.

pastoralists, and transhumance herders. The average profit by selling goats was about 3,571 FCFA, 5,800 FCFA, and 3,385 FCFA for sedentary herders, agro-pastoralists, and transhumance herders.

The same group of herders usually practice sedentary and transhumance pastoralism. About 53% of the herders who reported sedentary pastoralism as the main source of their income had transhumance pastoralism as the secondary source. Similarly, 83% of herders with transhumance pastoralism as the main source of income had sedentary pastoralism as the secondary source. Herders with transhumance pastoralism as the main source of income had higher average profits by selling livestock than herders with sedentary pastoralism as the main source of their income. Insecurity has reduced mobility of pastoralism, and less mobile pastoralism is also less profitable (World Bank Blogs, January 21, 2020).

Table 12: Average Production and Transportation Costs of Animal Sold by Pastoral System (in CFA)

	Agro-pastoralism		Sedentary pastoralism		Transhumance pastoralism	
	Production Cost	Transportation Cost	Production Cost	Transportation Cost	Production Cost	Transportation Cost
Cattle	3876	1226	8770	7390	10736	978
Sheep	2770	432	3390	2092	3402	364
Goats	1539	327	1796	1435	2072	422

Source: AH baseline survey

The average production costs are highest in transhumance pastoralism, while average transportation costs are usually the lowest. Transportation costs are highest among sedentary pastoralists. This may be because sedentary pastoralists do not make transhumance journeys have to travel to the market, especially to sell the animals. If there is a significant distance, they will have to use vehicles (e.g., trucks, pick-ups, etc.) to transport their herd to the markets. There is a possibility of agro-pastoralists being located closer to the markets, decreasing their transportation costs. Transportation costs are highest in the Dosso region compared to the other three areas. For instance, according to the survey average transportation cost per head for cattle in Dosso is 11,548.3 FCFA, in comparison, the average transportation cost per head for cattle in the remaining 3 regions is 897.5 FCFA.

There seems to be a structural shift in the concentration of livestock across regions. Tillabéri and Dosso have the highest and second-highest count of animals, respectively, according to the survey. Both these regions also have a significantly higher proportion of aging livestock as compared to other areas. For instance, 47% and 48% of cattle in Dosso and Tillabéri are older than 6 years of age, respectively. Tahoua has reported the least number of animals and has substantially younger animals (98% sheep, 97% goats, and 86% of cattle are under 6 years of age). Similarly, Maradi has relatively younger livestock (80% sheep, 90% goat, and 67% of cattle under 6 years of age). This may point to the growth of the sector in the Tahoua and Maradi region. This movement is possibly led by the falling animal health levels in Dosso, given by low vaccination and high mortality rates in the region, and concerns about terrorism in Tillabéri.

5.1.2 Transhumance Activity in the Target Regions

Transhumance activities are concentrated around the rainfall season due to the availability of pasture and water. Over 90% of the community members interviewed in the targeted regions observed the highest transhumance activities in the rainy season, with activities beginning as early as March. Over 50% of the community members also witnessed some transhumance activities in their region from November to January. Both herders and community members confirmed that transhumance activity occurs more or less between March and December. March to October is the rainfall season in Niger, while December is the beginning of winter and the dry season. There were 5 transhumance herders interviewed extensively. The key information regarding their transhumance is provided in Table 14.

Table 13: Transhumance Routes & Seasonality

Transhumance Route	Percentage of Respondents
Sabon Guéro to Goulbi	12%
Bara to Benin	11%
Bata Fadoua to Kouloumboutay	10%
Bokki to Benin	10%
Dioundiou to Benin	9%
Karanguia to Doutchi	7%
Bara, Bela, Sia, Tanda and Benin	8

Source: AH Baseline Survey

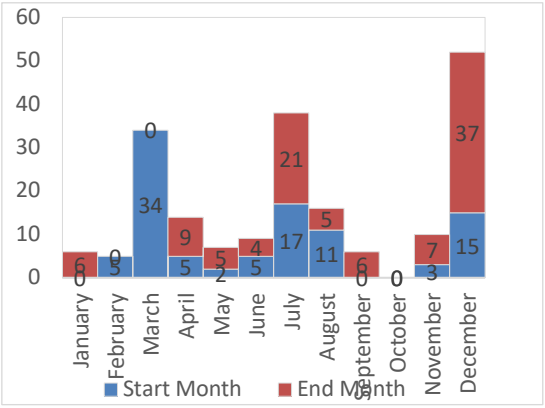


Table 14: Information on transhumance herders in the KII

Transhumance herder	Time involved in transhumance corridor (in years)	Route	Time of the Year for the Route	Number of Transhumance Herders that use the Corridor
1	37	Goutounbou corridor	June	42
2	10	Toda peulh, koungoumoul, nakahé, and sarkaki	Raining season (June to October)	1000
3	20	Toda peulh, Egguidé and Dan Mani	Raining season	350
4	60	Toda peulh, Mairounfa and Aidjiji	September to December	6
5	10	Koure, Tioubi, Batoume, gasgourgne, Belli, sangane, Montassi, Tiena, Guelme, koyfondou, Dingadji, Dakla, safa Taroum Tize gourou,then Mali.	Raining season	1000

Source: KIIs

Tillabéri has the highest reported number of transhumance and sedentary herders among the 4 regions covered under the PRAPS Activity. The common starting points for transhumance are Bokki, Bara, Bata Fadoua, Sabon Guero, and Dioundiou. Around 40% of transhumance herders ended their journey in Benin, and approximately 7% and 6% finished their route in Burkina Faso and Mali, respectively. As a result, border closures would heavily affect transhumance activity. The absence of Nigeria in the survey is a potential result of border closures and insecurity, which disrupted the route for transhumance herders. The Tourba corridor was the most common transhumance corridor cited in the sample.

The transhumance corridors in all 4 regions are reported to be demarcated for the most part, with some degree of regional variation. More than 87% of members of the community-level governance stated that the transhumance corridors are demarcated. Around 13% of the herders declared that the transhumance corridors are not demarcated, and all of them are in the region of Tillabéri. Concerns were also raised about the corridors becoming increasingly narrow and the demarcations being disregarded by pastoralists.

Most of the herders stated that the rest areas along the livestock corridors are either scarce or non-existent, making the journey challenging. It should be noted that herders and community members who were interviewed do not often agree on the issue of the availability of rest areas along the livestock corridor. Around 73% of the community members in the KII say that there are allocated rest areas, compared to 31% of the livestock herders in the KII. However, in Tillabéri, this was not the case, and all community members stated that there was no livestock rest area. This is a point of contention in the 2 groups as herders may have to leave the corridor if there are no designated rest areas and are often forced to enter private land or communal land used for cultivation.

5.1.3 Conflict and Local Governance

Efforts are made to ensure that separate water bodies are made available for herders and community members to avoid conflicts in the region. Around 42% of the members of local governance interviewed stated that no water bodies were shared between the transhumance herders and the communities. However, 25.8% of local government members stated that the water bodies are in bad condition and shared among the two groups, mainly in Tahoua and Maradi. Overall, herders were satisfied with the condition of the water bodies, with a majority of herders (61%) stating that the water bodies are in good condition and shared peacefully. About 21% of herders found the water bodies to be in bad condition but were shared peacefully. At the same time, all the herders from Tillabéri and 25% of those from Maradi declared that they were in bad condition and not shared in a peaceful matter.

Members of the local governance, community members, and herders in all 4 regions agree that the pasture lands are in poor condition. More than 75% of the interviewed community members stated that the pasture lands in their commune are in bad shape and that the transhumance herds of livestock aggravate the problem. In the regions of Maradi, Tahoua, and Tillabéri, almost

all herders (transhumance and sedentary) are dissatisfied with the state of the pasture lands and their space. Some of these herders reported that between 200 and 500 livestock animals use these grounds. Meanwhile, in Dosso, about 47% of the herders interviewed declared that the condition of the pasture lands and the available space for the animals are satisfactory.

There are reports of government efforts to address soil quality and land management. About 64% of the community members reported that the local government addressed soil quality and land management so that farming and sedentary pastoralism can thrive. This was achieved through sensitizing processes on the subject and the sustainable use of chemical compounds for farming. Around 54% of the transhumance herders stated that they saw local governance efforts to manage the pasture lands and the water bodies to reduce conflicts; however, these were mainly in the regions of Dosso and Tillabéri.

While governance and community members from 3 of the 4 regions reported satisfactory land administration, those in Dosso stated a lack of land registration procedure. Around 26% of governance members declared that the land settlements are not formal or legal, and almost 26% said no governmental agency registers the land. The latter are primarily from the region of Dosso. Around 43% of community members, mainly from Tahoua and Maradi, stated that the properties are either owned or rented. At the same time, the rest said that there is only ownership of land. In addition, 28.5% of community members did not know the procedure to register land or noted that these procedures do not exist; these members are mainly based in Dosso.

A considerable number of community members and herders have been involved in conflicts. Around 42% of the community members interviewed were involved in the conflict or its resolution. One community member revealed that one instance of conflict led to dozens injured and 1 dead. Around 60% of the respondents were either involved in or had heard of the conflicts. Usually, these disagreements started due to damages to farmers' fields caused by livestock. In almost all cases, the local government reportedly gets involved and forces a fine on the herder to be paid to the farmer.

Governance and community members indicate herders' non-adherence to the corridor limits and movement into local fields as the leading cause of trouble in the region. About 74% of the members of local governance stated that transhumance herders do not respect the rules/norms of using the livestock corridors. About 60% of community members interviewed criticized herders for leaving the agreed corridor, moving into their farms, and destroying their crops, leading to economic losses. Both groups also complained about transhumance herders not following the transhumance periods. Around 25% of community members were distressed due to the early return of transhumance herders.

Table 15: Problems faced by Community Members Due to Transhumance Activity

List of Problems due to Transhumance	Percentage of Respondents (in %)
Non-respect of the corridors by the transhuman herders	10.7
Violation of people's field	60.7
Lack of water	3.6

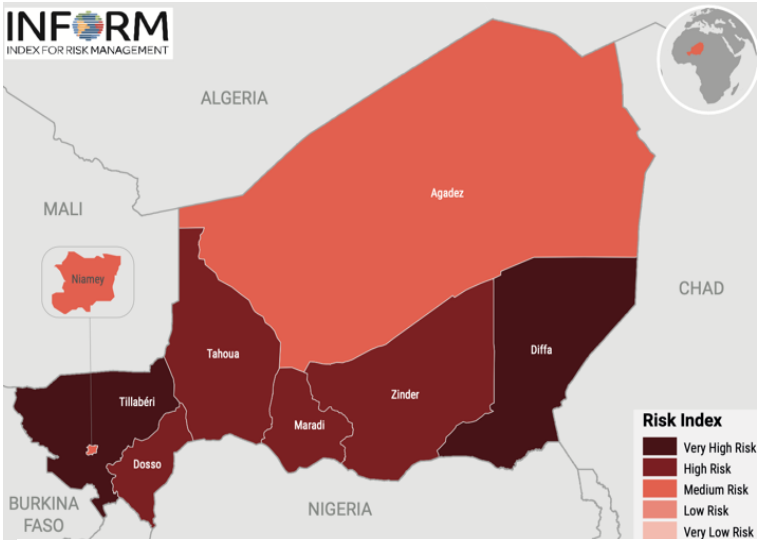
Lack of veterinaries	7.1
Early return of transhumance herders	25.0
Don't know	7.1
No problem	10.7

Source: Stakeholder KIIs

Note: Respondents could name more than one problem. Therefore, the percentages add up to more than 100.

The lack of resources and space compels herders to venture out of the agreed corridors, often leading to conflicts. Herders mention that they sometimes end up in local farms while looking for pasture lands and water because they do not have other options. The only other option is to buy water, which is an expensive option for some herders, who are already poor. During the KIIs, SONED, the contractor for MCC responsible for the feasibility study and social accords, stated that the routes used by animals are most often dilapidated, dangerous, and narrowed by adjacent agricultural activities. CILSS, an international organization working in the Sahel region, pointed to the lack of water and fodder for herds along the corridors as a key impediment. They also mentioned that the corridors are encroached upon by farmers and diverted towards cultivation, leading to conflicts. While community members think that herders intentionally violate their fields, herders are sometimes forced to leave the corridor due to a lack of resources.

Figure 10: Niger Risk Index



Source: UN OCHA (2021)

With the highest number of transhumance and sedentary herders and lack of water resources and pasture lands, Tillabéri is a particularly fertile ground for conflicts. Herders in Tillabéri reported that the transhumance corridors in the region are not demarcated. All the herders in Tillabéri said that the water bodies were in bad condition and not shared peacefully. They were also not satisfied with the state of the pasture lands and the space available. The region also lacks a rest area for the livestock. The region is categorized as high risk according to the latest INFORM Risk Index as shown in Figure 10[31].

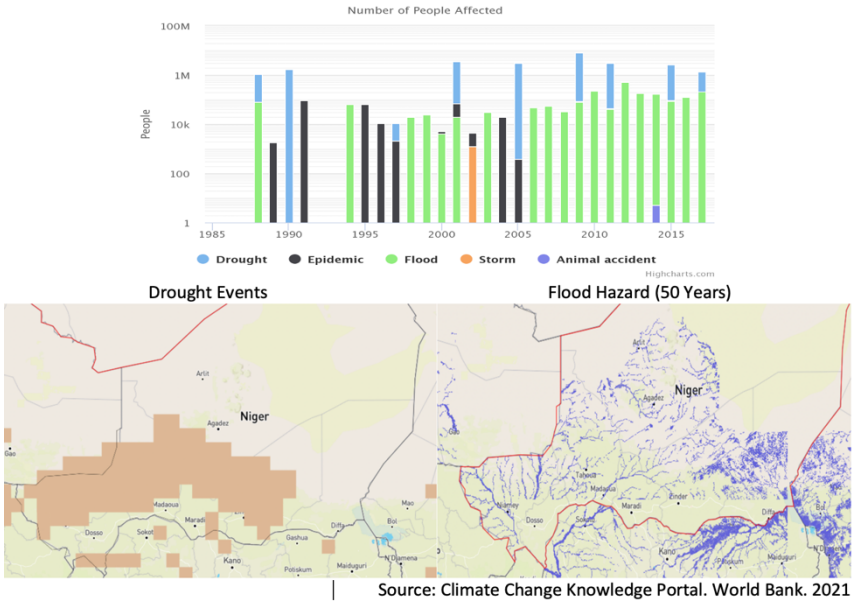
[31] INFORM Risk Index is calculated by the European Commission. There ae three components of risk included in estimation- Hazard and Exposure (natural disasters and conflicts), Vulnerability (socio-economic factors and vulnerable groups), and Lack of Coping Capacity (infrastructure and institutions)

5.1.4 Key Factors Affecting Pastoralism

The pandemic has further exacerbated the already shrinking transhumance pastoralism practice in Niger. As borders closed to contain the spread of COVID-19, herds of cattle could not return to their homelands, thereby leading to significant animal health risks, as pastoralists concentrated at the borders. CILSS also reports difficulties in feeding animals, resulting in weight loss in livestock and consequent high animal mortality (Permanent Interstate Committee for Drought Control in the Sahel (CILLS), May 2020). Beyond the immediate loss of income, some pastoralists risk losing their reproductive nucleus and the depletion of their herds. This would mean a partial collapse of the pastoral sector in the Sahel (Clingendael, July 2020).

Changes in climate patterns continue to adversely affect productivity in the livestock sector. The Climate Change Risk Index, estimated by USAID, ranks Niger at 175 out of 183 countries (USAID, 2021). Climate change has led to increased temperature, erratic precipitation, increased incidence of drought and flooding, and desertification. These stressors result in the loss of traditional rangelands and water sources that have altered herder's migratory patterns. Other consequences of climate change include a decrease in animal fodder production, milk production, meat quality, and fertility rates, and increased mortality and morbidity rates (USAID, April 2017). The existing trend of recurrent droughts and floods is projected to further increase in frequency in the comping century (World Bank Group, 2021).

Figure 11: Droughts and Floods in Niger



Source: Climate Change Knowledge Portal. World Bank. 2021

Climate change has affected the targeted areas in multiple ways. Heat stress has led to lack of animal feed in the area, which is among the biggest concerns mentioned by the SVPPs interviewed by the team. Heat stress also reduces water availability for the livestock. Climate change can also lead to higher risks of livestock diseases. For instance, there is a higher risk of Rift Valley Fever in Niger due to increasingly hotter and wetter conditions (USAID, 2018). Drought is another consequence of climate change that severely affects livestock. For instance, the 2009-2010 drought of Niger followed by floods has led to an estimated loss of 39% for sheep, 31% for goats, and 26% for cattle in agropastoral and pastoral areas (Ibid). Increasing security related

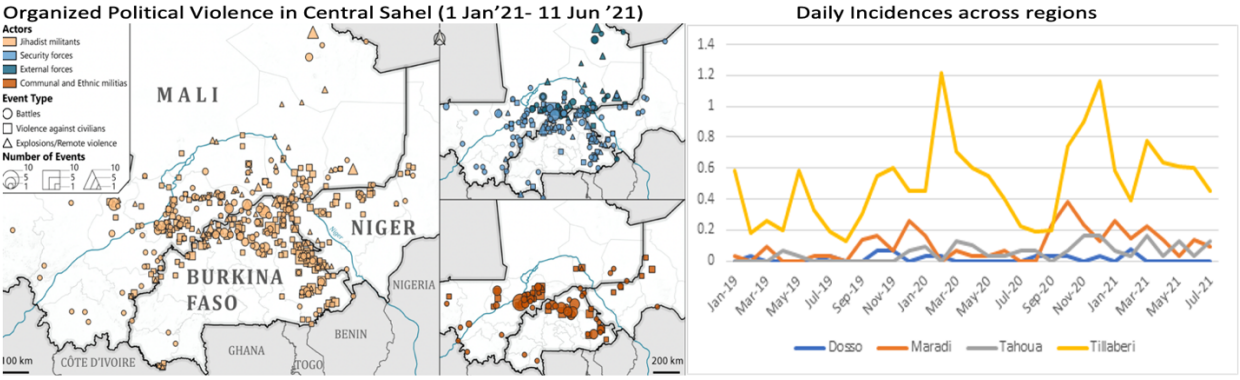
issues in the PRAPS implementation regions can also be associated with climate change impacts in the area. Climate change has led to shrinking usable land and unpredictable water resources which has destabilized communities in the region. This climate-induced vulnerability is also one of the reasons for increased conflict in the region (ICRC, 2019).

The NRME sub-activity and some of its interventions aim to address several issues caused by climate change in the region. The NRME sub-activity is expected to upgrade water and rangeland resources and train the local population on sustainable land management practices including soil restoration and better soil management to tackle the lack of animal feed and water availability faced by herders in the region. The AH sub-activity also includes efforts to create more sustainable and efficient national veterinary services to address increased vulnerability to livestock diseases. More efficient markets under MAF sub-activity are expected to lead to higher income, which will result in lower vulnerability of the population in the targeted region and may cause a decrease in insecurity.

The increasing violence in the region has been contributing to competition over natural resources and the transformation in the modes of production. The impoverished herders who lack water and pasture resources due to climate change and increased agro-pastoral activities and are historically marginalized from politics and are often targeted as recruits by the extremists (World Economic Forum, 2019). Increasing resources may not reduce insecurity in the region until the local governments are equipped to distribute them efficiently and equitably among different groups (International Crisis Group, 2020).

One of the two main zones of insurgent violence affecting pastoralists in Niger is the Liptako-Gourma area (broadly, where the borders of Niger, Mali, and Burkina Faso meet) (UNOWAS, 2018)**, which falls under the territory covered by MCC PRAPS.** Among the 4 regions under the MCC program, Tillabéri has the highest concentration of insecurity among the 4 regions. Insecurity-related incidences are higher in the rainfall season when transhumance activity is the highest.

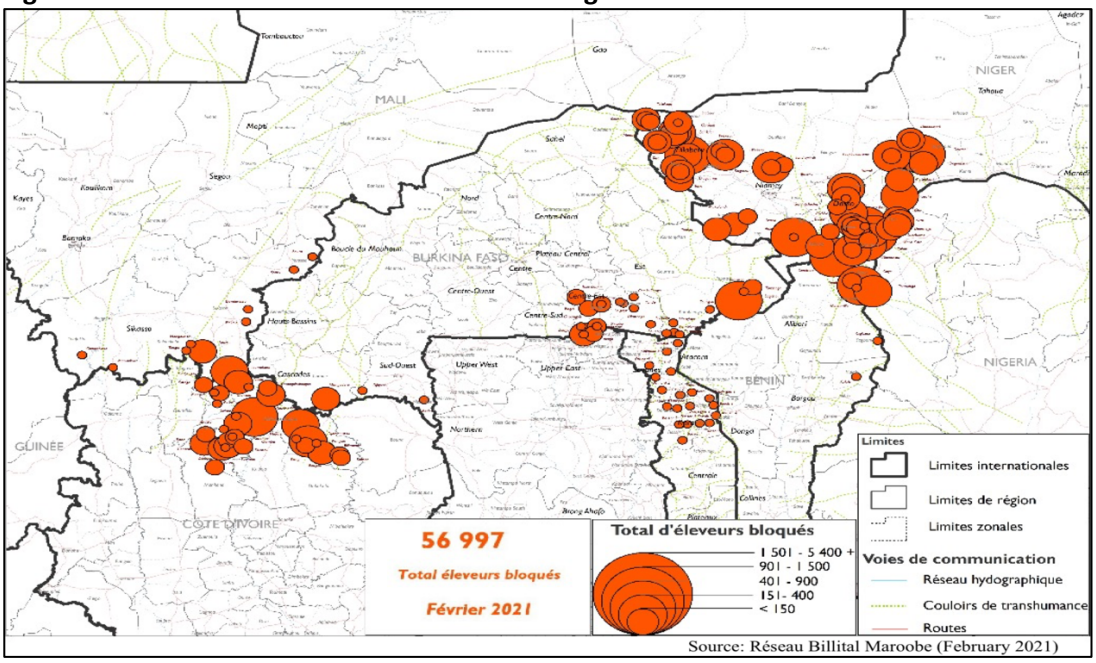
Figure 12: Insecurity in the region[32]



Source: The Armed Conflict Location & Event Data Project (ACLED) 2021

As mentioned above, insecurity, pandemic, unilateral decisions of States, and absences of pasture on the planned route have led to herders being stranded along the central transhumance corridor (Réseau Billital Maroobé, February 2021)**.** The lack of mobility not only has implications for trade and livelihood, but it is also detrimental to animal health in the region. Such a concentration of herders in one location can lead to increased disease outbreaks. It can also reduce pasture availability for animals making them weaker. This also leads to an increased possibility of inter-community conflicts (Sahel and West Africa Club Secretariat (SWAC/OECD) , 2020).

Figure 13: Transhumance herders stranded along the Central Transhumance Corridor



Source: Réseau Billital Maroobe (February 2021)

[32] Incidences refer here to events involving political violence and protest across Niger, including conflicts, attacks, abduction, etc.

Reduced and/or non-existent pasture lands are among the biggest challenges the herders face in the region. In most Niger, there is no longer enough pasture to sustain the livestock, making transhumance activity or providing animal feed necessary. Pastoralists often must sell livestock to buy animal feed, gradually depleting their wealth (UNOWAS, 2018). There are concerns over whether pastoralism can be sustained for the next generation(ibid). This sentiment is shared by the veterinarians/SVPPs during the KIIs, where they recognized malnutrition in animals as one of the key livestock health concerns.

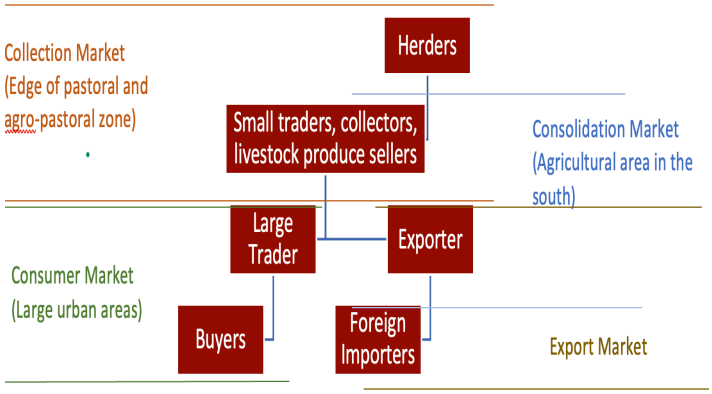
The low education rate among pastoralists restricts growth opportunities and traps them in a cycle of poverty. Nigerien pastoralists usually have large families, with the animal health survey finding the average family size to be about 10 members. Despite the large size, families have members seeking opportunities outside pastoralism, but low educational level makes it difficult (UNOWAS, 2018). Most of the survey respondents never attended school; around 7% of male and 5% of female respondents attended primary school. This statistic is significantly lower than Niger's average primary school enrollment of about 70% for males and 60% for females (The World Bank, 2021).

5.2. LIVESTOCK MARKETS

5.2.1 Market Types and Value-Chain Participants

The livestock markets in Niger can be categorized into four main types, collection, consolidation/cluster, export, and consumer or terminal markets. Collection markets are located on the edge of pastoral and agro-pastoral areas and consist of breeders supplying 1 or 2 head of livestock depending on their financial needs. These markets have frequent and direct contact between herders and buyers**.** Consolidation/cluster markets are mostly located in the agricultural zones in the south and receive animals bought from collection markets by small traders. People who buy these animals from the consolidation/cluster markets are generally exporters or large traders. Consumer markets located in large urban areas are supplied by consolidation/cluster markets, with very few breeders present. Export markets have Nigerien exporters and foreign importers present. While export markets are the primary channels for cross-border livestock trade, sometimes export occurs in consolidation and consumer markets. Export of livestock has been falling due to border closures in selected regions due to rising security issues. Export opportunities have been further worsened by the COVID-19 pandemic, whereby there have been long-term border closures, particularly with countries like Nigeria.

Figure 14: Types of livestock markets in Niger



Collection and consolidation/cluster markets are the most common types of livestock markets in the country. According to SIM-Bétail, 36% of the markets in the country can be identified as collection markets, and another 36% can be identified as consolidation/cluster markets. Eight markets from the 4 regions were randomly selected for the baseline study, with 2 markets being chosen from each region. Out of the 8 livestock markets, 5 can be defined as consolidation /cluster markets, with 1 each of the remaining 3 categories.

Figure 15: Markets sampled for the baseline evaluation

Collection Market	• Tanda (Dosso)
Consolidation/Cluster Market	• Batako (Dosso) , Guidan Romji (Maradi), Ibohomane (Tahoua), Tabalak (Tahoua), Wankama (Tillabéri)
Export Market	• Torodi (Tillabéri)
Consumer Market	• Maradi Com (Maradi)

Livestock marketing in Niger involves several actors (Djariri, 2016). The market leaders/market managers play an important conciliatory role in resolving disputes related to commercial transactions and providing significant support to tax collection administration. Other important market actors include pastoralists, collectors, foot conveyors or shepherds, intermediaries, canvassers or speculators, traders, and exporters. Each of them has a specific role in the livestock market system Niger. Table 16 summarizes the characteristics and functions of each market player.

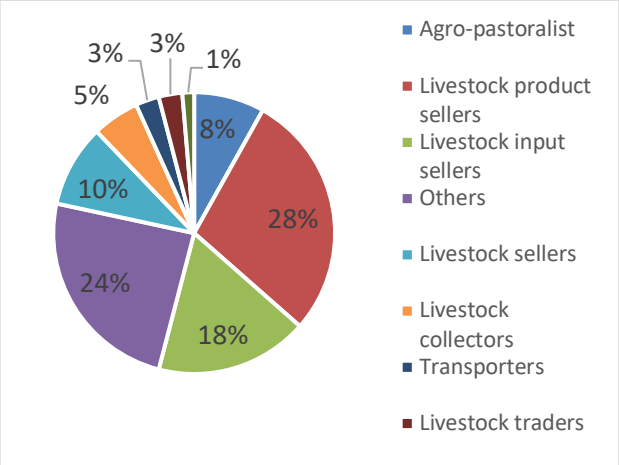
Table 16: Market Players, their Characteristics and Functions, in Niger's Livestock Markets

Market player	Characteristics and functions in the livestock market
Pastoralists and other herders	• Principal or secondary livestock producers, usually owners of few head of cattle; • Generally, they sell only to ensure their food supply; • Predominantly transhumant and nomadic pastoralists (Peuls, Tuareg, Toubous and Arabs); • The choice of species and categories of animals for sale depends on monetary needs.
Collectors	• Collect the animals from farms or small markets or collection markets. • The collector can gather a dozen cattle or small ruminants that he keeps either at home or in a breeder's park while waiting to have the herd transported by a shepherd on market day. • The average collector margins are 5,000 to 15,000 FCFA/cattle head, and 1,000 to 2,500 FCFA/small ruminant head.
Foot conveyors or shepherds	• Very important actors in the collection markets, especially for the transport of animals that the collectors have managed to acquire from the breeders between two markets. • Responsible for safekeeping and driving the animals to the intermediate or final markets and monitoring them during all negotiations and transactions. • Receive an average price of 1,000 FCFA francs/cattle head. • Currently face competition from cattle trucks on cattle being transported at 5,000 FCFA francs/head and small ruminants at 1,000 FCFA francs/head.
Livestock or *Dillali* intermediaries	• Their primary function is to connect the buyer and seller of cattle. • The sales intermediary must also: (i) provide accommodation and maintenance of the seller and his livestock; (ii) offer advice to the seller when negotiating prices; (iii) vouch for any animal sold and in case of theft, look for the seller; (iv) offer moral surety for any transaction made on credit; (v) provide support to the administration for tax collection • An intermediary can earn 5000 FCFA/cattle head and 1000 FCFA/small ruminant head. • There has been an explosion in the number of intermediaries in most markets, such as the Balleyara and Tera markets.
The canvassers or speculators	• Predominantly cattle traders, they come to the markets, negotiate the quantity of livestock with breeders and resell them for a profit without first paying either the price of the animal or the intermediary fees. • In the event that they cannot find a buyer, the breeder is often obliged to accept a price lower than that proposed to him. • This practice, which benefits from the tacit or active complicity of certain intermediaries, is illegal, unfair and distorts the rules of the market. • A canvasser can earn 5,000 FCFA/cattle head and 1,000 FCFA/small ruminant head.
Livestock traders	• The smallest of them buy animals for resale on site or in other domestic markets; • The larger ones make exporting their main activity, the sale in domestic markets is not only occasionally.

	• For several years, there has been direct intervention by traders from northern Nigeria in Niger's livestock markets, including in the collection markets.
Exporters	• They have a solid financial base and buy a large number of animals from merchants who come from the grouping markets, • These are then sold to the large local butchers or are exported to other neighboring countries.

Livestock product sellers are the most common value chain participants in the baseline markets.

Figure 16: Value-chain participants in the KIIs



About 62.5% of markets in the sample are consolidation/cluster markets. Since consolidation/cluster markets have a high concentration of traders who obtain livestock animals from the collection markets where they interact with pastoralists, the baseline sample captures a low number of pastoralists or breeders. Livestock products sold in the markets include primarily animal skin, meat, and milk. Milk sellers buy their animals in the collection markets. The second most common value chain participant identified in the markets was the market intermediaries. These are identified as the "other" category in Figure 16.

Table 17: Markets to be Reconstructed under MCC PRAPS and their functions

Regions	Markets	Current Function	New Function
Dosso	**Batako**	Cluster Market	Cluster Market
	Ouna	Export Market	Export Market
	Karguibangou	Export Market	Export Market
	Tanda	Collection Market	Export Market
	Fadama	Export Market	Export Market
Maradi	**Maradi com**	Consumer Market	Consumer Market
	Dakoro	Cluster Market	Cluster Market
	Dankoulou	Collection Market with cluster market	Cluster Market
	Gabi	Cluster Market	Cluster Market
	Wouriséna	Cluster Market	Cluster Market
	G Roumdji	Cluster Market with export tendencies	Export Market
Tahoua	**Tabalak**	Cluster Market	Cluster Market
	Abalak	Cluster Market	Cluster Market
	Ibouhamane	Cluster Market	Cluster Market
	Ourno	Cluster Market	Cluster Market
Tillaberi	**Wakama**	Cluster Market	Cluster Market
	Hamdallaye	Cluster Market	Cluster Market
	Torodi	Export Market	Export Market

Source: MCC PRAPS Activity Documents

Since none of the reconstructed markets are expected to be collection markets, herders may not be the biggest beneficiary of the MAF sub-activity. Of the 18 markets to be reconstructed, 11 will be cluster markets, 6 will be export markets, and 1 will be a consumer market. There will still be herders' presence in the reconstructed markets, but these are expected to be dominated by intermediaries, livestock product sellers, exporters, consumers, and foreign importers. Usually, there are informal agreements between the herders and the intermediaries responsible for the sale of the animals, and the technical study done by AGECHRAU for MCC-PRAPS reported no issues in transactions. However, in the KII with the MCA-Niger implementation team, it was reported that sales intermediaries accrue the largest share of the profits from the trade. It is important to target efforts towards the backward linkages in the new markets to ensure the advantages gained in the consolidation/cluster. Export markets reconstructed/rehabilitated under the PRAPS Activity trickle down to the pastoralists. This also warrants further analysis on price differences in different types of markets.

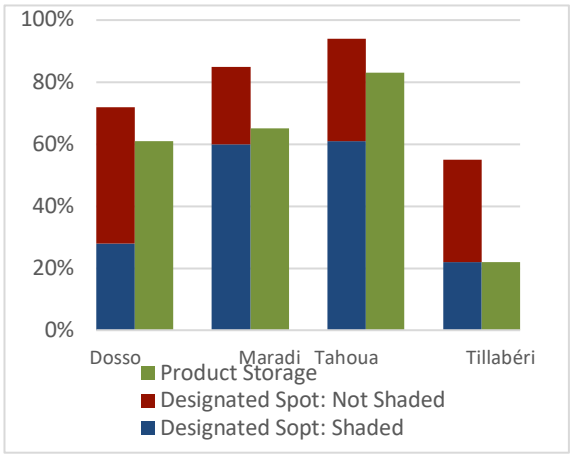
5.2.2 Amenities and Infrastructure in Markets

Livestock markets lack key market infrastructures such as fences and necessary market amenities. Availability and quality of market amenities are common areas of dissatisfaction among market managers and market participants. Most of the market leaders from the 4 regions reported a lack of fences and asked for general construction and renovations to improve the marketplaces. The market of Batako (Dosso) has no fences, and some of the hangars are made from straw. Tanda (Dosso) also lacks a permanent structure. The market leader for the Guidan Roumji (Maradi) livestock market reported adequate infrastructure and amenities available in the market. However, due to the closure of borders owing to security issues, cross-boundary business seems to have suffered. In the Maradi Com market, there are reportedly 2-3 offices within the market premises where market managers or veterinaries can work. However, these offices, the water fountain, toilets, and hangars in the market are in poor condition, with little or no maintenance work having been performed. The small ruminant market in Ibohamane (Tahoua) is fenced, although with gaps in places, and it is damaged in places. Tabalak (Tahoua) has no enclosures, water points, or toilets. The market is often crowded with cars parked haphazardly, which restricts access to the marketplace. Torodi (Tillabéri) was described to be in comparatively good condition. The market is reportedly surrounded by food, animal feed, and water vendors, and has straw hut toilets. Wakama (Tillabéri) also has no fences or construction. There are some small animal enclosures with wooden fences and hangars for small livestock sellers.

Market participants often lack a safe, designated spot to store their products and conduct their business. For instance, only 28% of the respondents in Dosso reported having a shaded spot in both markets to conduct their business. About 60% of the respondents in Maradi have a shaded spot in the market. In Tahoua, around 94% of the respondents have a fixed space in the market, however, only 50% of the individuals are located under an actual hangar, the markets lack shading infrastructure. In addition, 83% of the respondents stated that there isn't a space to store their products in the marketplace. In the Tillaberi markets, over 45% of the respondents don't

have a fixed space in the marketplace. More than 76% of the individuals don't have a safe space to store their products. Most markets also do not have an adequate supply of safe and secure space with access to water to store the animals, thereby resulting in the loss of animals. For the markets in Dosso, about 56% of the respondents lacked any storage space with water for their animals. Respondents in the markets in Maradi reported usually having a space to store their animals. However, about 45% of the respondents in the Maradi markets lost their animals. In Tahoua, all the respondents reported that the livestock is not stored in a place with access to water. Around 89% of the respondents did not have a safe space to store their animals, and 33% have lost their animals in the past. In Tillabéri, 89% of the market participants interviewed reported that the livestock is not kept in a place where there is access to water. Around 44% of the respondents reported having a safe place to store their animals, with 50% of the respondents having lost animals in the market.

Figure 17: Availability of designated spot and product storage space



While many livestock markets have toilets on the premises, they are often non-operational or not free to use. In Batako, all respondents declared that toilets are available; about 44% of Tanda respondents said there are no or insufficient bathrooms. In Guidan Roumji, toilets are available but not operational. In the Maradi Com market, respondents said that the toilets are available but not free to use. There are no toilets in the Ibohomane market. In the market of Tabalak, almost all respondents declared that there were bathrooms in the market; however, they complained that they were not in good shape and are not free to use for all. All the respondents in both markets in Tillabéri declared that there are no toilets in the marketplace. They reported that there aren't toilets close to or around the market, which forces the market participants to use the woods.

Drinking water, when available, has to be purchased from the mobile sellers in the market. Respondents in Tillabéri and Tahoua primarily declared that there was no drinkable water in the market. They mostly buy water from mobile sellers in the market. In Maradi, water is mainly available in the marketplace, but 25% of the individuals complained that drinking water is not free. In Dosso, drinking water is available, but it is usually not free. Mobile water sellers are often comprised of youth and women.

Veterinary services are available in varying degrees in the livestock markets. About 39% of market participants In Dosso stated that no veterinaries are present in the livestock markets. Among the 2 markets in Tillbéri, all respondents in Torodi declared that there is a veterinarian in

the market, while 55% in Wankama stated otherwise. All respondents from the markets in Maradi and Tahoua reported the presence of veterinary in the market.

Market management usually charges a fee from market participants in all markets, except the Maradi com market. Market leaders in both the markets in Dosso mentioned that the fee depends on the type of livestock item sold. In Guidan Roumji, there is an entry tax of 100 FCFA for small ruminants and 250 FCFA for large animals. There is an additional sales tax of 250 FCFA for small ruminants and 500 FCFA for large animals. Ibohamane has a tax on livestock sellers, which is determined by the number of animals, whereas other value chain actors pay a fixed tariff. Fees in Tabalak range between 50 to 200 FCFA for small ruminants and between 200 and 500 FCFA for large animals. Torodi market charges 500 FCFA on sellers and 200 FCFA per animal. Wakama reported a fee between 50 to 200 FCFA.

There is a general willingness among market participants to pay taxes for the maintenance of the marketplace and security in the premises. Around 78%, 95%, 95%, and 61% of market participants in Dosso, Maraddi, Tahoua, and Tillabéri, respectively, are willing to pay these taxes. However, most respondents mentioned that they would pay the taxes only if the proposed improvements are completed. Respondents also stated that they would only pay taxes if the authorities were willing to accept late payments since their income is usually subject to some degree of volatility.

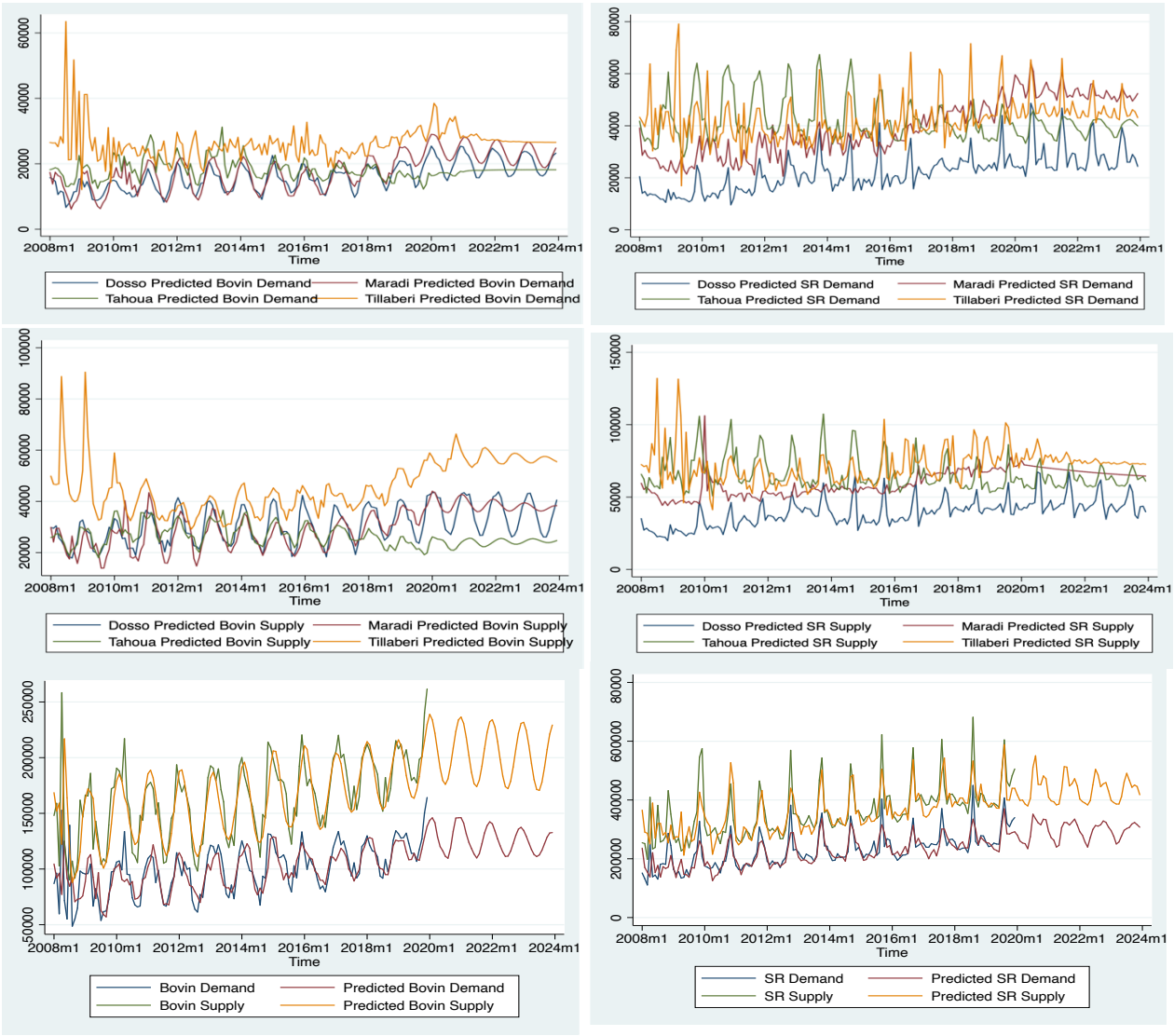
5.2.3 Market Dynamics

Movements in market supply and demand are correlated with the rainy season. For instance, the supply and demand for cattle in the livestock markets are highest at the beginning of the year, while they are highest around mid-year for small ruminants. The highest supply and demand for small ruminants also coincide with the rainy season in Niger (May through October). Both supply and demand generally follow the same pattern across the different regions. While quantity in different regions varies, prices follow each other closely. This may point to the markets being connected to each other. It may not be profitable to travel to a different region to sell livestock. Prices of small ruminants are more responsive to the quantity sold in the market than the cattle prices.

According to the time series model, Tillabéri is expected to have the highest regional demand and supply in the cattle market in the next 5 years. Tahoua and Dosso are expected to have the lowest demand and supply in both bovine and small ruminant markets in the next 5 years. For Maradi, both demand and supply for bovines and small ruminants have a prominent upward trend. If the same patterns follow in the future, Maradi will have the highest demand in the small ruminant market in the next 5 years. While other regions have seen a slight upward trend in demand and supply in both markets, Tahoua has a downward trend, particularly in the small ruminant market. The shrinking livestock supply and demand in the region could be due to the limited export potential of these markets, as the country's primary export destination is Nigeria (OECD, September 2020). This means that the markets in Tahoua would cater to domestic needs,

which may lead to limited opportunities for the producers and sellers, given the country's poverty rates and heavy reliance on staples such as sorghum and millet (FEWS NET, September 2017).

Figure 18: Model Predictions for the Demand and Supply of Bovine and Small Ruminants (SR)



Note: The first and second rows present supply and demand for bovines and small ruminants at the regional level. The last row presents them at the national level.

All 4 regions targeted by PRAPS have reported excess supply for the two most prevalent animal categories, namely, cattle and small ruminants, for over a decade. The figures above present excess supply in all the 4 regions, using the supply and demand data collected from SIM-Bétail. For both cattle and small ruminants' markets, excess supply in Tillabéri seems to have an upward slope and has risen above other regions since 2018. While in the small ruminant market, excess supply in Tahoua appears to be following a downward trend since 2017, there is still excess supply. Excess supply in the small ruminant market reached a high of around 200,000 in 2010 in Maradi, and there was one instance of no excess supply in 2012 in Tahoua. Tillabéri reported the highest

excess supply in cattle markets of over 60,000 in 2008. It also reported the highest excess demand of over 75,000 in the same year.

Figure 19: Excess Supply

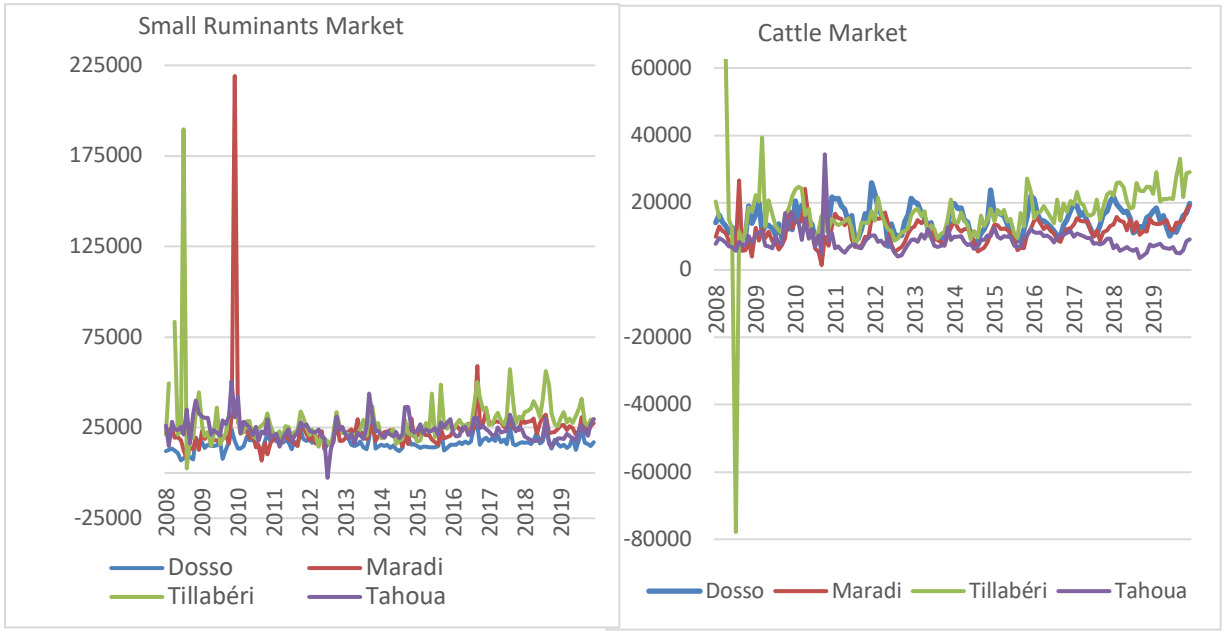
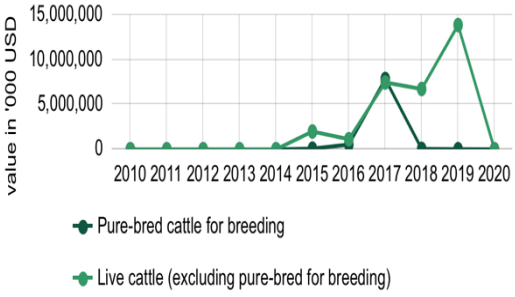


Figure 20: Export Value of Niger live cattle



Source: Selina Wamucii

Exports have fallen in recent years. As shown in Figure 20, export value started falling in 2019, i.e., prior to the pandemic. Border closures due to insecurity along the national border were the leading cause of a fall in exports. Nigeria is the major exporting partner for Nigerien livestock, with about 80% of animal export in 2018 going to Niger (World Integrated Trade Solution, 2021). However, in August 2019, Nigeria unexpectedly closed all of its land borders with Niger, Cameroon, and Benin, to stop all movement of goods, except oil, from import or export.

Table 18: Information Provided by Exporters in the Survey

Herder	Region	# Cattle Exported	Average Export Price	Average Domestic Price	# Sheep Exported	Average Export Price	Average Domestic Price	# Goats Exported	Export Average Price	Average Domestic Price
#1	Dosso	-	-	-	2	35,000	35,000	-	-	-
#2	Dosso	-	-	-	-	-	-	2	25,000	11,000
#3	Dosso	13	100,000	150,000	13	100,000	25,000	-	-	-
#4	Dosso	1	200,000	143,00	-	-	-	-	-	-
#5	Dosso	3	75,000	125,000	-	-	-	-	-	-
#6	Dosso	2	200,000	55,000	-	-	-	-	-	-
#7	Dosso	2	100,000	100,000	-	-	-	-	-	-
#8	Dosso	-	-	-	1	25,000	25,000	-	-	-
#9	Dosso	3	100,000	100,000	5	75,000	25,000	-	-	-
#10	Dosso	-	-	-	4	130,000	80,000	-	-	-
#11	Dosso	-	-	-	3	40,000	14,000	3	40,000	40,000
#12	Dosso	-	-	-	-	-	-	1	10,000	10,000
#13	Tahoua	-	-	-	50	140,000	100,000	50	40,000	45,000

Source: AH baseline survey

The reduced volume of exports is also evident among the herders in the animal health survey, with less than 2% of the herders in the survey reported exporting livestock in 2020. Of the 13 herders that exported livestock, 12 are from the Dosso region, and one is from the Tahoua region. Nearly half of the exporters exported cattle, and a similar proportion reported exporting sheep. About 31% of the exporters exported goats. The highest reported export activity included the sale of 13 cows and 13 goats by one respondent and 50 sheep and 50 goats by another. In the table above, the average price of exported livestock and the average price for livestock sale in the local market as stated by the herders is reported. Surprisingly, three herders, including the two with the most exports, reported a higher average price in the local market. Two herders reported this in Dosso and one herder in Tahoua. The average price in the local market ranged from 12.5% to 67% higher than the average export price by these three herders. This may imply that the herder chose to export not because of higher profits but due to the lack of demand in local markets. This follows the finding that the livestock markets have consistently reported excess supply.

Limited export opportunity in the target regions was also reported during market participants' interviews, with the highest levels in Dosso. For instance, only 5.5% of the market participants and value chain actors in Tillabéri reported that they could export their products. About 40% of market participants in Maradi and 22% of market participants in Tahoua stated that there was an opportunity to export products. On the other hand, about 72% of respondents in Dosso reported having the opportunity to export livestock and related products. Respondents proposed sensitization, open borders, product training, rehabilitated markets, financial aids, secure and better roads for increasing exports.

Insecurity in the region also restricts the efficient functioning of the markets. Insecurity indirectly affects the markets by restricting herders' mobility. There is also a growing direct threat for market participants present in the markets. In March 2021, gunmen killed 58 people returning

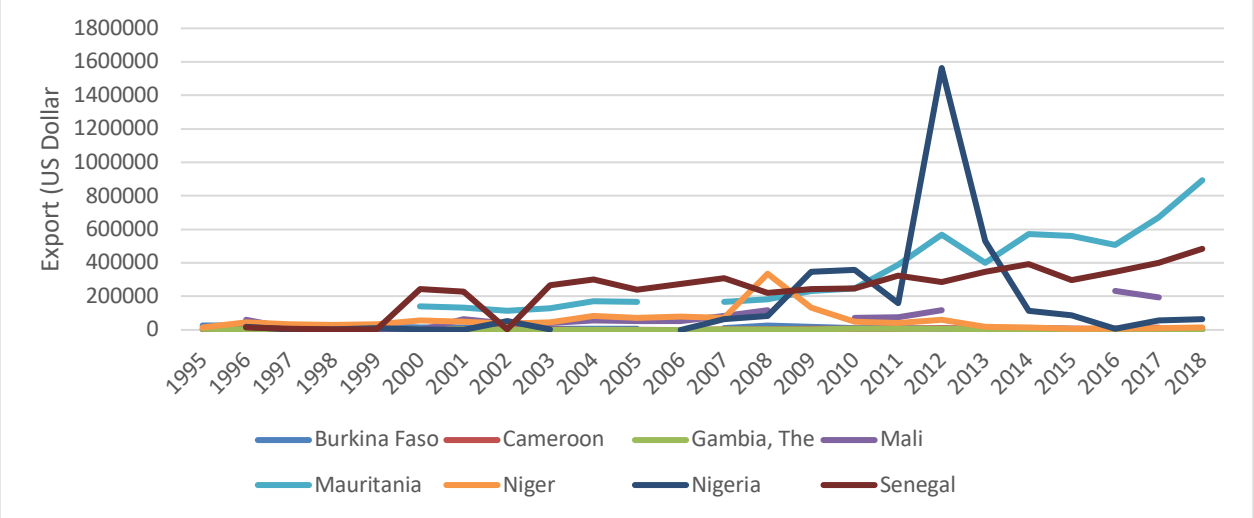
from a market day in the Tillabéri region (CBS News, 2021). A recent study by BRACED found that conflicts affect prices in the markets. Using regression analysis, they determined that prices in the market decline when conflicts are closer; this effect may be due to the absence of animals since conflicts disrupt access to the market for livestock and buyers (Catherine Simonet, 2020).

5.3. Animal Health Issues & PRAPS Contribution To-Date

5.3.1 Livestock Health in Niger & Economic Impact

Niger has several livestock diseases that significantly impact the country's economic status due to the losses they generate and/or their zoonotic nature. For instance, the economic losses caused by livestock mortality and morbidity are significant for the country's exporting activities to neighboring countries (such as Nigeria and Côte d'Ivoire) and Europe, and the Middle East. Key diseases include, among others, Peste des petits ruminants (PPR), Contagious Bovine Pleuropneumonia (CBPP), Foot and Mouth Disease (FMD), Rinderpest (RP), Rift Valley Fever (RVF), African Swine Fever (ASF), Anthrax, Brucellosis, Pasteurellosis, and other respiratory syndromes and (Trypanosomiasis, gastro-intestinal parasites, etc.) (Department for International Development, FAO, 2007). Due to the transboundary nature of livestock production, prophylactic measures are difficult to implement; consequently, livestock exports into neighboring countries can be negatively impacted by disease outbreaks. Figure 21 shows the low export value in Niger and many other countries in the Sahel, except the coastal countries of Mauritania and Senegal.

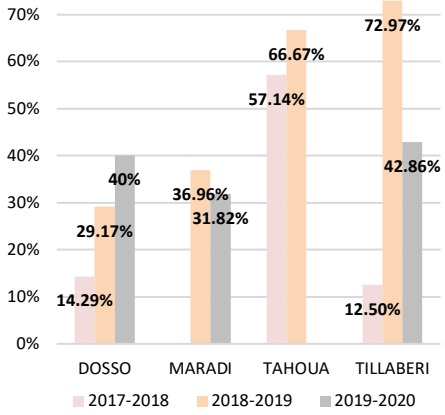
Figure 21: Animal Export for the Countries in the Sahel



Source: wits.worldbank.org (2021)

CBPP and PPR remain prevalent livestock diseases in Niger. The overall prevalence of CBPP was estimated to be 41.03% in 2019-2020 by a serological survey conducted by the MAGEL. As shown in Figure 22**Error! Reference source not found.**, prevalence rates in Maradi and Tillabéri have fallen from the last round of surveys conducted; however, in all regions, they are higher than the rates observed in 2017-2018.[33] The national average prevalence rate for PPR was estimated to be 54% in 2019 by LABOCEL. LABOCEL recently tested samples upon the suspected outbreak of CBPP and PPR to confirm both outbreaks in Niger. They could estimate the origin of CBPP from transhumant cattle for a neighboring country. The origin of PPR was from the small ruminants purchased by some NGOs from the same country to be distributed to the vulnerable population. 2 PPR outbreaks were confirmed in Dosso, and 1 each in Maradi and Tahoua from the regions in the PRAPS activity.

Figure 22: Overall Prevalence- CBPP



Source: MAGEL (2020)

According to the interviewed veterinarians/SVPPs, aside from diseases, malnutrition in animals and cross-boundary disease transmission are key animal health concerns. All interviewed veterinarians/SVPPs cautioned against the severe lack of animal feed in the region, especially in the hot season. Other identified factors included the lack of isolation of herds, which leads to easy transmission from one animal to another. This is exacerbated by the cross-boundary movement of animals, such as between Niger, Benin, and Nigeria. These trips are intense in the period from June to August during the rainy season. According to AEs and AVA/PRs, efforts to improve animal health are constrained by cross-boundary disease transmission. There is a lack of emergency animal care infrastructure and hygiene practices. The scarcity of shelters for livestock leads to the animals being exposed to the scorching heat of the sun and the harsh climate in the region, thereby degrading their health. Malnutrition in animals has a direct impact on milk and meat production, as well as their value in markets.

In the last few decades, Niger has experienced land degradation caused by environmental stress, putting additional strain on pastoral livestock production (Gnoumou & Bloch, 2003). The country experienced land erosion and desertification caused by recurrent droughts in the 1970s and 1980s, which disturbed the natural vegetation and the variation in rainfall patterns, among other causes (Grigg, et al., 2015). In the last few decades, Niger has registered four to five major droughts (Table 19). Over time, this has led to a reduction of suitable land for cultivation. The growing population, and the demand for food that comes with it, combined with the deterioration of the country's soil quality, have caused a need to expand the areas of cultivated land. This has contributed to conflicts with access to land and/or grazing, as this newly cultivated land often encroaches into land used by pastoralists (USAID, 2016).

[33] 2019-2020 CBPP prevalence rate in Tahoua was in the process of estimation when the document was received.

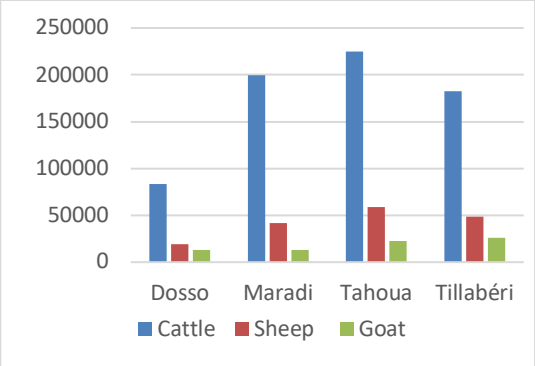
Table 19: Niger's Major Droughts and Impact on the Livestock Sector

Year	Event	Impact
1973/74	Drought	It is estimated that Niger lost 45% of cattle, 27% of sheep and 15% of goat as a result of the 1973 drought.
1984/85	Drought	It is estimated that Niger lost 40% of cattle, 35% of sheep and 33% of goat as a result of the 1984 drought.
2004/05	Combination of drought and desert locust and invasion with a high impact on grazing areas	Losses to the Livestock sector were estimated at 20% for cattle and 13% for small ruminants in sample parts of the agro-pastoral zone.
2009/10	Combination of drought and loss of pasture with subsequent heavy rains and flooding	In the sample area of a study on the impact of this crisis (14 departments of seven regions in the pastoral and agro-pastoral zones), livestock mortality rates were estimated at 25.5% for cattle, 38.6% for sheep, 31.3% for goats and 2.6% for camels.

Source: Based on secondary research by A2F

Periodic droughts, desertification, climate change, and increased diversion of land to cultivation wiped out pasture lands and water sources and, in turn, forced pastoralists to alter their transhumance routes in search of food and shelter for their herds. Conflicts have been observed in the region arising from several factors, including disputes related to natural resource use between pastoralists and agro-pastoralists, armed conflicts, trafficking, and terrorism (Tall, 2018). The disputes (primarily related to the management of waterholes and pasture lands, as well as land rights) between pastoralists and agro-pastoralists are especially prevalent in the area that stretches from the north of Tillabéri to the north of Abala, in the Filingue strip, in Tahoua, Abalak, Baleyara and toward Zinder (Mercy Corps Niger, 2016). These disputes arise primarily around July and then again in September and October, between initial rainfall to the end of the harvest, due to increasing nomadic movement following the end of the rains in the north. (Mercy Corps Niger, 2016).

Figure 23: Average Profit (FCFA) from Selling Livestock by region



The baseline survey data also shows a correlation between the low average profits and poor livestock health in Dosso. Herders in Dosso earned significantly lower average profits from the sale of their livestock when compared to respondents in other areas. For instance, the average profit by selling cattle was about 84,190 FCFA, while the average profit by selling cattle was about 193,091.3 FCFA for the remaining 3 regions. The average price was much lower in Dosso; this can be due to the relatively poor health of animals in the region. According to the baseline AH survey, Dosso has high mortality and morbidity rates. Figure 13 also shows a high concentration of transhumance herder stranded in the region due to the closed borders.

5.3.2 Disease Prevalence & Recent Outbreaks

CBPP and PPR are prevalent among all ages of the animals. PPR was reported more frequently among sheep than goats among the AH survey respondents. Around 11% of sheep in the age group 6-8 years had PPR; in comparison, about 3% of goats in the same age group had PPR. Among the 20 sheep between the ages of 9-11, 6 were reported to have PPR, and the 1 sheep over the age of 12, also reported PPR. Removal of the outlier cases of old animals, sheep, and goats in the age group 6-8 years had the highest probability of contacting PPR. Among the 6 cattle in the age group 15-17, 2 were reported to have CBPP. Barring cattle above 15 years of age, those belonging to the age group 9-11 years had the highest probability of contacting CBPP with 6.45% cattle reported with the disease.

Table 20: Prevalence of CBPP and PPR by Livestock Age

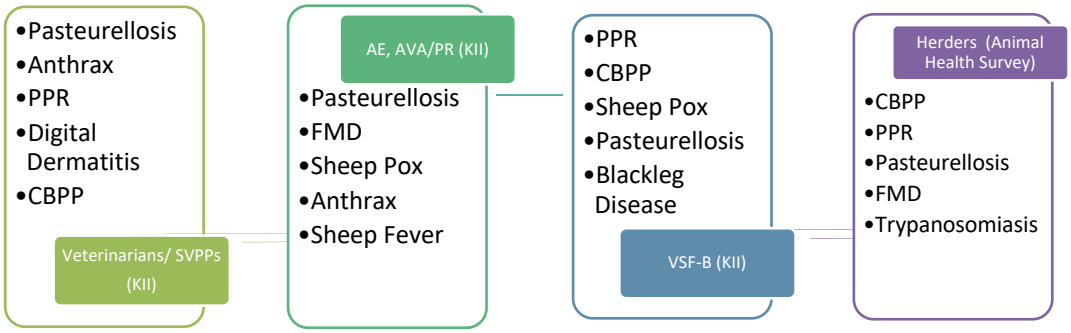
	Age Group (Years)	Ownership of Animals by Age Group	Number of Respondents with a Prevalence of CBPP/PPR	Percentage (%)
Cattle	0-2	280	11	3.93
	3-5	349	8	2.29
	6-8	226	12	5.31
	9-11	93	6	6.45
	12-14	20	1	5.00
	15-17	6	2	33.33
	24-26	1	0	0.00
Sheep	0-2	380	11	2.89
	3-5	374	8	2.14
	6-8	109	12	11
	9-11	20	6	30
	12-14	1	1	100
Goat	0-2	390	6	1.54
	3-5	351	9	2.56
	6-8	96	3	3.12
	9-11	7	0	0
	12-14	1	0	0

Source: AH baseline survey

Pasteurellosis was the most commonly identified prevalent livestock disease in the target regions. Pasteurellosis is known to cause severe economic losses as animals lose weight leading to reduced milk and meat production. Other common diseases included CBPP, PPR, Anthrax, Sheep Pox, Sheep Fever, FMD, Dermatitis, Blackleg Disease, and Trypanosomiasis. Tuberculosis, New Castle Disease, Sheep Mouth Diseases, and parasitism were also noted to be present in the target area. In the survey, 7.4%, 10%, and 13.7% of cattle owners stated that their cattle had CBPP, Trypanosomiasis, other diseases, most commonly Pasteurellosis and FMD, respectively. Similarly, 4.5%, 5.3%, and 5.6% of sheep owners stated reported PPR, Trypanosomiasis, and other diseases, respectively. Among goat owners, 3.3%, 1.7%, and 3.5% mentioned the occurrence of

PPR, Trypanosomiasis, and other diseases, respectively. About 41.5%, 21.3%, and 18.1% of the respondents declared that they noticed weight loss not related to CBPP and trypanosomiasis diseases in their cattle, sheep, and goats, respectively.

Figure 24: Main diseases identified by different project participants/end-beneficiaries



Other diseases, such as Anthrax, Foot and Mouth Disease (FMD), and Brucellosis have been regularly breaking out in the country at endemic rates. These diseases are found to be less virulent in terms of mortality and case fatality rate. Other diseases such as RVF seem to be isolated events based on the number of outbreaks between 2015 and 2018. Table 21 summarizes the major livestock disease outbreaks between 2015 and 2018. Quantifying the burden caused by these diseases may be easier for some than for others. For instance, data on Brucellosis is missing, although the disease is known to be endemic in Niger. Moreover, it is a zoonosis, and its transmission to humans is aided by the mishandling of aborted fetuses and cultural habits such as drinking raw milk. Anthrax is another zoonosis that breaks out regularly, including in 2019. Based on preliminary information from the DGSV in Niger, the government has not focused on the disease and its mitigation. Meanwhile, FMD, CBPP, and PPR are transboundary diseases with commercial implications, and their incidence is high and regular. It should be noted that MAGEL has prioritized those CBPP and PPR diseases for vaccination historically.

Table 21: Disease outbreaks in Niger between 2015 and 2018

Disease	2015	2016	2017	2018
Anthrax	15	34	32	18
Brucellosis	Suspected	Suspected	Suspected	Suspected
CBPP	0	6	4	1
FMD	33	Present but not quantified	Suspected	Suspected
PPR	36	27	At least 2	40
RVF	0	2	Continuing from previous outbreak	
Trypanosomosis	Suspected	Suspected	Suspected	Suspected

Septicemia Hemorrhages	0	0	Present but not quantified	Present but not quantified

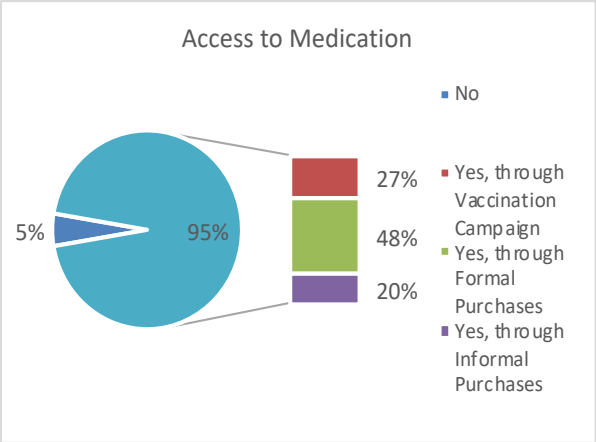
Source: OIE-WAHIS (2019)

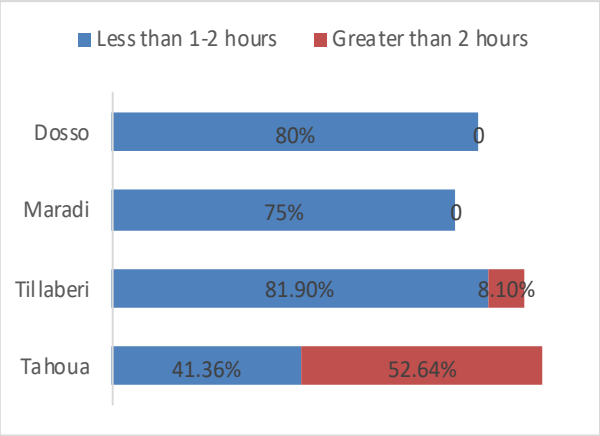
5.3.3 Access to Veterinary Services

The majority of herders reported that they have access to veterinary services and medication for their animals. Over 90% of the respondents belonging to Tahoua and Tillabéri have access to veterinary services. About 75% and 80% of respondents belonging to Dosso and Maradi, respectively, also have access to these services. The majority of the respondents, except in Tahoua, can access veterinary services within 1-2 hours. Nearly 95% of the respondents have access to veterinary medications, which they acquire through vaccination campaigns as well as other formal and informal sources where they can purchase the medicines directly.

Veterinaries and Auxiliaires d'Elevage (AEs) engaged via KIIs agreed that veterinary services are widely available in the target regions, but they cautioned that these services are limited in scope. Veterinarians stated that they can treat diseases, but they do not have the equipment and required training for advanced surgeries. Auxiliaries added that herders usually visit them for childbirth, treating intoxication, injuries, and trauma. It was also noted that herders often do not avail these services readily. Apart from distrust towards them, herders often cannot afford the available services.

Figure 25: Access to Medication and Veterinary Access





Extension services and farmer education are easily accessible in the regions of Tahoua and Maradi. All respondents in Tahoua and 89% of the respondents in Maradi reported having access to these services, while in Dosso and Tillabéri, they are accessible for, respectively, 50% and 33% of the respondents. In all 4 regions, these services are accessible with less than 2 hours of travel.

While the herders have good access to veterinary services, access for transhumant herders remains inadequate. Veterinarians' reluctance to intervene in remote pastoral areas has affected the required critical mass of practitioners needed to serve these areas. The demand for animal

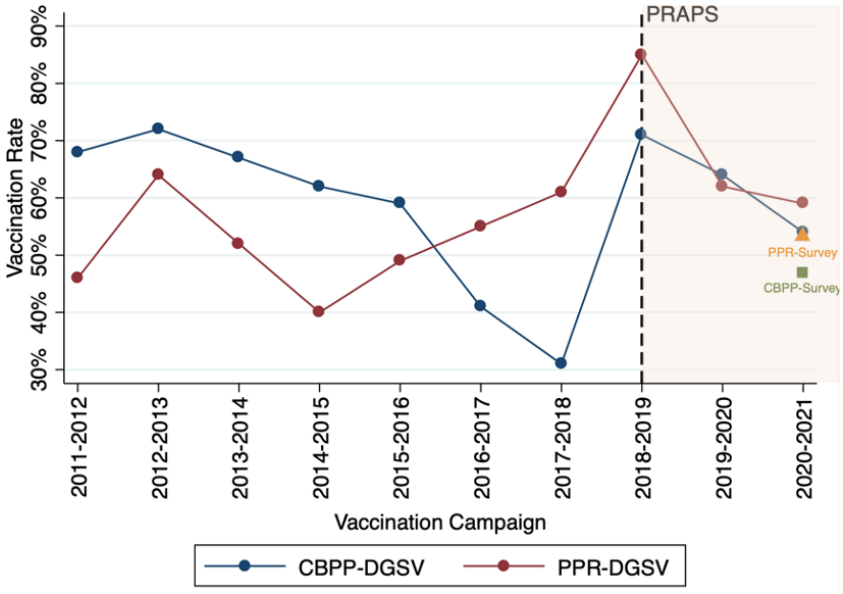
health services in these regions is fragmented and requires covering long distances to reach livestock keepers in these remote areas. Lack of key infrastructures, such as clinics and medical facilities, and transportation have also affected the delivery of medical help and vaccinations. Moreover, the mobility of transhumant pastoralists exposes healthy animals to new viruses upon their arrival or introduces infected animals to disease-free areas, thus exacerbating the transboundary disease burden (Sherman, 2017; Apolloni, et al., 2018; Bouslikhane, 2015).

5.3.4 PRAPS Contribution-To-Date

5.3.4.1. Evolution of Vaccination Rates & Immunity

While the vaccination rates have decreased over last three campaigns under PRAPS, the rates are generally higher than before MCC's involvement. Figure 26 shows vaccination rates from 2011 to 2021.[34] The 2018-2019 vaccination campaign was the first to be funded under the PRAPS activity, when the vaccination rate increased from 31% to 71% for CBPP and from 61% to 85% for PPR in that year. For the last campaign, 2020-2021, the DGSV-reported vaccination rate for CBPP was 54% and for PPR was 59%. According to the AH survey findings, vaccination coverage during the 2020-21 campaign for CBPP was 47% and for PPR was 52%. The lower estimates according to the AH survey is because while the survey was conducted in April, the vaccination campaign was later extended to May end.[35] The vaccination coverage is the proportion of vaccinated animals in each population during a vaccination campaign. But this population should exclude all animals which are not eligible to vaccination, like sick animals and young animals having maternal antibodies (under 3 months for small ruminants and under 6 months for bovine).

Figure 26: Vaccination Rates reported by the DGSV and the Survey



[34] Vaccination coverage for 2011-2016 were provided by MCC, and the vaccination rates for following years are from DGSV's Rapport Final De La Campagne De Vaccination 2016-2017, 2017-2018, 2018-2019, 2019-2020, and 2020-2021.

[35] For the calculation of the vaccination coverage of the 2020-21 campaign, the vaccines received by animals since Jan 31, 2021, were counted. This is because this is the official start date for the third vaccination campaign.

Prior to the PRAPS Activity, the vaccination campaign was funded by the livestock owners with some support from the government, and this reliance on smaller financing from various donors reportedly led to frequent fluctuation of the vaccinations rates. To this end, MCC guaranteed financing for 3 campaigns from 2018 to 2021. MCC also drafted and suggested a vaccination fund to reduce uncertainties by removing GoN's financial dependency on donors in future. However, a decree to finance such the envisaged fund has been delayed.

Despite the PRAPS implementation, the vaccination rates have not been able to reach the target of 80%, even after reached 71% for CBPP and 85% for PPR in the 2018-2019 campaign. The fall in vaccination coverage rates since the 2018-19 campaign may have been due to a combination of reasons. Due to Covid-19, the 2019-2020 campaign was shut down 1 month earlier as a result of government mandate. Moreover, security issues continue to be a problem in the region, particularly along Niger's border in the south[36]. This may have had an impact on both the ability to conduct vaccination camps in certain areas, and the ability of pastoralists to travel to the camps to get their animals vaccinated. However, due to the unavailability of adequate data to ascertain causality, it is currently not possible to either confirm or deny any potential effect of security issues on falling livestock vaccination coverage rates. Lastly, there have been long administrative procedural delays in vaccine procurement, as reported by MCC.

Another factor which may have a bearing on the vaccination coverage rate is the way it is calculated by DGSV. The vaccination coverage rate is calculated as the ratio of the animals vaccinated and the "Eligible Numbers" of the year for each disease. "Eligible Numbers" is the number of animals targeted to be vaccinated by DGSV each year for each species. Based on the total number of animals of each species in the year, DGSV applies a coefficient that eliminates categories not eligible for vaccination (all cattle with an age of less than 6 months are not affected by vaccination against CBPP, and less than 3 months for small ruminants against PPR). For instance, if the goal is to vaccinate 10,000 cattle in 2020-2021 against CBPP and there were 6,500, cattle vaccinated, then vaccination coverage rate is 6500/10000 = 65%.

Table 22: Regional Vaccination Rates against CBPP for Cattle and against PPR for Sheep and Goats

	Cattle	Sheep	Goat
Dosso	34%	56%	42%
Maradi	67%	40%	33%
Tahoua	84%	87%	85%
Tillabéri	42%	48%	47%

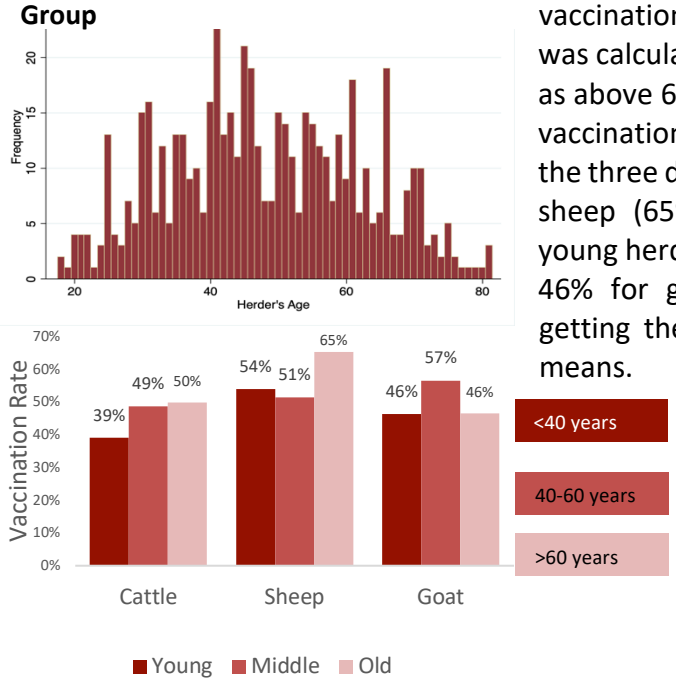
Source: AH baseline survey

Tahoua is the only region to report an 80% targeted vaccination rate for all animals. While Tahoua was comfortably above the OIE suggested vaccination rate of 80%, no other region even came close. Dosso had the lowest vaccination coverage among cattle, with only 34% of cattle

[36] Publicly available data suggests that primarily security related problems are in Tillabéri and Diffa, and to a lesser extent in Tahoua.

vaccinated against CBPP. Maradi had the lowest vaccination rate against PPR, with 40% of the sheep and 33% of goats reportedly being vaccinated.

Figure 27: Distribution of Herder Age in Sample and Vaccination Rate by Age Group



Older herders have similar rates of access to vaccination in comparison to younger ones. The vaccination rate for the three different age groups was calculated. The results show that old (defined as above 60 years of age) herders had the highest vaccination rates under PRAPS programs among the three different age groups for cattle (50%) and sheep (65%). The low vaccination rate among young herders (39% for cattle, 54% for sheep, and 46% for goats) may also mean that they are getting their livestock vaccinated through other means.

5.3.4.2. Evolution of Mortality and Morbidity Rates

The mortality rate is highest among sheep and goats as compared to cattle. According to the survey, mortality rates for the year 2020 among goats and sheep were 8.7% and 9.7%, respectively, while it was only 5.4% for cattle. A decrease in mortality rate from 2020 to the first three months in 2021 was also observed. However, the conclusion regarding trends in mortality rate cannot be drawn based on this observation since animal mortality is usually relatively low from January to March. Mortality rates in Niger start increasing in April, reaching a peak in July and decreasing again by September for cattle. Among sheep, there are two peaks observed, one in June and one in September, and for goats, a peak in March was observed (Ministry of Agriculture and Livestock, Niger, 2019). According to World Organization for Animal Health (OIE), during the last notified outbreak of PPR, a mortality rate of 6.8%, a morbidity rate of 6% were recorded. Similarly, a mortality rate of 8.5% and a morbidity rate of 20.5% were recorded during the last CBPP outbreak.

Table 23: Mortality Rates in Cattle due to CBPP and in Sheep and Goats due to PPR

	Cattle	Sheep	Goat

	Jan-Mar, 2021	2020	Jan-Mar, 2021	2020	Jan-Mar, 2021	2020
Total	0.4%	0.5%	0.32%	2.43%	0.7%	1.34%
Dosso	0	0.47%	8.3%	5.3%	2.23%	1.5%
Maradi	0.66%	0	1.13%	0	0.21%	0
Tahoua	1.57%	1.18%	2.46%	4.9%	0.27%	1.5%
Tillabéri	0.42%	0.69%	0.75%	1.18%	0.15%	0.17%

Source: AH baseline survey

Data suggests a prevalence of PPR in the Dosso region. According to the survey, the mortality rate due to PPR was significantly higher in Dosso in 2020 and increased further for 3 months of 2021. Mortality rates due to PPR among sheep in Dosso rose from 5.3% in 2020 to 8.3% in the first 3 months of 2021; among goats, the rate increased from 1.5% in 2020 to 2.23% in the first 3 months of 2021. The mortality rate was also relatively high in Tahoua for all animals.

Table 24: Overall Morbidity Rates

	Cattle	Sheep	Goat
The morbidity rate for all diseases in the first 3 months of 2021	7.9%	7%	8.5%
The morbidity rate for PPR or CBPP for the first 3 months of 2021	1.45%	1.62%	1.1%

Source: AH baseline survey

Other diseases besides CBPP and PPR are also responsible for morbidity among livestock animals. The morbidity rate in the sample due to all diseases ranged between 7% to 8.5% among the 3 groups of animals. For comparison, the morbidity rate due to CBPP in cattle was at 1.45%, and the morbidity rates due to PPR in sheep and goats were at 1.62% and 1.1%, respectively. This points to the need to control other prevalent diseases to reduce livestock morbidity rates in Niger.

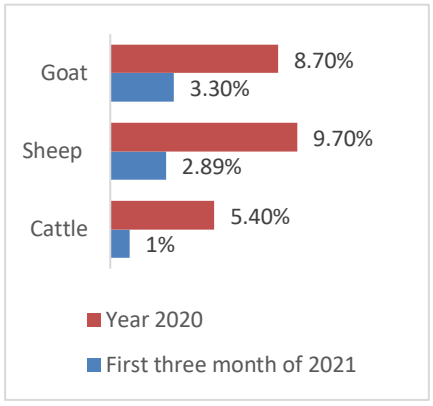
Table 25: Morbidity Rate in Cattle due to CBPP and in Sheep and Goats due to PPR by Region in first 3 months of 2021

Region	Cattle	Sheep	Goat
Dosso	0	3.1%	9.87%
Maradi	2.86%	1.4%	1.16%
Tahoua	2.4%	0.82%	0.81%
Tillabéri	1.8%	1.1%	0.73%

Source: AH baseline survey

Dosso has the highest morbidity rates among small ruminants. The morbidity rate in Dosso among sheep and goats was 3.1% and 9.87%, respectively. As discussed earlier, a potential reason may be a PPR outbreak in the region. Morbidity rates are usually higher among cattle. Maradi (2.86%) and Tahoua (2.4%) had a high morbidity rate for cattle.

Figure 28: Mortality Rate



5.3.4.3. Seromonitoring by LABOCEL

The seromonitoring surveys conducted in the 6 PRAPS member countries (Burkina Faso, Mauritania, Mali, Niger, Senegal and Chad) are based on sampling plans tailored specifically for each of the member countries by CIRAD on behalf of PRAPS Regional Coordination Team based in Bamako. These plans have been validated in a regional workshop organized for this purpose, in Senegal in March 2019. In the case of CBPP, seromonitoring is a tool used to measure the progressive reduction of the prevalence rate of CBPP infected herds. An infected herd is a herd comprising of at least one infected animal. In the case of PPR, seromonitoring is used to measure the progressive increase of the post-vaccination serological prevalence rate in the general population, as a result of a vaccination campaign. For both CBPP and PPR, seromonitoring is also used to measure the seroconversion rate in vaccinated animals. In that case, the serology is done before and after vaccination on the same individuals through a longitudinal study.

The serological test used for the detection of antibodies in the collected sera is **the Competition ELISA (cELISA),** using monoclonal antibodies. This cELISA is one of the two serological tests recommended by OIE World Animal Health Organization) for this purpose. The second one is the Complement Fixation Technique (CFT). cELISA has the same sensitivity as CFT (both 63.8%), but cELISA is slightly more accurate than CFT (99.9% for cELISA versus 98% for CFT). cELISA is technically easier to perform, mainly when dealing with large samples of animals.

LABOCEL carried out 3 rounds of seromonitoring on behalf of the AH sub-activity for CBPP, and the promised results of this effort are awaited. This survey is based on a sampling plan developed with technical support from CIRAD for each of the six PRAPS countries and validated in a regional workshop held on 18th and 19th March 2019 in Saly Portudal Senegal. The serological test used for the analysis follows cELISA, which the OIE recommends for the serological diagnosis of CBPP. The methodology of seromonitoring used by the LABOCEL can be considered reliable. Seromonitoring measures the prevalence rate of CBPP and PPR, as well as the seroconversion rate for the two targeted diseases. LABOCEL was responsible for vaccine quality control during the annual vaccination campaigns, and their assessment report is awaited. Reportedly, they have been monitoring the quality of vaccines in the field, consisting of taking

samples (vials) throughout the distribution chain and verifying the number of microbial organisms in the sample and their sterility. This makes it possible to assess the storage conditions of the vaccines. A failure of the capacity of the cold chain or improper storage practices logically leads to a reduction in the quality and effectiveness of the vaccine.

If vaccination is the main available and applicable intervention against CBPP, then it must be recognized that it may not be sufficient to overcome the disease. CBPP is not rinderpest (RP), the only animal disease eradicated to date by vaccination. In the Sahel countries, vaccination against CBPP has always accompanied vaccination against RP over several decades; while RP has disappeared, CBPP persists. The reason lies in the low immunogenicity of the vaccines available to date (the duration of post-vaccine immunity is 3-6 months). This has led to a loss of confidence on the part of farmers in this vaccination and the use of antibiotics for curative treatments, which improve the animal's condition without ensuring its microbiological cure. Thus, all the countries that have eliminated CBPP have had to resort to sanitary slaughtering (i.e., eliminating the sick) as the only strategy or in combination with vaccination. Raising awareness among farmers to get them to remove cattle with CBPP from their herds under certain conditions is certainly worth trying, in combination with CBPP vaccination.

The assessment of CBPP vaccination by serology alone might be unreliable given the kinetics of the antibodies. This is because these antibodies may sometimes not appear in all the vaccinated animals, and these also disappear after 3 months in animals where they do appear. This means that the absence of antibodies in animals more than 3 months after vaccination is not necessarily indicative of poor/ineffective vaccines. It could also be a good sign implying the absence of CBPP. But this finding deserves to be confirmed by the absence of CBPP outbreaks in the field through follow-up data collection. The recommendation is that serology should be accompanied by the search for CBPP via clinical cases at the end of each vaccination campaign, especially since CBPP is a disease that the farmers can easily recognize.

5.3.4.4. Training of SVPPs, AEs, and AVA/PRs

VSF-Belgium was given the responsibility of undertaking the training of veterinarians, AEs, and AVA/PRs. They first carried out a diagnostic study on the pre-training situation of the SVPPs in the 4 regions covered by MCA-Niger, particularly to clearly understand training needs. VSF-Belgium implemented the 12 new SVPPs and strengthened the 16 old SVPP. Each SVPP covers a department and relies for its activities on a network of 30 livestock AEs and village leaders for poultry farming and small ruminants (AVA/PR). The training courses targeted the AEs and AVA/PRs and were based on 10 modules validated by the national veterinary services, including module 5 dedicated to livestock vaccination. Four additional modules were taught to private veterinary doctors, which covered topics such as running a business, taxation, epidemiology, and clinical aspects (such as animal surgery).

The Contents of the trainings delivered under the PRAPS Activity
The content of the trainings carried out by VSF-B on behalf of MCC-Niger are made of 10 modules validated by Niger Veterinary Services:

- Role, functions, and intervention domains of community animal health workers
- Basic animal health concepts
- Parasites and basic concepts on parasite life cycles
- The main diseases of domestic animals, their diagnosis, prevention and treatment
- Vaccination practice under supervision of a veterinarian
- Poultry farming
- Strategic feed supplementation
- Herd management
- Guidelines for awareness raising on animal health and strategic feeding during lean periods
- Management of the Activity of a community animal health worker.

On the request of private veterinarians 4 additional modules have been delivered on the following:

- How to run a veterinary business
- Taxation
- Epidemiology
- Fairground surgery

5.3.5 PRAPS Implementation, Outputs and Short-term Outcomes on Animal Health

Implementation is at an advanced stage for the AH Sub-Activity in line with the Compact timeline of 2018 – 2023. There have been three rounds of national vaccination surveys – 2018-19, 2019-20, and 2020-21[37], consisting of PPCB vaccines for cattle and PPR vaccines for sheep and goats. Diagnostic studies were carried out on the issues related to animal health in the four regions, and veterinarians were recruited as SVPPs. Around 12 new SVPPs were created, and 16 existing ones were developed by VSF Belgium. Trainings targeting the AEs (primarily men and community animal health workers) and AVA/PRs (primarily women, conducting veterinary activities only on poultry and small ruminants) were carried out. To support the GoN on the sustainability commitment, MCA-Niger hired a consultant to conduct due diligence and provide recommendations related to the establishment of a Vaccination (or Animal Health) Fund. The due diligence commissioned by MCA-Niger led to the drafting of three legal texts (decrees and regulations) for the creation of the Vaccination Fund. The consensus among the different stakeholders and the GoN, as well as the approval from the Finance Ministry of Niger is pending.

MCC assisted the vaccination campaign through the procurement of the vaccines, which LABOCEL then stores. MCA-Niger has procured 60 million doses of vaccinations over 3 years and

[37] There were delays in the 2020-2021 vaccination campaign, which started in January and ended on March 31, 2021. The vaccination campaign was delayed for 2-3 weeks due to the pandemic, which might negatively affect the number of animals vaccinated. MCA-Niger also purchased pliers for marking the ears of petite ruminants to ensure better indication of the vaccination status of herds and improved documentation.

has funded 500 million FCFA worth of equipment to LABOCEL. Once the vaccines are delivered and signed for, GoN dispatches the vaccines to each region and administers the vaccination. After that, each region draws up a campaign plan along with the needs for any financial resources. The selection of vaccination parks for the year is made by the Ministry of Agriculture and Livestock/ MAGEL. Reportedly, vaccination at a specific park continues only as long as it is possible to do so under the sun, and vaccination is stopped when it gets too hot. The vaccination team, which travels from one region to another to vaccinate animals, is made up of (i) the vaccinator (which was meant to be the AVA/PR in case of the small ruminants reared by women herders), (ii) the Contention agent (the one who holds the animal down as it is being vaccinated), and the (iii) the Labeling agent (the one who marks the animal). MCA-Niger undertakes refresher sessions each year with vaccination teams on how to vaccinate an animal. The SVPP pays the auxiliaries/assistant staff during the vaccination.

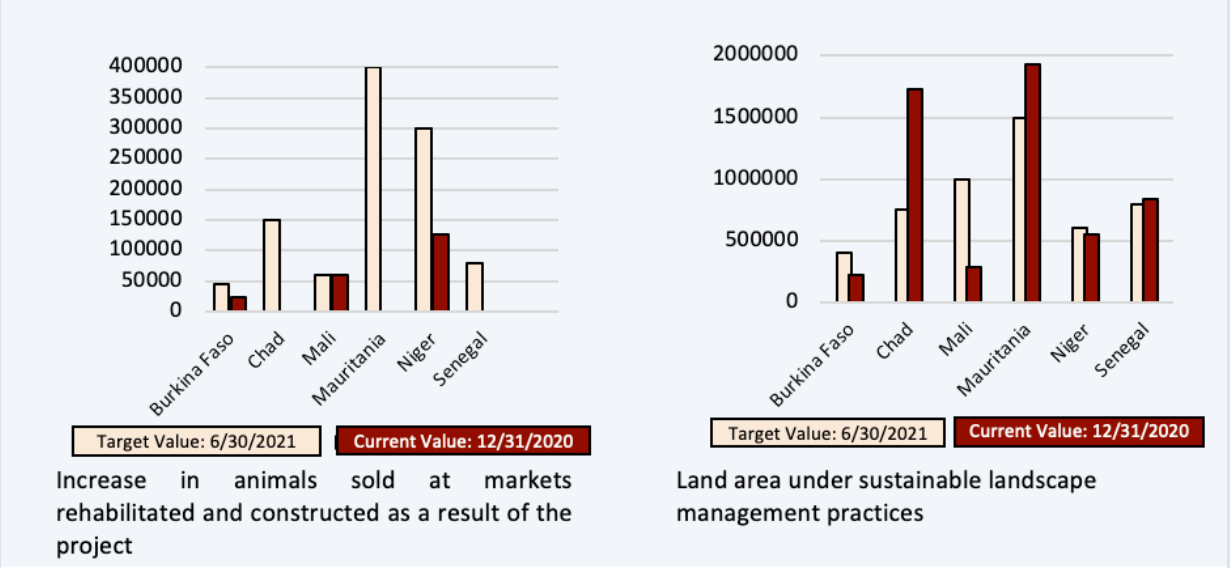
Twelve new private veterinarians or SVPPs have been selected and are undergoing a training cycle. The recruitment process was organized at the VSF-B office per the national guidelines for the implementation of the SVPP established by GoN in December 2015. Some of the new SVPPs are already operational; MCC has provided them with materials, equipment, car, and products. Sixteen existing SVPPs have also received material support. VSF has also trained AEs and AVA/PRs. There were 10 modules, including topics in animal health, herd management, and business management. VSF also recognized the need for retraining for former AEs; however, COVID-19 affected this activity.

The establishment of Vaccination (or Animal Health) Fund is awaiting the Ministry of Agriculture's consent before moving forward. The objective of the Fund would be to ensure the sustainability of the vaccination program beyond the Compact term. The Niger Compact mentions that GoN should produce evidence to MCC of an increased budget to implement interventions (key veterinary services and vaccination campaigns). The Fund will rely on a percentage of taxes collected through the livestock export-import sector to be earmarked and deposited for exclusive use in the vaccination of livestock.

COVID-19 has affected implementation, and the effectiveness of the AH interventions has suffered through falling vaccination coverage rates as mentioned earlier. According to the vaccination reports produced by the DGSV for MCC for the years 2018-19 and 2019-20, vaccination coverage rates have fallen from 95% to 89%. The 2020-21 vaccination campaign reports have not been published, but as per DGSV, the vaccination coverage rate for CBPP is 41% and for PPR, 36%. These are lower than the rates recorded via the AH survey undertaken for the baseline evaluation, which corresponds to 47% for CBPP and 52% for PPR. Therefore, there has been a steady decline in vaccination coverage, which can be largely connected to the ongoing pandemic. In addition, COVID-19 may have affected the attendance at the veterinary training since only 50% of the interviewed veterinarians/SVPPs and AEs attended. The AVA/PRs, who are primarily women, also reported an absence from the training to fulfill their household duties or due to social restrictions on women related to traveling alone or due to the pandemic.

In summary, the planned outputs for the AH sub-activity have been partially achieved, but the short-term outcome has not materialized. The output of "Health infrastructure upgraded, and veterinary capacities strengthened" has been achieved, with the aforementioned creation and development of the SVPPs and the trainings of the AEs and AVA/PRs. However, there is the need for follow-up trainings, while ensuring maximum attendance rates. The second output of "Animal diseases control and surveillance system is supported" has not been achieved. The vaccination coverage rate for both CBPP and PPR has gone down compared to the last two vaccination campaigns, and qualitative data and literature suggest that other livestock diseases are rampant and need addressing to ensure wholesome results in animal disease control. The short-term outcome connected to the AH sub-activity, namely, "Improved animal health for bovines and small ruminants," has not been achieved due to falling vaccination coverage and other livestock diseases affecting animal health. In this regard, systematic data collection on disease incidence and immunity against key diseases would be helpful. With regard to immunity against CBPP and PPR, the findings of the LABOCEL's seromonitoring efforts (report pending) could play a key role in monitoring improvements at the regional and country level.

Figure 29: PRAPS Implementation Progress in Other Countries by World Bank



Source: World Bank

The World Bank is supporting PRAPS Activity in multiple countries in the SAHEL region. Figure 29 shows the level of progress made in the NRME and MAF sub-activity as compared to their target level. Progress made in NRME is estimated using the land area under sustainable landscape management practices. Chad, Mauritania, and Senegal have exceeded the target value set for the NRME sub-activity. There has been relatively less progress made in the MAF sub-activity which is estimated using the increase in animals sold at markets rehabilitated and constructed because of the project. Countries like Chad, Mauritania, and Senegal, which exceeded the target for NRME, had no progress in this sub-activity.

5.4. Progress Made on Market Access Facilitation Sub-Activity & Feedback from Market Participants

5.4.1 Progress So Far

Under the MAF sub-activity, feasibility studies and pilot studies have been carried out to plan specific interventions.[38] Four pilot studies were completed in April 2019 to estimate the effectiveness of the potential market management interventions in raising the selling price of livestock.[39] These interventions include disseminating livestock price information among herders, disseminating animals' weights prior to sales, enhancing the market coordination and negotiation skills of herders, and privatizing the management structure of livestock markets. Based on the study, the interventions and the implementation plan for the MAF sub-activity will be finalized. The aim is to rehabilitate 18 markets spread across Lot 1 (Dosso and Tillabéri) and Lot 2 (Maradi and Tahoua). MCA-Niger hired a consultant to carry out technical feasibility studies, socio-economic and environmental studies, architectural and technical design, and the development of detailed technical files for the construction of 11 livestock markets in Lot 1. This will span across nine departments in the two regions and began in 2019-2020; however, study progress has been delayed due to the COVID-19 pandemic. In April 2021, MCC stated that the tender documents for construction were expected to be completed by July 2021. Due to the slow progress, MCC's management has decided upon a 1-year extension due to COVID.

5.4.2 Perception of the PRAPS Activity

About 50% of the market managers/leaders in KIIs were reportedly aware of the PRAPS Activity, and that implementation will occur in the future. The market leader from Guidan Roumji mentioned that the construction of a bureau for herders, banks, and showers for animals had taken place. Similarly, for Tabalak, the market leader reported that half of the marketplace's construction had been completed. However, market rehabilitation under MCC-PRAPS has not begun and is currently in the study/feasibility phase. Therefore, the reported constructions could have been undertaken by the local government. A second opinion received from MCA-Niger is that the construction is done under the World Bank PRAPS implementation. On the other hand, the Maradi Com market is reportedly in the study phase of rehabilitation. The market leader from Ibohamane stated that the site for the new market had been chosen, and construction is yet to occur.

[38] As per the PRAPS program logic, 22 markets were prioritized by the Ministry of Agriculture and Livestock for modernization in the four regions under MCC funding which were selected from an inventory of current market infrastructure and livestock trade flows. Now, however, four of them have been dropped due to security concerns, and interventions will be targeted for up to 18 marketplaces. Three additional sites were pre-selected to potentially develop milk collection centers. Each of these markets and centers were to be evaluated through feasibility studies to determine their eligibility for rehabilitation. However, the milk collection centers will no longer be developed due to a lack of evidence on their impact on productivity.

[39] In September 2018, MCC designated Cultivating New Frontiers in Agriculture (CNFA) to provide agricultural and livestock assessment services to evaluate different types of complementary investments that will modernize the livestock markets in Niger.

Market managers/leaders recommended forming management committees to ensure the sustainability of the market and amenities after the project is complete. The proposals to ensure the collection of revenue after the PRAPS Activity is completed varied by region. The plans ranged from depending on the intermediaries and tax collectors to set up a financial manual, improved monitoring, and greater sensitization of the market participants. There were also suggestions regarding setting up a committee that would collaborate with the commune on the agreement on best managing the market. All market leaders expect changes in the management structure of markets in the future. Most of them are unsure how the change will occur, but they predict higher transparency and increased involvement of market participants.

Most market participants and market management/leaders think that the PRAPS implementation will lead to an increase in revenues. About 75% of the market participants in Maradi believe that the PRAPS intervention will facilitate market activities leading to more sales. Around 78% of market participants in Tahoua believe that there will be an increase in revenue; half of them believe it will be due to better security and infrastructure, while the other half believe that it will be motivated by the increase in buyers from surrounding villages. About 50% of market participants in Dosso expect to have more space to conduct activities and sell livestock. The market leaders envision increased revenue, space, and security as the primary advantages of the PRAPS activities. Overall, they anticipate these factors to lead to better management of the market activities.

Livestock sellers (i.e., not the pastoralists) are perceived to be the primary beneficiary of the MAF sub-activity. Most market leaders have the perception that the improvement of market conditions and better infrastructure will have the highest effect on the livestock sellers operating in the marketplaces because it directly affects their ability to conduct business. However, there are a few exceptions to this. The market leader of Ibohamane believes that the municipality, manager, and intermediaries will be most positively affected by the market rehabilitation. Market leaders from the Maradi region also expect the benefits to sellers of veterinary products and sellers of animal feed.

5.5. Progress Made on Natural Resource Management Enhancement Sub-Activity & Feedback from Community Members, Local Governance, and Herders

5.5.1 Progress So Far

The NRME sub-activity is in the initial stages of implementation.[40] The NRME interventions will be implemented in four International Transhumance Corridors (identified by the Rural Code) – two in the regions of Dosso and Tillabéri and two in Maradi and Tahoua. Following a period of consultation with the community members, representatives, and key stakeholders, the signing of social accords with community members has been ongoing in these corridors. The four pilot social accords delivered for Lot 1 were not aligned with MCC requirements. Based on MCC and MCA-Niger's guidance, the social accords are now being signed in accordance with IFC performance standards. The pilot consultations for the communes in Lot 2 have been delayed due to the COVID-19 pandemic. The main interventions under the NRME sub-activity will include demarcation of international transhumance livestock corridors and pasture lands by laying tags; land recovery by digging half-moon ditches and controlling invasive plants; and de-sanding of water bodies along the livestock corridor.

The NRME sub-activity has made some progress, with studies completed for Tillabéri and Dosso. For Tahoua and Maradi, studies on the state of corridors as well as the resources along with it were expected to be finished by the end of July 2021. Construction work will start a few months after the studies are over. The studies conducted include a corridor right-of-way assessment. Studies initiated across the corridors take stock of places, fields, obstructions, beacons, etc. There is also a focus on ensuring food supply along the corridor. Studies have encompassed stock of the situation over 3-5 km pastures, ponds, water points along the corridors. The next step in the process will be land reclamation, marking, and drilling.

5.5.2 Expected Benefits of PRAPS

Local governance and community members and herders expect fewer conflicts to be a key outcome of the PRAPS activity. Around 42% of local government members mentioned fewer conflicts as the future positive result of the NRME sub-activity. About 38% of the community members and 49% of herders report a lesser number of conflicts as the benefit to be reaped from rehabilitating water bodies, rest areas, and pasture lands. Around 64% of community members and 74% of herders stated a decrease in conflicts to be the main advantage of the demarcation of transhumance corridors, a key intervention of the NRME sub-activity. Both factions involved in conflicts suffer its consequence and look forward to its resolution.

Community members and herders expect agricultural output to increase, along with improved water resources and pasture lands. About 53% of community members expect more production and increased output from farming and more security for their agrarian stocks. Around 41% of

[40] Social Agreements have been signed in the NRME Sub-activity. See Annex for further details.

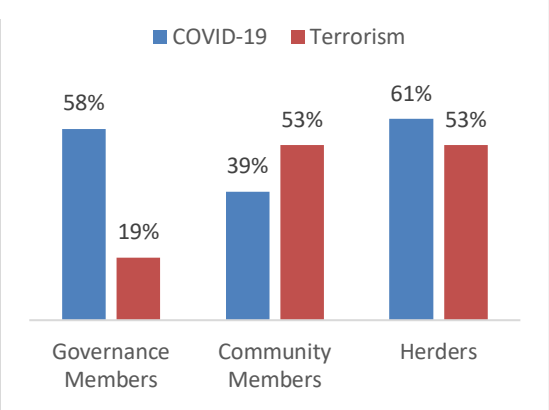
herders stated that they expect increased access to water and pasture lands resources after the PRAPS implementation. Other expected benefits include more effortless and comfortable travel along the corridors. Some respondents also expect an increase in trade activities.

Local governance and community members think that farmers will be the primary beneficiaries of the PRAPS activity, whereas herders believe that transhumance pastoralists will benefit the most. PRAPS activity aims to demarcate the corridors and sensitize herders to stay within the assigned boundaries of the livestock corridors, to avoid/minimize violation of farmers' fields, and lead to increased outputs. Since less conflict is expected, herders stated that they would benefit from fewer altercations with farmers, along with a well-developed livestock corridor.

Figure 30: Who will benefit from the PRAPS activity?

Governance Members	Community Members	Herders
•Farmers and Sellers of agricultural residue (48%) •Herders (29%) •Everyone (13%) •No one (7%) •Community (3%)	•Farmers (45%) •Community (41%) •Transhumance Herders (10%) •Sedantary Herders (4%)	•Transhumance Herders (41%) •Community (41%) •All herders (15%) •Sedantary Herders (3%)

Figure 31: Expected Impact of COVID-19 or Terrorism on PRAPS Implementation



5.6. The Gender Perspective

Compared to men, women have smaller herds and primarily own small ruminants rather than cattle. This finding of the survey is in agreement with the trends of Niger's livestock sector, where the rearing and ownership of cattle is mostly a man's responsibility, and women mostly rear small ruminants. In the survey, about 78% of male respondents own cattle compared to 29% of the female respondents. In addition, women have approximately 4 animals per herd while men have around 10 animals per herd. About 83% of women reported having a goat, compared to 65% of men.

Figure 32: Herd Sizes and Types of Animals owned

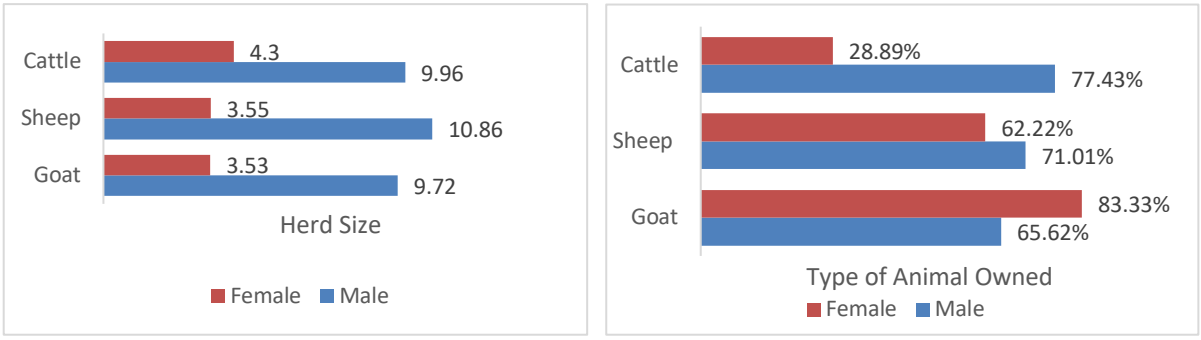


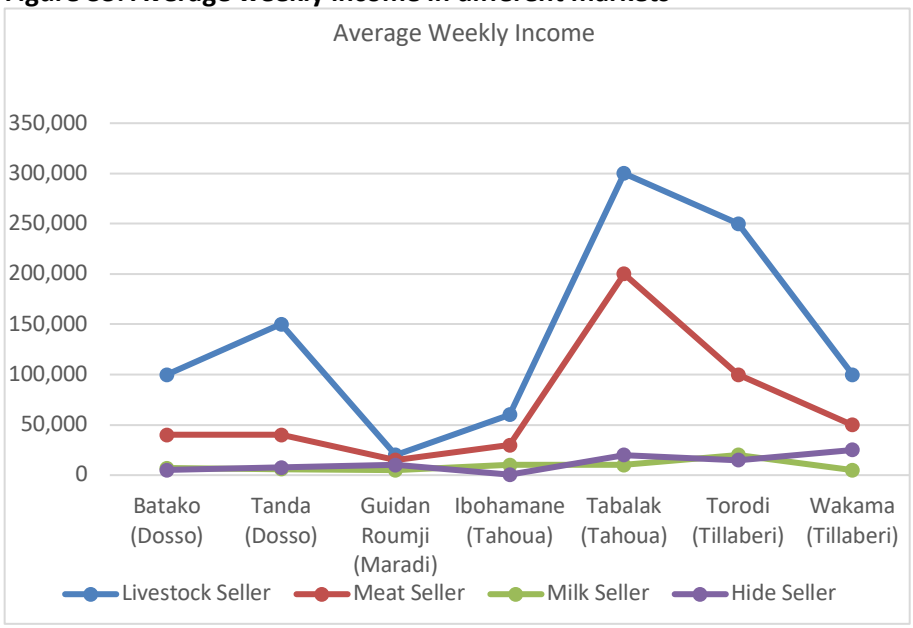
Table 26: Average Monthly Income and Average Profit by Selling Livestock

	Average Monthly Income	Average Profits (Cattle)	Average Profits (Sheep)	Average Profits (Goats)
Female	26,373	7,082	5,387	1,968
Male	159,770	67,364	14,999	4,378

Source: AH baseline survey

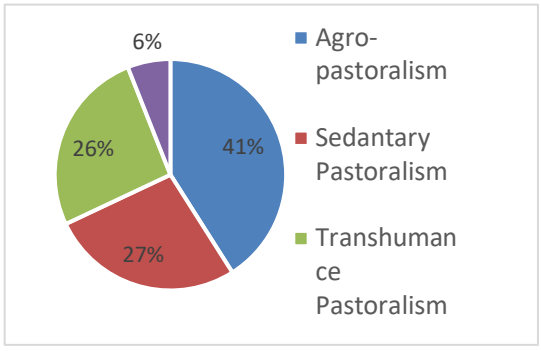
Female herders earn considerably lower average income than male herders. In the survey, women herders had an average monthly income of 26,373 FCFA compared to an average monthly income of 159,770 FCFA earned by men by selling animals. The low income stems from two causes. First, women make a lower profit by selling an animal than men. The biggest difference was observed in the sale of cattle, where a male herder earned on average 67,364 FCFA by selling cattle, women herder only earned an average of 7,082 FCFA by selling cattle. Second, women own and sell more small ruminants than cattle, and profit margins are lower for small ruminants.

Figure 33: Average weekly income in different markets



Sellers of live animals have the highest average income in all four regions[41] and they are primarily men. This also impacts the gender-based distribution of income among different market participants. Women were found to be selling milk in these markets, which has the lowest earning in the markets. Livestock and meat sellers based in the Tabalak market in Tahoua report the highest average incomes. Among milk sellers, the ones in the Torodi market in Tillabéri earn the highest average income. Among the hide sellers, the ones based in the Wakama market in Tillabéri earn the highest average income. Livestock, meat, and milk sellers in the Guidan Roumji market in Maradi earned the lowest average income. A significant regional difference is also noticed; for instance, among the two markets in Tahoua, one had the highest income while the other had the second-lowest income.

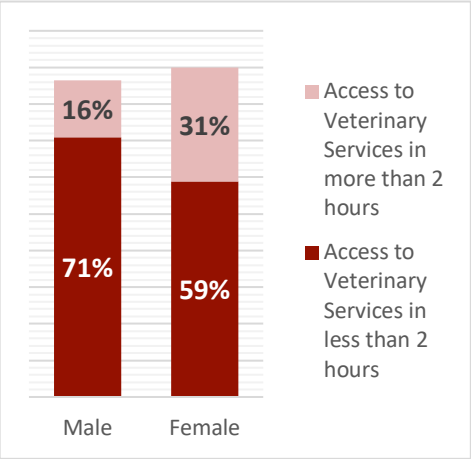
Figure 34: Female Herders: Source of Income



Female herders have low levels of education and commonly practice agro-pastoralism. The female respondents' primary source of livelihood is agro-pastoralism (41%), sedentary pastoralism (27%), and transhumance pastoralism (26%). About 77% of all female respondents did not receive any education, 5.5% finished primary education, 3.3% completed secondary education, and 1.1% acquired more than secondary education. About 12% of the respondents underwent Quranic studies or alphabetization school. In the survey, of which 13.5% were women, over 50% of the female respondents are the heads of the household, and over 80% of the female-headed households also reported the female head as the primary income earner.

[41] The corresponding figure is based on KII with market leader; market leader from Maradi com market did not have this information.

Figure 35: Gender and Access to Veterinary Services



While female herders in the survey have higher access to veterinary services, male herders can access these services in relatively less time and use these services more often than women herders. About 90% and 86% of women and men herders, respectively, stated that they had access to veterinary services. However, about 59% and 71% of female and male herders, respectively, can access these services within 2 hours. Of the herders who have access to veterinary services, 23% and 42% of women and men herders use veterinary services at least twice a year. Women (89%) have higher access to extension services than men (69%). Women (97%) also have higher access to veterinary medicines than men (95%).

More female herders reported vaccinating their animals against PPR than male herders. About 64% and 60% of women herder vaccinated their sheep and goat against PPR, respectively. In comparison, 55% and 44% of male herders got their sheep and goat vaccinated, respectively. Around 53% of sheep were vaccinated, with the rate the same for both genders. About 48% of goats with female herders got vaccinated, while 50% of goats with male herders got vaccinated. This may imply that female herders who are not vaccinating their animals must have larger herds. There is scope to study the access to vaccination for remote-based women with large herds. Only 35% of women herders got their cattle vaccinated, as compared to 51% male herders. The vaccination rate for cattle with female owners was meager at 25%.

Table 27: Gender Gap in Vaccination

		Women	Men
Sheep	% Herders vaccinating	64%	55%
	% Animals vaccinated	53%	53%
Goats	% Herders vaccinating	60%	44%
	% Animals vaccinated	48%	50%
Cattle	% Herders vaccinating	35%	51%
	% Animals vaccinated	25%	47%

Source: AH baseline survey

Women are often restricted from working as veterinarians or AEs due to family responsibilities, taboos, and socio-cultural blockages. The Dosso and Tillabéri regions have no women veterinarians, and women AEs are rare. In Dosso, a veterinarian claimed that he does not work with women as "they don't do the job like a man does." In Tillabéri, gender inequality is exacerbated due to insecurity issues. A male AE interviewed from the region stated that the area is not safe for travel, and they prefer to "protect women." In the region of Maradi, there is one woman veterinarian who was interviewed. She works with only one AVA/PR, to treat small ruminants and poultry. She stated that she does not encounter any reluctance from the breeders in seeking her help, nor any significant problems in carrying out her tasks. Tahoua, meanwhile,

has relatively more women in the sector. According to a veterinarian who was interviewed, only 30% of the AVA/PRs in his commune treat small ruminants, and the rest treat poultry. Whereas other big livestock animals are taken care of primarily by men. The participation of women is limited in the AH sub-activity and the PRAPS project, as well as the livestock sector in general. For instance, there was only 1 woman among the 8 veterinarians interviewed, and she reported that she was not involved in the PRAPS training.

Most AVA/PRs are women, and many no longer work or conduct fieldwork due to their household or familial responsibilities. Some of these AVA/PRs reported having received training. The AVA/PRs engaged via KIIs stated that a heavy load of household chores and caring for husband and children leave women with no time to work as an AVA/PR. The job often requires them to travel on motorbikes to remote areas, which is heavily frowned upon in the region. Wives of breeders often rear small animals like chickens. In some parts of Tillabéri and Dosso, breeders are biased against male AEs treating their wives' animals, which also leads to animal health being neglected, and increased mortality and morbidity. This social norm is reportedly changing and is now limited to Peulh breeders.

The livestock market participants are predominantly male, and females usually sell products like water, food, milk, and animal feed. Most of the market managers/leaders in the 8 markets across Dosso, Maradi, Tahoua, and Tillabéri reported that the markets are safe for women to conduct their business. The only exemption is the market leader from Wakama (Tillabéri), who stated that the market is not safe for women and there has been no effort to improve or guarantee the safety of women conducting their businesses there. Market leaders are of the opinion that women will earn higher revenue compared to their current ones after the completion of the PRAPS program. Apart from higher revenues, other benefits will include better security, secure toilets, and a stocking area for their produce.

Lack of functional toilets is especially challenging for women market participants. A woman market participant from Dosso stated that she does not feel safe using toilets in the market though there are toilets in the market. Among all market participants in Guidan Roumji (Maradi), one person reported that the toilets are safe for women and youth. All the respondents in Ibohamane (Tahoua) stated that there are no toilets in the market and the closest ones are dangerous for young people and women. All the respondents in both markets in Tillabéri reported no toilets in or around the marketplace, forcing them to use the woods around the marketplace.

According to the community members along the transhumance corridors in the 4 regions, female farmers face economic losses due to transhumance activities. Around 46% of the community members interviewed stated that women face difficulties since transhumance herders, typically men, prevent them from getting water from wells and often damage their fields. This was observed in particular amongst the respondents in the region of Tahoua. There were no women interviewees among the community members; therefore, there may be a possible

underestimation of the actual scale of the challenges faced by women farmers and community members in the region.

The PRAPS Activity implementation can increase access to water for female community members and improve commerce and trade activity. About 43% of the respondents obtain water from ponds and natural water sources, which can sometimes become difficult given the possibility of conflict with transhumance pastoralists. Therefore, the development of water sources and separation of water bodies for farmers and herders would benefit both parties, as was suggested by the community members and herders interviewed. This will particularly benefit women since they are mainly responsible for fetching water, both for household consumption and small-scale cultivation purposes. Women can run their farms and businesses more profitably with fewer threats to their safety.

Figure 36: Women getting water from a well in Niger

Source: A2F Consulting

5.7. Feedback on the Training of the Veterinarians and Auxiliaries

Half of the interviewed veterinarians/SVPPs and AEs attended training under PRAPS. For the veterinarians, the selection for training included submitting an application followed by a physical interview. The AEs were selected for the PRAPS training by their village committees. The veterinarian training comprised vaccination campaign management, gender and social inclusion awareness, better business management, animal treatment techniques, animal waste management, etc. The AE training included managing a vaccination campaign, sale of pharmaceuticals, and treatment of certain diseases.

All 4 veterinarian attendees found the training to be helpful, especially in the management of their clinic. The training included topics such as auxiliary management, stock sheet, payment sheet, invoice management, customer service, etc. Two of the participants are now treating more animals after the training. Other veterinarians have not seen an increase in patients yet, but they were contacted just 1 month after their training and remain optimistic for the future. All the veterinarians have altered the operations of their clinic post-training. They mentioned improving

customer reception and support and following better health-care practices such as using gloves and gowns. Management of the vaccination campaign and the pharmacies has also improved due to the training. There is better access to veterinary services for the herders now; however, most veterinarians do not believe this directly affects the training.

There were several challenges and scopes of improvement in the training. AEs reported that they were not covered for transportations costs. One AE stated lacking necessities such as breakfast and soaps, etc. In one center, few AEs fell sick due to malaria. COVID-19 also disrupted and postponed training. Some modules were longer than required for veterinarian training, while others, especially training in stock management tools that included learning software, were too short. During the KII, there was a complaint regarding the surgical techniques training as well.

Veterinarians, AEs, and AVA/PRs expressed the need for follow-up training. Most KII respondents expressed the need to be trained in better-equipped training centers, probably outside Niger, with a more advanced veterinarian sector. In addition, there is a need to acquire and train in high-performance equipment to develop better facilities in Niger. One respondent said that some veterinarians would be willing to contribute financially to this end. Going forward, some veterinarians wish to specialize in a field of surgery with future training. There was also the recommendation of a follow-up training on the modules covered here. Other suggestions included an in-depth analysis of common diseases treated in the centers and improving the treatment methods.

Veterinarians think that training on issues of livestock health will improve animal mortality and morbidity. By improving the quality of veterinary services and raising awareness, breeders' confidence in these services will increase; they will bring their animals to the clinics more often, reducing mortality and morbidity rates. AEs interviewed are also generally satisfied with the training received. New skills learned included better medicine sales practices, which helped increase incomes. In addition, the treatment of animals has improved and become more efficient due to the training. Lastly, participants were better equipped to manage the vaccination campaign.

Increased guidance and support for the veterinarians and AEs from the government could improve their ability to carry out their tasks, including traveling to remote areas for vaccinations and/or veterinary assistance. Discussions with the AEs revealed the general perception that greater involvement of the GoN could be beneficial for improving the livestock sector. However, there were no concrete suggestions from the respondents in this regard. Most respondents (veterinarians and AEs) reported that the government does not provide any assistance to them. For instance, it was reported that cash advances during the older vaccination campaigns (before 2019) could have helped AEs and veterinarians travel to the fields and carry out their tasks better. Another respondent reported that the agents at the breeding centers consider them as competitors instead of helping them. Greater awareness of the roles and responsibilities, including overlaps and complementarities between government agents, and

involvement of AEs and private entities involved in animal healthcare could lead to greater efficiency.

Other suggestions from veterinarians can be broadly divided into 3 categories: animal nutrition, vaccination, and support for veterinarians and auxiliaries. First, there is a need to provide animal feed, develop greenery for at least 8 to 9 months of the year so that the animals eat well, and arrange irrigation spaces with boreholes and other means of irrigation. The need for vaccines should be reviewed; 2 vaccines are not enough to keep animals healthy for a long time. There was a suggestion to allow LABOCEL to produce more vaccines. There is also a need for permanent skills development for vaccination teams and the provision of logistical materials. Finally, it is essential to make a veterinary school that can meet their realities and conditions. Capacity building, equipment, and transportation for AEs were also identified as necessary.

5.8. Potential Program Implementation Risks & Mitigation Measures

The PRAPS Activity implementation plan could be streamlined to ensure timely completion. The implementation of the PRAPS Activity in Niger has been slow. The Compact is in its third year of implementation, and the NRME and MAF sub-activities are yet to begin.[42] Security issues, particularly in the bordering regions, have been one of the contributing factors to delays. The ongoing pandemic has also contributed to the delays in implementation. Limited availability of quality local contractors who can tackle the feasibility studies and implementation efficiently, has also been reported as a potential reason for the delays. Therefore, an assessment of the planned interventions and their relevance/value added and streamlining the implementation accordingly could lead to timely completion.

The vaccination coverage rate has been declining over the course of the three annual vaccination campaigns under the MCA-Niger PRAPS Activity. According to the baseline AH survey findings, vaccination coverage for CBPP was 47% and PPR was 52%. For the last campaign, 2020-2021, the vaccination rate for CBPP was 54% and for PPR was 59%. These numbers are lower than the 80% target rate. Therefore, data suggests that vaccination coverage has been falling over the course of the three campaigns. As per the DGSV reports, the coverage rate for the 2018-19 campaign was 71% for CBPP and 85% for PPR; which dropped to 62% for CBPP and 59% for PPR in the 2019-20 campaign. Periodic data collection and monitoring of livestock disease outbreaks, vaccination coverage, and types of diseases covered, etc. could help improve the understanding of the key factors leading to these inefficiencies, to address them in the future.

The literature and the baseline findings suggest a structural shift in Niger's transhumance practices, which have potential implications for the NRME sub-activity implementation and its potential impact. Climate change, degrading soil quality, and growing agricultural lands have contributed towards a gradual shift towards agro-pastoralism. Poverty and droughts, coupled with the inability of some former transhumance pastoralists to replenish their herds, have led them to more towards sedentary pastoralism, as it requires a certain herd to make long-distance effort transhumance worth the trouble (Dyner, 2008). The shift towards agro-pastoralism is also reflected in the AH baseline survey data, with 50% of the sampled herders reporting agro-pastoralism as their main source of livelihood. Only about 22.5% of the sampled herders stated that they practiced transhumance pastoralism. Therefore, the evidence suggests that the relevance of the livestock corridor development interventions needs to be a reassessed before beginning any major construction work.

Greater focus on constructing/rehabilitating collection markets could lead to more direct benefits for pastoralists. As per program documents, the 18 markets to be reconstructed/rehabilitated under PRAPS, 11 will be consolidation/cluster markets, 6 will be export markets, and 1 will be consumer market. There will still be pastoralist/herders' presence in the reconstructed markets, but these are expected to be dominated by intermediaries,

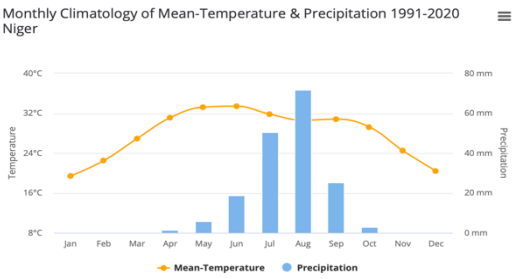
[42] Social Agreements have been signed in the NRME Sub-activity. See Annex for further details.

livestock product sellers, exporters, consumers, and foreign importers. Pastoralists/herders mostly bring their animals to the collection markets for sale, and their presence is limited in the three other categories of livestock markets. Therefore, rehabilitation/construction of other types of markets more directly affect the traders and/or sales intermediaries who accrue the largest share of the benefit from livestock trade.

Discussions with key stakeholders in charge of project implementation indicated some potential risks going forward. Several implementation partners pointed out to the level of responsiveness and communication as potential areas of improvement, as far as implementation is concerned. At times, there appears to also have been issues with the quality of the work undertaken by some of the contractors. Other partners pointed out that LABOCEL may apparently be able to produce the vaccines in country, which according to them could increase the efficiency and effectiveness of the vaccination campaigns. In this regard, it was recommended that this be further investigated, as it could as it could potentially also have implications on the sustainability of the PRAPS results.

Lack of animal feed is among some of the causes of concern according to veterinarians/SVPPs. All the veterinarians/SVPPs interviewed for the baseline study mention animal malnutrition as an issue. Veterinarians identified it as one of the leading causes of animal mortality and morbidity. Developing pasture lands will only partially address this concern. This is exacerbated due to extreme heat and famines in the region, making the inclusion of climate-related events in plans imperative. It was mentioned that the problem is most severe during March-June. As can be observed from Figure 36, in this period, the temperature starts increasing before the peak rainfall season.

Figure 37: Niger Mean Temperature and Precipitation



Source: World Bank

There is a need to provide vaccinations for diseases other than PPR and CBPP to reduce livestock mortality and morbidity and increase production and income. This sentiment was echoed during the KIIs with key stakeholders. Veterinarians/SVPPs, AEs or AVA/PRs, and VSF were asked to identify prevalent animal diseases in Niger. While all 3 groups of respondents mentioned the 2 diseases (PPR and CBPP) covered under the program, the first 2 groups identified other diseases as more common in their regions. Pasteurellosis is considered most prevalent in the interviews. However, VSF-Belgium mentioned that the state also provides vaccination for this disease. Anthrax and FMD were other commonly stated diseases.

There is a need to raise awareness among herders regarding the vaccination of animals and seeking timely medical help for their livestock. During KIIs with veterinarians/SVPPs and AEs, it was often stated that herders are reluctant to bring their animals to clinics. Herders should also be made aware of the cross-boundary transmission of diseases to ensure timely isolation of

diseased animals. Poverty among the herders is also a hurdle for animal health; it is suggested that the herders be trained in basic epidemiology and exemplary animal care practices. Herders could also benefit from training on the designation of diseases in the languages spoken by them and other value chain actors. Other key areas of capacity development and awareness could include vaccine management and conservation in the field, accompanied by continuous retraining of trained officers.

From the standpoint of improving livestock health, it will be beneficial to address the training needs of LABOCEL staff to enhance their seromonitoring process, monitor the quality of vaccines, and optimize the use of the entity overall. Regarding seromonitoring and monitoring of vaccine quality, LABOCEL executives and technicians must be trained in sampling protocols (animals and vaccines), serological diagnostic techniques (cELISA CBPP and PPR), and quality control techniques for CBPP and PPR vaccines. They will, in turn, train the SVPPs in the techniques of sampling, sampling, packaging, and shipping serums and vaccines to the labs. Thus, the SVPPs could serve as auxiliaries in the labs and be engaged in critical positions with essential roles and responsibilities in livestock health and services.

Investments could be made towards opening a veterinary school in Niger and supporting SVPPs. Despite the substantial reliance on the livestock sector, there is currently no veterinary school. All veterinary surgeons are currently trained outside Niger. Many veterinarians/SVPPs responded that the only training they have received within the country has been with the support of partners. In the KII with the MCC implementation team, a study on the functioning of veterinary services was mentioned, which has shown that by 2025, almost all executives will be retired. Opening a veterinary school will encourage individuals to join the profession and increase sectors' self-reliance, where veterinarians do not have to rely on partners for training purposes. In the KII, VSF mentioned that the construction cost for rural veterinary clinics is around 22 million, which SVPPs may not be able to afford.

Capacity strengthening of the SVPPs and DGSV on monitoring the quality of vaccines and the cold chain for storing vaccines could be key to achieving sustainable results. The recommendation is for SVPPs and the DGSV to strengthen the observance of good practices for vaccine storage and cold chain maintenance. In parallel, LABOCEL would regularly monitor the quality of vaccines as they travel from the source through regions, departments, sites in order to detect and treat critical points. The assignment of more than 12 SVPPs could improve the territorial coverage of veterinary services.

The mechanism for a more equitable distribution of profits between different value chain actors in the livestock market may require further study. This is especially important for the study of the end beneficiaries of the program, which, as per the PRAPS Activity documentation, are the livestock pastoralists/herders. While in the interviews with market value chain actors and managers, there was a common consensus that livestock sellers (which could be breeders, intermediaries, or simply entities selling them at the livestock markets) will be the primary beneficiary of the program. As mentioned earlier, AGECHRAU reported that nearly all the

transactions in livestock markets are carried out with the intervention of sales intermediaries. Intermediaries contribute more to the increase in market prices than to the facilitation of trade (OECD, 2008).

External interventions may become necessary if market distortion by the intermediaries persists. The MCA-Niger implementation team has stated[43] that market intermediaries accrue most of the profits in the market. In that case, it will be essential to monitor their contracts with the breeders to avoid exploitation and their ability to distort market prices to benefit themselves. If regulated, intermediaries can facilitate trade and provide market access to remotely based and small-scaled breeders. Intermediaries can play the key role of reducing the risks faced by breeders while traveling long distances to sell their livestock, which sometimes may not be possible, thereby leading to financial losses.

Apart from separating water and pasture resources between farmers and herders, targeted sensitization efforts could help reduce the inherent distrust between the 2 groups. The current plans to remove conflict consists of demarcating the corridor with wooden pegs and ensuring clean and better maintained separate water points for the 2 groups to use so that there is enough available for each. While this plan could prove beneficial in reducing conflicts, complete resolution may need maintenance and perhaps even separation of resources between the 2 groups. Therefore, the implementation should be complemented with social awareness or outreach programs for ensuring sustainability.

[43] This was mentioned in the implementation stage KII

6. ADMINISTRATIVE ASPECTS

6.1. SUMMARY OF INSTITUTIONAL REVIEW BOARD REQUIREMENTS AND CLEARANCES

The evaluation design and related protocol address possible risks to participants, including psychosocial stress and the related risks. The study was done under the assumption of minimal risks for the research participants as per HHS definition: the "probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests" (Federal Regulation §46.102(i), 2018). The selection of the participants was done in a manner to respect the principle of equity since participants were randomly selected among project beneficiaries based on the regional distribution. By its nature, the study did not involve participants belonging to vulnerable categories.

The principles of voluntary participation and informed consent were fulfilled. Prior to participating in the survey, informants were given sufficient information to decide whether they wished to participate in the survey or interviews. A summary of reasonably foreseeable risks and benefits expected from the research and a statement clarifying that participation is voluntary and could be discontinued at any time was provided to each respondent.

Questionnaires and training manuals were translated to French, and all interviews were conducted in French and were approved by IRB (USA). The AH survey questionnaire, all KII guides, and training manuals for the fieldwork team were shared with IRB to seek their approval. All comments received from IRB were incorporated into the respective tool and resent to IRB, which IRB reviewed prior to approval. In terms of translating the questionnaire to local languages, the local survey team had the proficiency in surveying respondents who spoke local languages such as Hausa or Songhai.

The data has been anonymized (for public use) and non-anonymized datasets (for internal use) to MCC. For this purpose, all individual observations in the dataset have been assigned unique IDs, which will be consistently assigned to the same individuals for all rounds of data collection. And new respondents in the following rounds of data collection will also be assigned unique IDs for all analyses. These IDs will enable all intertemporal data analysis without compromising the quality of the findings. All identifying characteristics of the individuals, such as names, addresses, and zip codes, have been removed from the baseline datasets for submission to MCC. All of these characteristics will be kept for the datasets intended for internal use by MCC to facilitate future research and program design by MCC as applicable.

6.2. Data Access, Privacy, and Documentation Plan

Data anonymization techniques have been used for the creation of all data files submitted to MCC, which will be available for public use. Sensitive data often have other important legitimate uses in addition to the original research question for which they were collected. For example, researchers might be interested in surveys from developing countries for policy research. While the additional use of this data is important and should be supported, privacy should be guaranteed to all those individuals whose data is collected for the study. Data anonymization helps address the competing demands of transparency for the data and the protection of privacy for individuals and is a key step in preparing data for secondary use.

The first step of the data anonymization process involved assessing the risk of re-identification, which is when a statistical unit is identified, and the values of sensitive variables are uncovered. Disclosure risk can be affected by:

1. The presence of identifying variables in the dataset.
2. The potential value of re-identification: for example, in the case of business data, re-identification can afford financial gains to a potential intruder.
3. The cost of re-identification: the higher the level of effort and cost involved in re-identification, the lower the incentive for an intruder.

Thus, it is important to define a disclosure scenario as a first step to the anonymization process, which can be classified as follows:

1. Internal information: the intruder (e.g., the person or group attempting re-identification) has personal knowledge of a statistical observation(s), which (s)he can use in re-identifying survey respondents.
2. External information: the intruder can link records from the released dataset with records from another dataset, containing direct identifiers.

6.3 Dissemination Plan

The dissemination plan for the baseline report findings has been discussed with MCC and will take place during the third week of August 2021. There will be two presentations – one to MCC and the other to MCC-Niger. The findings of the baseline report will be discussed with each of these teams to obtain their feedback. Due to the COVID-19 pandemic, both presentations will be undertaken online to ensure the safety and timely completion of the dissemination assignment. Subsequently, the team will engage in addressing all comments and revising the report. A Final Baseline Report will be produced based on the feedback and shared with MCC. The aim will be to complete this process by the end of September 2021.

6.4. Evaluation Team roles and Responsibilities

Table 28 below provides an overview of the evaluation team and includes their respective roles and responsibilities for this study.

Table 28: Overview of Evaluation Team

Name of Staff	Role	Responsibility
Dr. Modibo K. Camara	Program Manager (Key Personnel)	Evaluation coordination and quality control
Dr. Hamadé Kagoné	Senior Livestock Specialist (Key Personnel)	Assessment of the AH and NRME sub-activities
Dr. Diti Chatterjee	Natural Resources Management Specialist (Key Personnel)	Assessment of all components of PRAPS, including AH, NRME and MAF. Assessment of the gender aspects of all components of PRAPS, including AH, NRME and MAF. Quantitative and qualitative data collection management and analysis
Dr. Mohamadou Fadiga	Market Facilitation Specialist (Key Personnel)	Assessment of the MAF sub-activity
Ms. Paulina Mendes-Pereira	Natural Resources Management Specialist (Key Personnel)	Assessment of the NRME sub-activities
Mr. Kalilou Cissé	Evaluation Specialist	Assessment of all components of PRAPS, including AH, NRME and MAF. Quantitative and qualitative data collection Fluent in Songhai
Dr. Wynn Ngo	Senior Economist and Data Analyst	Assessment of all components of PRAPS, including AH, NRME and MAF. Data analysis and report writing
Dr. Ayushi Singh	Senior Economist and Data Analyst	Assessment of all components of PRAPS, including AH, NRME and MAF. Assessment of the gender aspects of all components of PRAPS, including AH, NRME and MAF. Data analysis and report writing
Mr. Aboubacar Sangaré	Survey Specialist	Quantitative and qualitative data collection tool design, implementation, and data quality management
Mr. Faycal Rajab	Data Analyst	Primary data quality control Analysis of quantitative and qualitative data
Ms. Samira Ben Ousmane	In-Country Coordinator	Quantitative and qualitative data collection management and quality control In-country coordination. Fluent in Hausa
Mr. Zachary Stevens	Research Assistant/ Database Manager	Quantitative and qualitative data collection tool design, implementation and data quality management

ANNEX 1: DISCUSSION OF PERFORMANCE EVALUATION METHODOLOGY

The overall performance evaluation of the PRAPS Activity (based on all three rounds of data collection) will involve the assessment of relevance, for which the design of the PRAPS Activity, the sub-activities, and the interventions will be compared to the MCA-Niger theory of change. The linkages between the inputs and outputs, outcomes, and goals will be assessed to see if they were adequately backed by the available evidence. Relevance of the interventions with the current situation of the target regions will be assessed to understand if the inherent inefficiencies and key issues within the livestock sector at the local and regional levels were taken into consideration. The envisaged model for collaboration between the implementing entities will be analyzed and key lessons learned will be drawn.

The measurement of effectiveness would focus on the implementation, to understand if it led to the envisaged outputs, outcomes, and impact/goal. For this, the PRAPS logic and its underlying risks and assumptions will be reviewed. The implementation process for the interventions will be studied in detail, to identify deviations and the justifications behind them. Thereafter, the outputs, outcomes, and goals will be analyzed to understand the contribution of the interventions towards the realization of those results.

Assessment of efficiency will involve the study of timely and cost-efficient implementation. This will be done from two different angles. First, the team will assess whether the design contributed to and facilitated program efficiency and, second, whether there were any factors at the implementing stage that hampered the efficient realization of the envisaged results of the Activity. The assessment of cost-efficiency will be undertaken from both the implementation and procurement perspectives. Timeliness is particularly critical in a complex program, such as PRAPS, with a variety of actions producing a range of results impacting different areas of the livestock sector. The assessment will take into account key issues such as security threats, lack of existing veterinary infrastructure, unavailability of the requisite expertise to ensure successful procurements in the targeted regions as well as the pandemic.

The assessment of output/outcome/impact will involve the study of the contribution of the interventions towards each. The analysis of qualitative and quantitative data will be undertaken to measure the outputs, outcomes, and goals, to understand if these were achieved and, if not, why. This will be done at each sub-activity level and then triangulated to inform the evaluation of the entire PRAPS Activity. Ultimately, the evaluation will aim to capture how the outputs led to the outcomes, and how these, in turn, contributed to the realization of the envisaged goal of the Activity.

The assessment of the sustainability criterion will involve the study of the long-lasting impact of PRAPS on Niger's livestock sector, which can be maintained even after the Compact has ended. A qualitative assessment of the likelihood of sustainability of the results of the different interventions will be the appropriate strategy for this. This will involve the assessment of how institutions (local/regional governance, management, and oversight agencies for the policy and

legal framework[44], etc.) have been strengthened and how local staff capacities have been developed to sustain these results. There will be an assessment of the effectiveness of the institutional arrangements put in place to manage and oversee the key infrastructure established under the program as well as the financial and non-financial resources that have been allocated for ensuring their sustainability.

[44] For instance, this could count the development of, or amendments to, existing laws on land rights, use of public natural resources, livestock market management policies, etc.

ANNEX 2: EVALUATION QUESTIONS

Table 29: Overall Evaluation Questions

Evaluation Dimension	Evaluation Question	Summary of baseline assessment
Implementation	Was the Activity implemented as designed? If not, what changes occurred to the original design during implementation and why?	The AH sub-activities have progressed, but with delays including the pandemic, security issues, and delays in the procurements process.
	How has the PRAPS Activity planning and implementation integrated the gender issue?	Training of AVA/PRs who are primarily women conducting veterinary activities only on poultry and small ruminants
Outcomes	Were the expected short, medium, and long-term results in the program logic realized?	• Output 1: "Health infrastructure upgraded, and veterinary capacities strengthened", has been achieved, with the creation and development of the SVPPs and the trainings of the AEs and AVA/PRs. • Output 2: "Animal diseases control and surveillance system is supported" has not been achieved. The vaccination coverage rate for both CBPP and PPR have gone down in comparison to the last two vaccination campaigns, and qualitative data and literature suggest that other livestock diseases are rampant and need addressing, to ensure comprehensive animal disease control. • Short-term outcome: "Improved animal health for bovines and small ruminants", has not been achieved owing to falling vaccination coverage, and other livestock diseases affecting animal health.
	What facilitated achievement of the results if they were achieved? If results were not achieved, why not?	N/A
	If possible, through the analysis, what is the differentiated impact between different components (for instance: the impact of vaccination vs. the impact of transhumance corridors vs. the impact of market construction)? Which components had the greatest impact on the outcomes? And why?	N/A

	What are the benefits experienced (if any) by the users of the livestock markets in the modernized markets?	N/A
	Has the modernized management of a market improved collection and reporting of tax revenue?	N/A
	Based on the findings from the evaluation, what is the estimated ERR for MCC's investments in the PRAPS Activity in Niger?	N/A
Sustainability and Lessons Learned	How sustainable are the results achieved through PRAPS?	N/A
	What lessons can be drawn from the PRAPS Activity to inform future projects and activities?	N/A

Table 30: PRAPS Activity- Evaluations questions and baseline assessment

Evaluation Question	Justification	Proposed Evaluation Method	Baseline Assessment
Implementation			
1) Was the activity implemented as designed? If not, what changes occurred to the original design during implementation and why?		Desk review and KIIs with key stakeholders.	Implementation of AH sub-activity occurred with delays in the vaccination campaign due to the pandemic. There has only been soft progress in NRME and MAF sub-activity; no interventions have yet taken place.
2) How was this Activity selected and how does it fit into the standard MCC design model?	This question was recommended by MCC to understand the process behind the selection of this Activity by MCC for implementation, which was designed between the World Bank and the Government of Niger (GoN). MCC started work on the alternative implementation approach after 2017	Desk review of MCC documentation and semi- structured interviews with MCC and MCA-Niger	As mentioned by MCC, the PRAPS Activity was not designed by MCC. MCC made some adjustments into the implementation mechanism to meet MCC requirements. The original aim was to channel funds to the World Bank which would implement PRAPS in Niger. However, this decision was reversed due to the inability to ensure that proper safeguards were in

	and started developing the MCC program logic.		place to properly administer funds. The PRAPS Activity is aligned with some of MCC's key sectors of engagement, namely, agriculture, land and property rights, water, sanitation, and irrigation.
3) What kind of difficulties or challenges were faced during the implementation of the PRAPS Activity?	This question was recommended by MCA-Niger to study and assess the challenges faced during implementation. A clear understanding of this will help in the evaluation of the results as well as for the identification of key lessons learned, to inform future MCC program design.	KIIs with key stakeholders	COVID-19 led to delays as local offices were closed and the vaccination campaign was suspended. There were also procedural delays in acquiring vaccines. COVID-19 has also led to delays in the implementation of the NRME and MAF sub-activities.
Outcomes			
4) Were the expected short, medium, and long-term results in the program logic realized?		Pre-post analysis using survey data Desk Review of program documentation and secondary data KIIs with key stakeholders	Outputs: Veterinarians/SVPPs, AEs and AVA/PRs have received training under the program. The relevant short-term result for the AH sub-activity is improved animal health for bovines and small ruminants. Improvement in health will be observed in follow-up rounds of data collection. MAF and NRME related outputs, and short- term outcomes are not available due to delayed implementation.
AH Sub-activity			
(i) Did livestock health improve? Has Animal health improved as reflected in lower mortality and morbidity?		Pre-post analysis using survey data Desk Review of program documentation and secondary data	Vaccination rates have decreased since the first round of vaccination campaign.

		KIIs with key stakeholders	Comparison of mortality and morbidity rate will be done after the endline data collection analysis, to report improvements.
(ii) Has the surveillance capacity of veterinary service improved as a result of the intervention?	One of the aims of the AH sub-activity is to improve the surveillance capacity of the veterinary services in the country. This is vital to monitoring vaccine efficacy, herd immunity, disease outbreaks, and general mortality and morbidity of the animals. No interventions have taken place in this sub-activity. Therefore, understanding the progress on this component of the sub-activity is vital for the evaluation of the outcomes and also for sustainability of results.	KIIs with key stakeholders (private veterinarians and assistants, MCA--Niger) Desk Review of program documentation and secondary data	Veterinarians and AEs have received training including on the management of the vaccination campaigns, vaccination quality, and conducting awareness sessions for herders. 12 new SVPPs have been set up and 16 old ones have been strengthened.
(iii) Has the prevalence of CBPP and PPR decreased as the result of the intervention?	The CBPP and PPR were included in the question for clarity since the vaccine intervention aims to immunize Niger's herd against these two diseases.	Pre-post analysis using survey data, Desk Review of program documentation, and secondary data KIIs with key stakeholders	At the baseline phase, CBPP and PPR are important diseases reported by herders. The analysis of the baseline and endline data will enable the understanding of whether prevalence of the diseases has reduced.
(iv) Was there a reduction in mortality or morbidity of animals linked to the CBPP vaccination campaigns?		Pre-post analysis using survey data, KIIs with key stakeholders, Desk Review of program documentation and secondary data	The analysis of the baseline and endline data will enable the understanding of reductions in mortality and morbidity linked to the CBPP vaccinations.
(v) Was there a reduction in mortality or morbidity of		Pre-post analysis using survey data	The analysis of the baseline and endline data will enable the

animals linked to the PPR vaccination campaigns?		KIIs with key stakeholders, Desk Review of program documentation and secondary data	understanding of reductions in mortality and morbidity linked to the PPR vaccinations.
(vi) What were the distributional effects of the intervention across subgroups (by gender, minority status, income, age and location)?	This question sheds light on any differential effect of the AH sub-activity interventions on diverse groups. It has important policy implications both for MCC as well as for the country of implementation (in this case, Niger).	Pre-post analysis using survey data	At the baseline, there is evidence of higher vaccination rates of small ruminants among women herders/livestock owners. Older herders have similar rates of access to vaccination in comparison to younger ones.
(vii) Did livestock production and productivity increase as a result of the interventions?	This is a joint long-term outcome of the PRAPS Activity. Therefore, it is important to understand the extent to which the production and productivity increased and to what extent this can be attributed to the AH sub-activity. Also, increased export capability has a direct relationship to increased income of livestock producers, which is the envisaged impact of the PRAPS Activity.	Pre-post analysis using survey data, KIIs with key stakeholders, Desk Review of program documentation and secondary data Time series analysis of SIM Bétail data	The analysis of the baseline and endline data will enable the understanding of whether production and productivity have increased as a result of the interventions.
MAF Sub-activity			
(viii) Was there an increase in buyers and sellers of livestock? Was there any change in the power dynamics and transparency of transactions (between herders, traders, sellers)?		KIIs with key stakeholders (different categories of market participants and management and MCA-Niger and implementing agencies)	No interventions in the sub-activity so far.
(ix) Have the upgraded markets improved market conditions for herders?	This is an important question and is directly linked to the PRAPS logic through the short-term outcome of "Improved market	KIIs with key stakeholders (different categories of market participants and management and MCA-Niger and implementing agencies)	No interventions in the sub-activity so far.

	conditions for herders". Potential conditions which could be expected to improve may include market price information, availability of functional weighing scales, etc.,		
(x) Was there a relaxation of entry barriers into the markets where the MAF interventions were implemented?	The question is important in ensuring greater competitiveness of the markets. As more market players enter the market, there is more competition in the market, and prices adjust in the long run to equate demand and supply. Therefore, this question can be related to the medium-term outcome, "Increased competitiveness of the livestock sector in Niger."	KIIs with key stakeholders (different categories of market participants and management and MCA-Niger and implementing agencies)	No interventions in the sub-activity so far.
(xi) Was there any change in the power dynamics and transparency of transactions (between herders, traders, sellers)?	This will shed further light on the issue of whether a higher number of market players started trading in that market due to the rehabilitation of the marketplaces. It will help to understand whether the conditions were conducive for enhanced trading activities, which will inform the evaluation of the impact of the MAF Activity.	KIIs with key stakeholders (different categories of market participants and management and MCA-Niger and implementing agencies)	No interventions in the sub-activity so far.
(xii) How did livestock prices change/evolve by category and breed because of the new upgraded marketplace?	This question can be linked to the impact (namely, "Greater quantities of pastoral	KIIs with key stakeholders (different categories of market participants and	No interventions in the sub-activity so far.

	products sold at higher prices") of the PRAPS Activity, as per the PRAPS logic. The collection of per unit selling prices of different livestock products across the baseline and endline periods will enable the analysis of the evolution of prices, to understand the impact of the interventions.	management and MCA-Niger and implementing agencies) Time series analysis of SIM Bétail data	
(xiii) Has security improved in upgraded markets?	Security is an important issue and will determine market participation, which will in turn lead to the realization of program results. The independent evaluation would aim to answer this question through the collection and analysis of qualitative and quantitative information over time.	KIIs with key stakeholders (different categories of market participants and management and MCA-Niger and implementing agencies) Desk Review of program documentation and secondary information	No interventions in the sub-activity so far.
(xiv) Was there a greater degree of tax collection and livestock security in the upgraded markets?	This is a key question which can be linked to the issue of sustainability of the marketplaces built/rehabilitated under the program. It will be important to understand the funding mechanism for the maintenance, and, if needed, the future upgrade of these marketplaces, which will be under the management of local governing entities (municipalities) or private owners (or private entities put in	KIIs with key stakeholders (different categories of market participants and management and MCA-Niger and implementing agencies) Desk Review of program documentation and secondary information	No interventions in the sub-activity so far.

	charge of the market for a stipulated period of time). User tax is a useful and popular tool for this purpose, and therefore the evaluation will aim to obtain information on this to understand if there is a mechanism in place. At the same time, the evaluation would aim to understand whether these taxes are too high for the users, because if that is the case, then transaction costs will go up and may even lead to a reduction in market participation.		
(xv) Have the upgraded markets helped to increase volume of sales and competitive prices for pastoralists?	This question is linked to the PRAPS logic through the medium-term outcome "Increased competitiveness of the livestock sector in Niger" and the long-term outcome "More livestock products available on the local and regional markets". According to the M&E Plan, two indicators, namely "Animals sold" and "Dairy products sold" will measure the above-mentioned long-term outcome. This will be measured using price per unit of commodity sold for individual livestock products being traded in the marketplace.	KIIs with key stakeholders (different categories of market participants and management and MCA-Niger and implementing agencies) Time series analysis of SIM Bétail data Desk Review of program documentation and secondary information	No interventions in the sub-activity so far.
(xvi) Have the upgraded markets helped to improve pastoralists' profit margin relative to other markets?	This is related to the impact of the PRAPS Activity, namely, "Greater quantity of	KIIs with key stakeholders (different categories of market participants and	No interventions in the sub-activity so far.

	pastoral products sold at higher prices". The answer to this would be obtained through the analysis of the pre and post- intervention profits of the pastoralists supplying to a particular marketplace.	management and MCA-Niger and implementing agencies) Desk Review of program documentation and secondary information (to the extent available)	
(xvii) How did the upgraded markets help the market players (buyers, sellers, intermediaries, etc.?	This qualitative question will inform the analysis of the impact (namely "Greater quantity of pastoral products sold at higher prices") of the PRAPS Activity. This will shed light on how upgrading the markets helped the different class of market players, which can inform key lessons learned and future program design.	KIIs with key stakeholders (different categories of market participants and management and MCA-Niger and implementing agencies) Desk Review of program documentation and secondary information (to the extent available)	No interventions in the sub-activity so far.
(xviii) Was there a net increase in income from livestock production in the markets as a result of the implementation of MAF intervention?		KIIs with key stakeholders (different categories of market participants and management and MCA-Niger) Time series analysis of SIM Bétail data Desk Review of program documentation and secondary information	No interventions in the sub-activity so far.
(xix) Did the markets offer herders more of the expected services such as veterinary services, animal feed, watering points, market information? Did herders use these services (i.e. did they buy animal feed or animal medicine while in the market)?		KIIs with key stakeholders (different categories of market participants and management and MCA-Niger and implementing agencies) Desk Review of program documentation and secondary information	No interventions in the sub-activity so far.

(xx) Was there any shift of sales from nearby markets which did not get upgraded?		KIIs with key stakeholders (different categories of market participants and management and MCA-Niger and implementing agencies) Desk Review of program documentation and secondary information (to the extent available)	No interventions in the sub-activity so far.
(xxi) To what extent can current outcomes be attributed to the MAF interventions?	This is a key question in understanding the extent of the outcomes and impact that can be attributed to the MAF interventions.	KIIs with key stakeholders (different categories of market participants and management and MCA-Niger) Time series analysis of SIM Bétail data Desk Review of program documentation and secondary information	No interventions in the sub-activity so far.
NRME Sub-activity			
(xxii) Have the interventions led to an increase in pasture lands in the areas of intervention and an increase in the productivity of the existing pasture lands?		KIIs with key stakeholders (MCA-Niger, implementing agencies, community members, livestock herders and community representatives) Desk Review of program documentation and secondary information	No interventions in the sub-activity so far.
(xxiii) Was there on average a tangible increase in weight of bovines and small ruminants for animals that have improved access to water points and improved access to pasture lands?		KIIs with key stakeholders (MCA-Niger, implementing agencies, livestock herders) Desk Review of program documentation	No interventions in the sub-activity so far.
(xxiv) To what extent are communes managing and maintaining water access infrastructure (wells/boreholes)? And, have communes adopted		KIIs with key stakeholders (MCA-Niger, implementing agencies, community members, livestock	

sustainable management of water access points (e.g. monitoring of wells and water quality) and improved management of pasture lands/pasture areas?		herders and community representatives) Desk Review of program documentation and secondary information	
(xxv) Have the interventions led to improved transhumant livestock watering conditions during the dry season?	The summer months are particularly harsh in the Sahel region including Niger, and the extreme conditions may lead to livestock mortality and morbidity unless requisite water availability is ensured. Therefore, the answer to this question will shed light on the effectiveness and sustainability of the PRAPS Activity results.	KIIs with key stakeholders (MCA-Niger, implementing agencies, livestock herders) Desk Review of program documentation	No interventions in the sub-activity so far.
(xxvi) Has the access to public grazing land improved?		KIIs with key stakeholders (MCA-Niger, implementing agencies, livestock herders) Desk Review of program documentation	No interventions in the sub-activity so far.
(xxvii)Have land-related severe conflicts between crop farmers and pastoralists reduced after the interventions were carried out?		KIIs with key stakeholders (MCA-Niger, implementing agencies, community members, livestock herders and community representatives) Desk Review of program documentation and secondary information	No interventions in the sub-activity so far.
(xxviii) Has livestock productivity increased as a result of improved grazing lands management and access to water points along the livestock corridor?	Livestock production and productivity is expected to rise as a joint long-term outcome of the Activity. It is important to understand the extent that the realized results can be	KIIs with key stakeholders (MCA-Niger, livestock herders, implementing agencies) Desk Review of program documentation and secondary information	No interventions in the sub-activity so far.

	considered as a contribution of the NRME sub-activity.		
(xxix) Has the NRME sub-activity facilitated the supply to livestock markets of animals of better quality and in greater numbers?	This question is directly related to both the long- term outcomes "Increased livestock production and productivity" and "More livestock products available on local and regional markets".	KIIs with key stakeholders (MCA-Niger, implementing agencies, livestock herders) Desk Review of program documentation and secondary information	No interventions in the sub-activity so far.
(xxx) What was the impact on women livestock herders and farmers using the corridor?	The question aims to assess gender-based variation in the results of the NRME interventions on the women farmers and livestock herders who use the natural resources available along the livestock corridor.	KIIs with key stakeholders (MCA-Niger, implementing agencies, women livestock herders, community members, women farmers) Desk Review of program documentation and secondary information	No interventions in the sub-activity so far.
(xxxi) Was there any spillover effect? If so, which are they and what is the extent of the effect? How did it reach other communities?	Spillover effects are important to understand to measure unintended effects on others besides the envisaged end-beneficiaries. These findings would inform key lessons learned and help with the design of future programs in the region or other similar regions/economies.	KIIs with key stakeholders (MCA-Niger, implementing agencies) Desk Review of program documentation and secondary information	No interventions in the sub-activity so far.
(xxxii)To what extent were NRME targets achieved? If not, then why?	This question is key in understanding the effectiveness of the NRME interventions in leading to the realization of the intended results. This is also a relevant question for the sub-activity which has been delayed.	KIIs with key stakeholders (MCA-Niger, implementing agencies, community members, livestock herders and community representatives) Desk Review of program documentation and secondary information	No interventions in the sub-activity so far.

5) What facilitated the achievement of the results if they were achieved? If results were not achieved, why not?		Pre-post analysis using survey data, Desk review of program documentation and secondary data, KIIs with key stakeholders.	Successful training for veterinarians and AEs was completed with the aid of VSF- Belgium. Vaccination target rate of 80% (recommended for herd immunity) was not achieved due to procedural delays and suspension of the campaign due to COVID-19.
(i) How and to what extent did factors outside the Compact (such as droughts, locust attacks, additional third-party interventions and investments, alignment with other five regional PRAPS members, etc.), influence the ability of the project to meet its expected outcomes?		Desk review of program documentation and secondary data, KIIs with key stakeholders.	COVID-19 impacted the project leading to various delays. There were also instances of limited communication between MCC and partners in Niger, which may have delayed progress.
(ii) Did the assumptions in the program logic hold?		Desk review of program documentation and secondary data, KIIs with key stakeholders.	For AH sub-activity, the training of SVPPs, AEs, and AVA/PRs were carried out in a timely manner. The assumption of vaccinations reaching enough animals to achieve herd immunity did not hold. There is no evidence to of the materialization of the assumption of coordination between MCA-Niger and the Ministry of Agriculture and Livestock to effectively reduce and monitor prevalence and avoid outbreaks of livestock diseases. Implementation for NRME and MAF sub-activities has not begun.

6) If possible, through the analysis, what is the differentiated impact between different components (for instance: the impact of vaccination vs. the impact of transhumance corridors vs. the impact of market construction)? Which components had the greatest impact on the outcomes? And why?		Pre-post analysis using survey data Desk review of program documentation and secondary data, KIIs with key stakeholders Econometric analysis of SIM Bétail data	This will be possible upon the analysis of the baseline and endline data.
7) To what extent did livestock production and productivity increase? Livestock production can be measured in terms of livestock breeding, new employment and business creations.		Pre-post analysis using survey data, KIIs with key stakeholders. Econometric analysis of SIM Bétail data	This will involve the analysis of the baseline and endline data, as well as the analysis of the results of the MAF and NRME sub-activities.
8) Were more livestock products available on local and regional markets?		KIIs with key stakeholders. Econometric analysis of SIM Bétail data	No intervention has yet taken place under the MAF and NRME Sub-activities
9) Were greater quantities of pastoral products sold at higher prices?		Pre-post analysis using survey data KIIs with key stakeholders Econometric analysis of SIM Bétail data	No intervention has yet taken place under the MAF and NRME Sub-activities.
10) Based on the findings from the evaluation, what is the estimated ERR for MCC's investments in the PRAPS Activity in Niger?		Desk assessment of MCC's ERR calculations	MCC is working on the updated ERR calculations. The review of the ERR assumptions and calculations will be possible once it is available.
Sustainability and Lessons Learned			
11) How sustainable are the results achieved through PRAPS?		KIIs with key stakeholders	For the vaccination campaign, there is a commitment from World Bank for next three campaigns. However, for long run sustainability, MCC is currently working on the establishment of the

			vaccination fund which has not been passed by the GoN yet. Social accords are being signed between MCA-Niger and the various community level stakeholders and community members, to ensure that all parties are in, and the results of the sub-activities can be sustained.
(i) To what extent are MCC's maintenance expectations for the new infrastructure works being met?		KIIs with key stakeholders	No new infrastructure has been reportedly built so far.
(ii) What are the measures introduced or taken by the communes to ensure sustainability of the investments? How is that being paid for?	This is a key issue to be studied to understand the key lessons and will be important for MCC in designing future programs.	KIIs with key stakeholders	There are plans for surveillance committees and sensitization campaigns, but no steps have been taken so far since the implementation of NRME and MAF sub-activities is yet to take place.
(iii) Is the management framework of the upgraded market sustainable?	This is related to the issue of sustainability of the results of the MAF interventions.	KIIs with key stakeholders (different categories of market participants and management and MCA-Niger and implementing agencies) Desk Review of program documentation and secondary information	No interventions have taken place under the MAF sub-activity
12) To what extent has MCA-Niger supported its partners to ensure ownership and sustainability of the achievements and effects of its interventions?	This question was suggested by MCA-Niger to assess the key issue of institutional arrangements put in place to ensure sustainability of results.	KIIs with stakeholders Desk review of program documentation	MCC has design a vaccination fund that will use Niger's livestock export earnings as revenue sources to fund future vaccination campaigns to ensure sustainability. For NRME, all activities are based on social agreements. For the NRME sub-activity, the aim is to engage the land

			commission to oversee the results. For MAF, the agreements on livestock markets are carried out by the management of SIM Bétail. This work will be reinforced by a consulting firm that will help the communities determine a management model.
13) What was the level of support in terms of capacity development and establishment of sustainability mechanisms, including ownership	This question was suggested by MCA-Niger to assess the key issue of institutional arrangements put in place to ensure sustainability of results.	KIIs with stakeholders Desk review of program documentation	MCC/MCA-Niger has been engaging with Niger or Sahel based consulting firms for various activities, which also enhances local capacity. MCC has provided LABOCEL with laboratory equipment for seromonitoring and vaccine quality control activities.
14) What lessons can be drawn from the PRAPS Activity to inform future projects and activities?	This question will be key in learning from the implementation and evaluation of the PRAPS Activity's interventions. This will help MCC design programs in the future and will help the government in understanding the key issues impacting the livestock sector of the country.	KIIs with key stakeholders	The PRAPS Activity has suffered from delays related to management, security issues and the pandemic. From MCC's end, there were issues related to the quality of deliverables received from contractors. Contractors mentioned delays due to MCC's validation process and communication. Greater cooperation between MCA-Niger and the local stakeholders, contractors, etc. could lead to greater efficiency.

Table 31: AH Sub-activity: Evaluation Question, Data Source, Data Type, and Baseline Assessment

Evaluation Question	Data Source	Data Type	Baseline Assessment
Did livestock health improve? Has Animal health improved as reflected in lower mortality and morbidity?	• KIIs with MCA-Niger staff and M&E team, key implementing agencies, representatives from the Ministry of Agriculture and Livestock. • Baseline and endline surveys of end-beneficiaries (pastoralists). • MCA-Niger implementation report. • MCA-Niger progress report. • Rapport Annuel d'épidémiologie with disease outbreak statistics of the Ministry of Livestock. • Ministry of Livestock Annual Report (for the animal categories of cattle, sheep and goat, as per the M&E Plan) • SVPP Consultant Report. • Findings of sero-monitoring activities by Labocel. • L'Institut National de la Statistique (INS). • Niger Census of Agriculture and Livestock, 2005 (as applicable). • Population and Housing Census	• Primary data on quantitative information on the following: a) Vaccination patterns by location, demographic characteristics, transhumance route and annual timeline. b) Livestock mortality and morbidity from CBPP and PPR in the two prior years, mortality and morbidity from other diseases and health issues, herd size and age distribution, herd health (weight, prior health issues) c) Livestock trade related income (domestic and exports), production, fixed and variable costs of production and sale, productivity, volume of domestic sales, export sales, points of sale (domestic and export). d) Location of the upgraded veterinary centers and human resources with respect to the livestock producers. e) Management structure, funding for the maintenance of the vaccine campaign and infrastructure developed. f) Sustainability measures. • Secondary data on: a) Disease outbreaks; b) Livestock production and sales; c) Prevalence of CBPP and PPR.	In the baseline report, the first round of information on livestock health, vaccination status, veterinary services, trainings of the staff and key stakeholders engaged in livestock sector is provided. The analysis of the baseline and endline data will enable the comparative assessment of the improvements due to the PRAPS Activity.
Has the surveillance capacity of veterinary service improved as the result of the intervention?			
Has the prevalence of CBPP and PPR decreased as the result of the intervention?			
Was there a reduction in mortality or morbidity of animals linked to the CBPP vaccination campaigns?			
Was there a reduction in mortality or morbidity of animals linked to the PPR vaccination campaigns?			
What were the distributional effects of the intervention across subgroups (by gender, minority status, income, age and location)?			There were regional differences in the vaccination rates. For instance, CBPP vaccination in Dosso (at 34%) was significantly lower than other regions and PPR vaccination in Tahoua (at 85 to 87%) was significantly higher than other regions. There are gender differences in CBPP vaccination, with the vaccination rates higher for male herders (47%) than women herders (25%); there was not a major gender difference in PPR vaccination. Vaccination rate was usually higher for herder above 60 years (among cattle- 50%, sheep-65%, goat-46%) as compared

			to herders below 40 years (among cattle- 39%, sheep-54%, goat-46%).
Did livestock production and productivity increase as a result of the interventions?			The analysis of the baseline and endline data will enable the comparative assessment of these improvements due to the PRAPS Activity.
Has the volume of livestock export increased as the result of health intervention?			

Table 32: MAF Sub-activity: Evaluation Question, Data Source, Data Type, and Baseline Assessment

Evaluation Question	Data Source	Data Type	Baseline Assessment
Have the upgraded markets improved market conditions for herders?	• KIIs with MCA-Niger staff, M&E team and implementing agencies, different types of market participants • MCA-Niger implementation and progress reports. • KIIs with the Ministry of Agriculture and Livestock.	• Primary data (baseline, and endline) on: o Market players' demographic characteristics; o Location of buyers (distance to the market); o Amenities/facilities available in the market; o Perception of market conditions for market participants, particularly herders; o Volume of sales (domestic and export) of sellers; o Income (domestic and export) from livestock sale (sellers and intermediaries); o Profit of sellers and intermediaries (domestic and export); o Livestock price (domestic and export); o Ease of access to sell products at the market; o Ease of access for exporters; o Transaction costs of market players (buyers, sellers, intermediaries);	No interventions have taken place in this sub-activity.
Was there a relaxation of entry barriers into the markets where the MAF interventions were implemented?			
Did market participation increase after the intervention?			
How did livestock prices change/evolve by category and breed because of the new upgraded marketplace?			
Has security improved in upgraded markets?			
Was there a greater degree of tax collection and livestock security in the upgraded markets?			
Is the management framework of the upgraded market sustainable?			
Have the upgraded markets helped to increase volume of sales and competitive prices for pastoralists?			
Have the upgraded markets helped to improve pastoralists'			

profit margin relative to other market?		○ Fixed and variable costs of sellers and intermediaries; ○ Security in the market ○ Tax paid by sellers for operating in the market • Primary qualitative data on market management structures put in place, monitoring structures. •Primary data on market security measures and sustainability measures (such as maintenance and upgrading of existing market amenities facilitated through the sub-activity). • Secondary data on total volume of sales, average prices for different livestock products, market management practices, sustainability measures.	
How did the upgraded markets help the market players (buyers, sellers, intermediaries, etc.? Have transaction costs improved in upgraded markets for pastoralists? Was there a net increase in income from livestock production in the markets as a result of the implementation of MAF intervention? Was there any difference in the sales of nearby markets which did not get upgraded, compared to the ones which did? To what extent can current outcomes be attributed to the MAF interventions?	KIIs with MCA-Niger staff, M&E team and implementing agencies, different types of market participants MCA-Niger implementation and progress reports.	Primary data (baseline, interim and endline) on: o Market players' demographic characteristics; o Location of buyers (distance to the market); o Amenities/facilities available in the market; o Perception of market conditions for market participants, particularly herders; o Volume of sales (domestic and export) of sellers; o Income (domestic and export) from livestock sale (sellers and intermediaries); o Profit of sellers and	

		intermediaries (domestic and export); o Livestock price (domestic and export); o Ease of access to sell products at the market; o Ease of access for exporters; o Transaction costs of market players (buyers, sellers, intermediaries); o Fixed and variable costs of sellers and intermediaries; o Security in the market; o Tax paid by sellers for operating in the market; Secondary data on total volume of sales, average prices for different livestock products, market management practices and sustainability measures.	

Table 33: NRME Sub-activity: Evaluation Question, Data Source, Data Type, and Baseline Assessment

Evaluation Question	Data Source	Data Type	Baseline Assessment
Have the interventions led to an increase in pasture lands in the areas of intervention and an increase in the productivity of the existing pasture lands?	GoogleEarth and, Landsat KIIs with local governance, community representatives and leaders. Survey or focus group discussions with pastoralists and farmers along the targeted livestock corridors	Primary data on GPS locations of key livestock corridors being targeted by the sub-activity; GPS locations of pasture lands and their area, along the corridor. Data collection for baseline, interim and endline periods. Primary data on pre and post intervention existence of pasture lands. Secondary GIS data on pasture lands coverage in the identified livestock corridors (if available).	No interventions have taken place in this sub-activity.

To what extent are communes managing and maintaining water access infrastructure (wells/boreholes)? And, have communes adopted sustainable management of water access points (i.e. monitoring of wells and water quality) and improved management of pasture lands/pasture areas?	MCA-Niger implementation and progress reports KIIs with MCA-Niger, local governance, community representatives and leaders, pastoralists and farmers along the targeted livestock corridors KIIs with the Ministry of Agriculture and Livestock KIIs with the PRAPS implementation agencies. Surveys/focus group discussions.	Primary qualitative management practices practices, communal charge, monitoring and oversight structures, allocation structure of duties among communal management entities, number of communes which have adopted, change in adoption rates over time, mandated periodic monitoring activities, etc.). Secondary qualitative and quantitative information (as available) on management practices, size of communal management entity, frequency and intensity of monitoring and oversight functions. data on (type of entities in	
Have the interventions led to improved transhumant livestock watering conditions during the dry season?	MCA-Niger implementation and progress reports KIIs with MCA-Niger, transhumant pastoralists, local governance, community representatives and leaders. KIIs with the PRAPS implementation agencies.	Primary qualitative data on perceived conditions in livestock watering conditions (e.g. quality of water availability, number of functioning watering areas). Secondary data on watering conditions (quantity and quality of water availability, number of functioning watering areas, etc.).	No interventions have taken place in this sub-activity.
Has the access to public grazing land improved?	MCA-Niger implementation and progress reports. KIIs with MCA-Niger, transhumant pastoralists, farmers, local governance, community representatives and leaders.	Primary qualitative data on area designated for public grazing, quality and availability of forage	

Have land-related severe conflicts between crop farmers and pastoralists reduced after the interventions were carried out?	MCA-Niger implementation and progress reports Reports or data published by the Ministry of Agriculture and Livestock, and other independent literature / data KIIs with MCA-Niger, transhumant pastoralists, farmers, local governance, community representatives and leaders.	Primary data on number of records of conflicts between farmers and pastoralists, and potential solutions reached (if any). Secondary data on recorded conflicts in the livestock corridor or other areas of intervention.	
Has livestock productivity increased as a result of improved grazing lands management and access to water points along the livestock corridor?	KIIs with transhumant pastoralists, farmers, MCA-Niger, local governance, community representatives and leaders. MCA-Niger implementation and progress reports. Reports or data published by the Ministry of Agriculture and Livestock, and other independent literature / data	Primary data on livestock production and productivity. Primary qualitative information on the extent to which production can be linked to grazing lands and access to water points along the livestock corridor. Secondary data on pre and post intervention production of livestock of pastoralists which use the treated livestock corridor.	
Has the NRME sub-activity facilitated the supply to livestock markets of animals of better quality and in greater numbers?	MCA-Niger implementation and progress reports. Reports or data published by the Ministry of Agriculture and Livestock, and other independent literature / data KIIs with transhumant pastoralists, farmers, MCA-Niger staff and M&E team and implementing agencies.	Primary and secondary information on animal health, mortality and morbidity from CBPP and PPR, production (quantity) of livestock products and per unit prices.	
Was there on average a tangible increase in weight of bovines and small ruminants for animals that have improved access to water points and	MCA-Niger implementation and progress reports. KIIs with pastoralists using the pasture lands and water points, MCA-Niger staff and M&E team and implementing agencies.	Primary qualitative data on animal health, average growth period and herd morbidity rates.	

improved access to pasture lands?		Secondary information on reported animal weights as reported by the MCA-Niger M&E team.	
What was the impact on women farmers?	KIIs with women pastoralists and farmers, MCA-Niger staff and M&E team and implementing agencies.	Primary qualitative information on potential impacts of the overall interventions (such as access to water, shade and pasture lands, animal weight and cost of production, sales, income from domestic sales and/or export of livestock products such as milk, dairy products and small ruminants).	
Was there any spillover effect? If so, which are they and what is the extent of the effect? How did it reach other communities?	KIIs with MCA-Niger staff and M&E team and implementing agencies. MCA-Niger implementation and progress reports. Reports or data published by the Ministry of Agriculture and Livestock, and other independent literature / data. KIIs of representatives of the Ministry of Agriculture and Livestock and other key stakeholders (as applicable post implementation).	Primary qualitative data on potential areas of spillover effect such as better natural resource management and monitoring practices in other livestock corridors, agricultural productivity rises due to efficient usage of available water sources between pastoralists and farmers, etc. Secondary information (qualitative and quantitative) on potential spillover effects (as mentioned above, or others as observable post implementation) of the NRME sub- activity. If required primary data can be collected through KIIs, from the third-party sources which report such effects.	
To what extent were targets achieved? If not, then why?	KIIs with MCA-Niger staff, M&E team and implementing agencies. MCA-Niger implementation and progress reports.	Primary qualitative information on progress against key outputs, outcomes and of the sub-activity (as per the PRAPS Logic: e.g. water	

	KIIs with livestock herders, community representatives and local governance and farmers. Google Earth, LANDSAT. CILSS/AGRHYMET monitoring of natural resources. Inventory and geolocation of water points and other livestock infrastructures. Niger Census of Agriculture and Livestock 2005 (as applicable). Population and Housing Census. Niger Livestock Sector Statistics - Annual Reports. Scientific papers and reports from Research Institutes and Universities (ILRI, AGHRYMET, INRAN, University Abdou Moumouni of Niamey, etc.). Livestock productivity survey: 12 MB method of CIRAD	infrastructure development and rehabilitation, rangeland development, enhanced management capacities and communal management of natural resources, increased access to pasture lands and water for livestock herds travelling through the livestock corridors of focus). Secondary data on water resources, pasture lands, land and natural resource related conflicts, land and water resource management practices.	

ANNEX 3: TIME SERIES ANALYSIS

A.3.1 Methodology

A time-series analysis of the monthly livestock market data was conducted to understand the trends, seasonality's in the key market indicators such as demand, supply, and prices. For the analysis, the time series data for the markets in the target regions of Dosso, Maradi, Tahoua and Tillabéri was obtained from SIM Bétail. A basic ARMA (p, q) model was estimated as shown below:

$$Y_t = c + \varepsilon_t + \sum_{i=1}^{p} \varphi_i \, Y_{t-i} + \sum_{i=1}^{q} \theta_i \, \varepsilon_{t-i}$$

Y is the market outcome indicator of interest, such as the price of different livestock animals and products and the volume of animals demanded and sold (supplied). In the model, p is the order of the autoregressive polynomial, and q is the order of the moving average polynomial. j represents the autoregressive model parameter and q the moving average model parameter. The c in the model stands for the constant and e is the error term. The time series includes 5-year forecasting of the variation of prices and flow of the different livestock and products. The number of autoregressive and moving average lags vary for the different series, and tests were done to ensure stationarity of the model.

A time-series analysis of the monthly data on livestock market indicators sheds light on how volumes of production and sales and prices of livestock behave over time. For the analysis, SIM Bétail's data on market outcome indicators were used, which included prices by livestock categories, volume of animals of different categories presented (supply) and sold (demand), and the price of production inputs. The available data is monthly and ranges from January 2008 to December 2019. In the following analysis variation of the price[45] and flow of bovines, small ruminants, and the prices of animal products such as skin and leather was analyzed.

A.3.2 Key Findings

A.3.2.1 Cattle and Small Ruminants

Supply and demand for bovine are highest at the beginning of the year, while they are highest around mid-year for small ruminants. The highest supply and demand for small ruminants also coincides with the rainy season in Niger (May through October). All variables generally follow the same pattern across different regions. While quantity in different regions vary, prices follow each other closely. This may point to the markets being connected to each other. It may not be profitable to travel to a different region to sell livestock. Prices of small ruminants are more responsive to the quantity sold in the market than the prices of cattle.

[45] There were a few missing values in the price data. For the purpose of the statistical analysis, it was assumed that in this selected region in the selected month they were no transactions.

Based on the time-series model, Tillabéri is expected to have the highest regional demand and supply in the cattle market. Tahoua and Dosso are expected to have the lowest demand and supply in both markets. In the sample period, demand, and supply for both markets in Maradi have a prominent upward trend. If the same patterns are followed in the future, Maradi will have the highest demand in the small ruminant market. While other regions have seen a slight upward trend in quantities in both markets, Tahoua experienced a downward trend in the small ruminant market.

Figure 39: National ARMA Model Predictions for Bovine and Small Ruminants

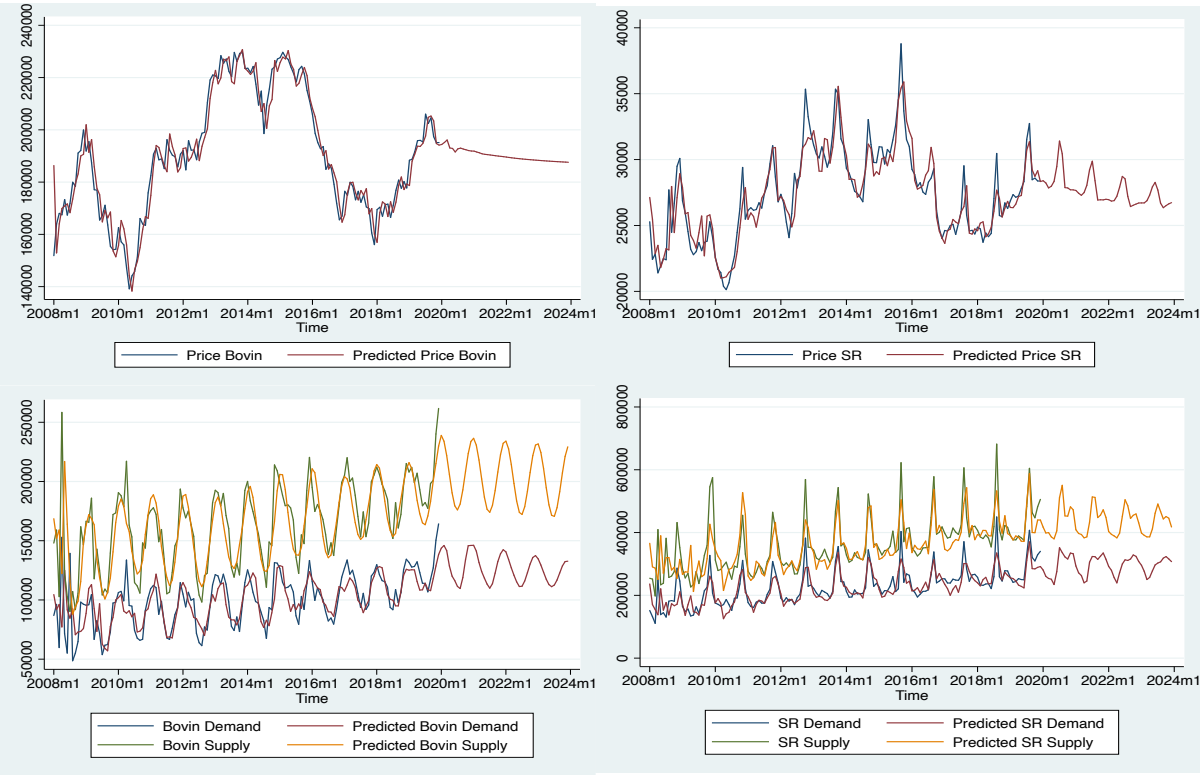
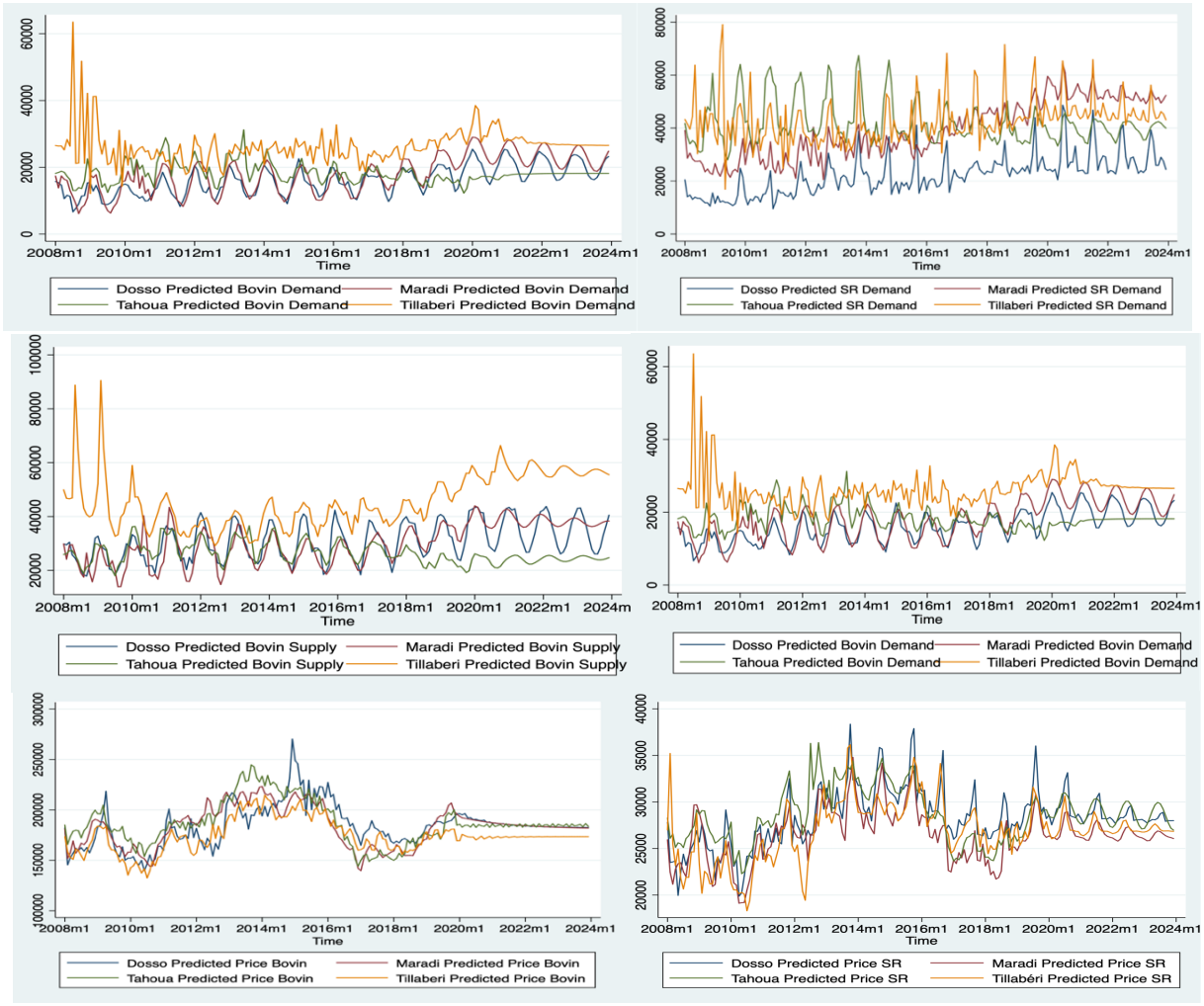


Figure 40: Regional ARMA Model Predictions for Bovine and Small Ruminants



SR= Small Ruminant

A.3.2.2 Other Animals

The prices of donkeys on a national level have been increasing over the past few years and during the period of 2016-18 supply, demand, and price have increased. It is important to note that the supply and demand of male/female donkeys have strong correlations with the price, as seen in Figure 41. The only exception to this is Dosso, where regional prices of donkeys are not as responsive to changes in supply and demand. Dosso has had a low supply and demand for donkeys compared to the other four regions while the price has remained similar to the other regions.

Figure 41: National trends of price and supply/demand of donkeys

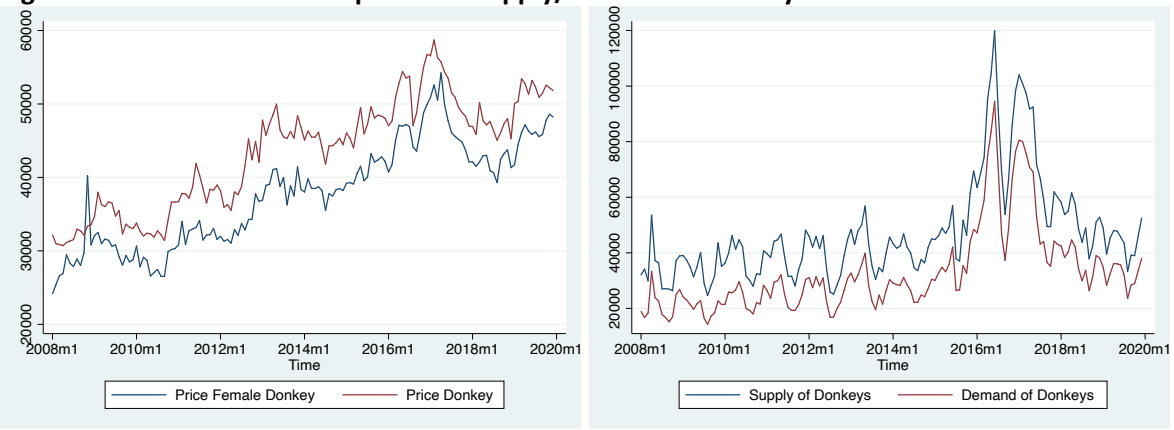


Figure 42: Regional trends of price and supply/demand of donkeys

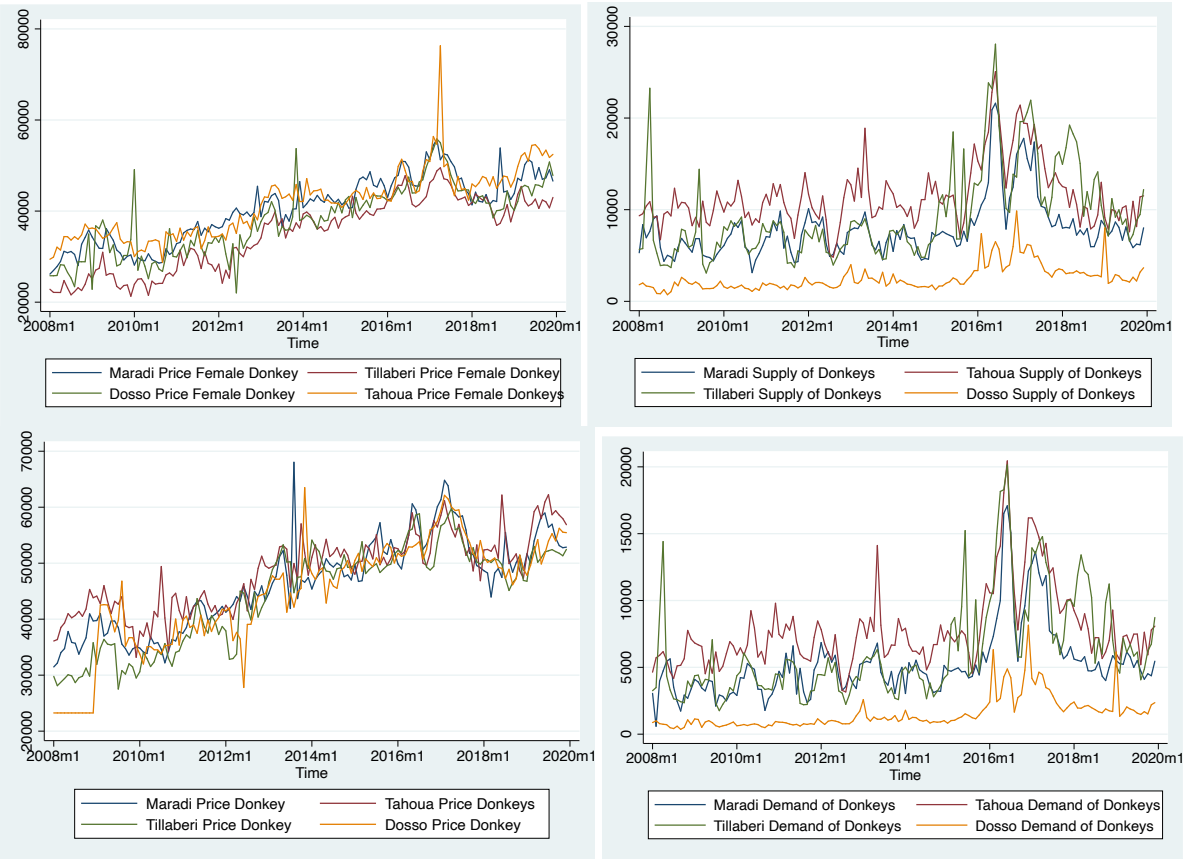


Table 34: Correlation between Demand, Supply and Prices - Donkeys

	Demand	Supply	Price Male Donkey	Price Female Donkey
Demand	1			
Supply	0.9928	1		
Male Donkey	0.7072	0.6673	1	
Female Donkey	0.7356	0.6975	0.9663	1

Source: SIM Bétail

The supply and demand of camels seem to increase every 6 months starting in winter, but the price does not seem to follow this trend. As seen in Table 34, the correlation seems to be weak. In addition, the supply of camels is higher than the demand for camels. The low change in demand might be a potential reason why the price of camels does not follow the mid-year rising trend. In the region of Tillabéri, the supply and demand of camels, although lower than Maradi, isn't very different from the two other regions. However, production data for camel meat and milk suggest that the region has low levels of production. Meanwhile, the price of camels in Dosso seems high and demands for the animals are low.

Figure 43: National trends of price and supply/demand camels

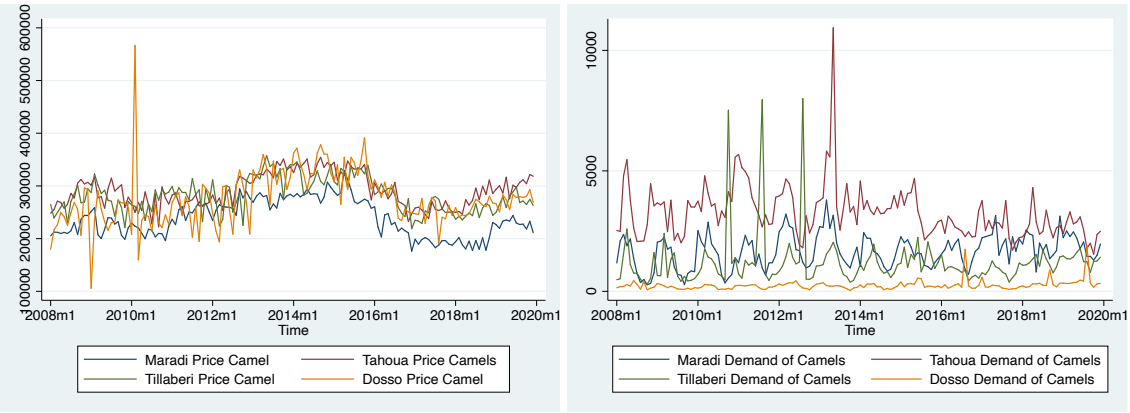


Table 35: Correlation Between Demand, Supply and Prices - Camels

	Demand	Supply	Price Male Camel	Price Female Camel
Demand	1			
Supply	0.9315	1		
Price Male Camel	0.0527	-0.0249	1	
Price Female Camel	0.0272	-0.0462	0.906	1

Source: SIM Bétail

The prices and the supply/demand of horses seem to present multiple outliers. In the regional data that affect the national graphs. Regardless, of the latter fact, they don't seem to present any seasonal trend over the years. In addition, the number of equines supplied is on average 2000 on a national scale. Hence, it is extremely low compared to the other types of animals, and the graphs can vary swiftly in the case of additional supply in the market or exports from other countries (mainly transhuman herders).

Figure 44: National trends of equine (horse) prices

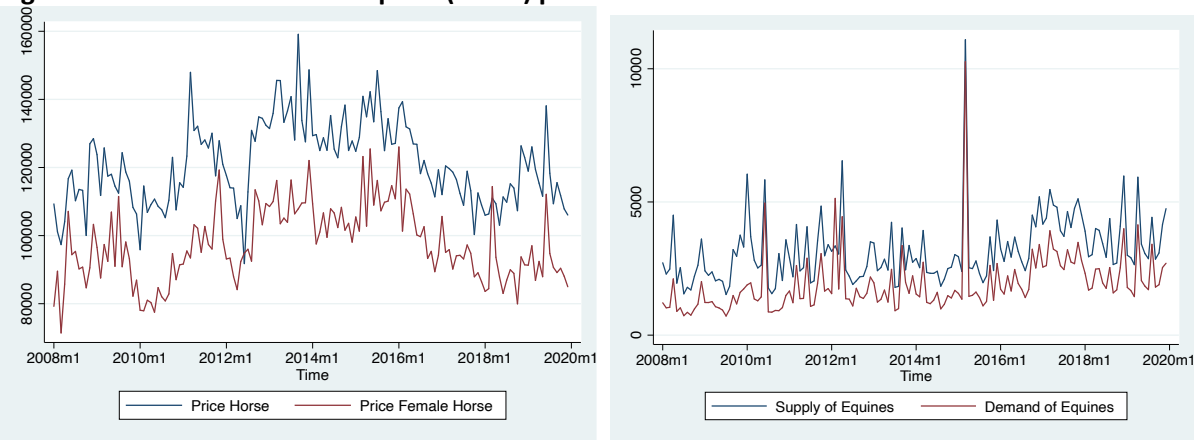
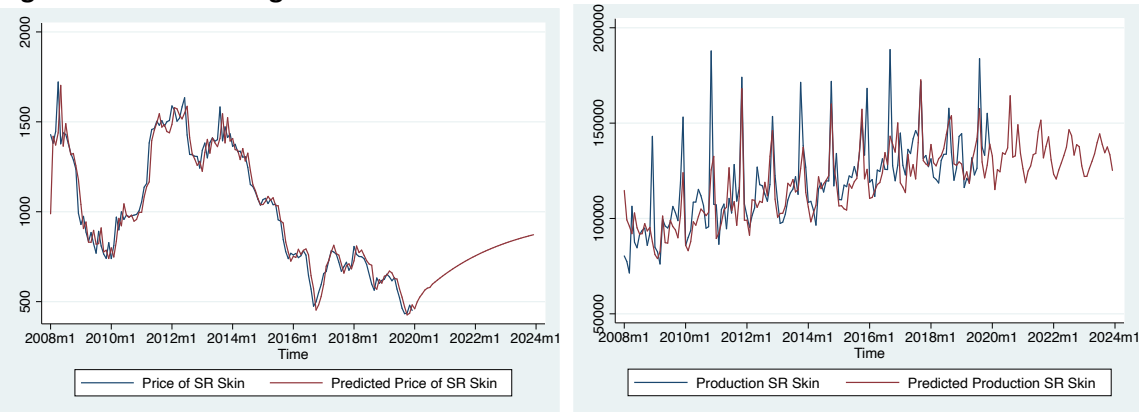


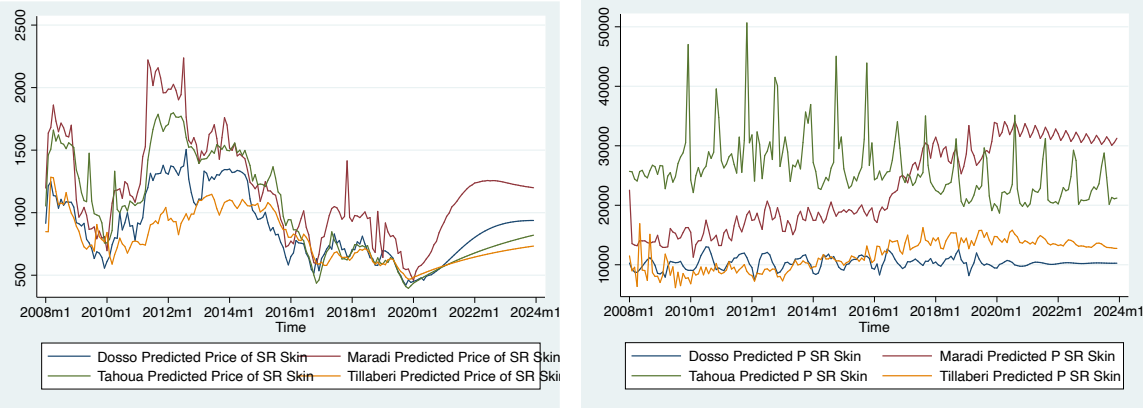
Figure 45: Regional trends of equine (horse) price and supply

A.3.2.3 Animal Products

The prices of the small ruminant hides follow a random decreasing trend, seemingly affected by other factors, and not by seasonal trends. The ARMA model for small ruminants' skin reconstructed the past variation in the demand and supply variables but cannot accurately predict future trends for price owing to random variations. The production in Tahoua is much greater than in the other regions (except from Maradi starting 2017) and controls the national production trend.

Figure 46: National Regional ARMA Model Predictions SR skin

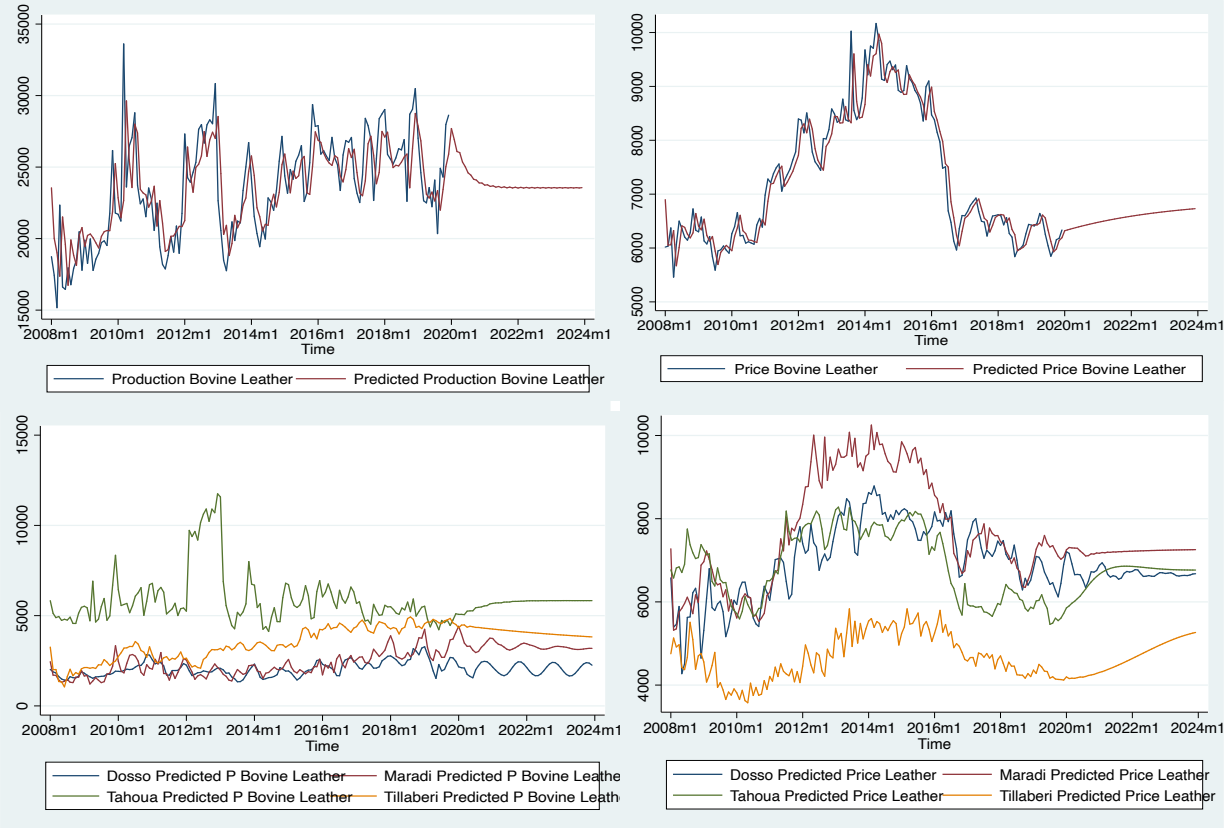




Note: Predicted P implies Predicted Production

The main region of leather production is Tahoua; however, over the last year other regions have been increasing their productions. It seems that on the national scale the price of bovine leather slightly increased, but there is a possibility that factors such as outliers or data quality is leading to this observation. Overall, the ARMA model for bovine leather succeeds in reconstructing the past variation in the production and price variables but is unable to predict future trends due to random variation. For the predicted regional production of Bovine, outliers were excluded from the sample, showing a more stable variation of production. The national production of leather seems to have some seasonal trend, however they are probably due to these outliers rather than yearly factors.

Figure 47: National and Regional ARMA Model Predictions for Bovine leather



Note: Predicted P implies Predicted Production

Annual meat production data (in tonnes) suggests that Tahoua is the region that produces most of the meat amongst the 4 regions. For the production of meat, only yearly data were available. Overall, meat production has been increasing since 2008. Tahoua has the highest production of meat overall as well as bovines and camels. Dosso produces the least volume of meat and did not experience much increase in production volumes apart from bovines. However, this is still relatively small compared to Tahoua and Tillabéri. The region of Maradi experienced an increase in the production of small ruminant meat. However, in the case of bovines, it remains low and stagnant in comparison to the other regions.

Figure 48: National Trends in Total Meat Production and SR Meat Production

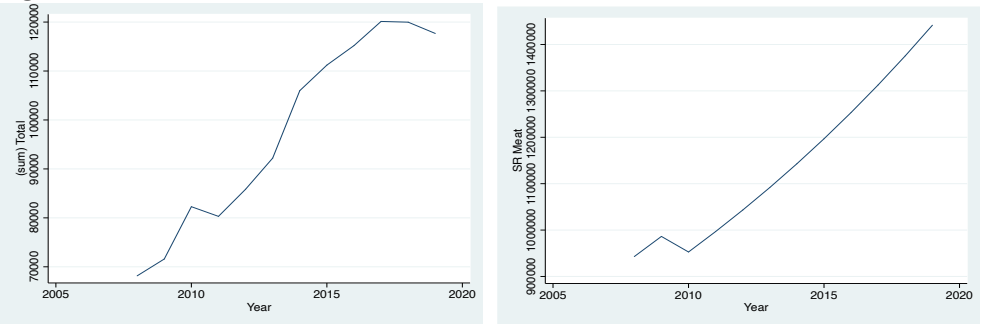
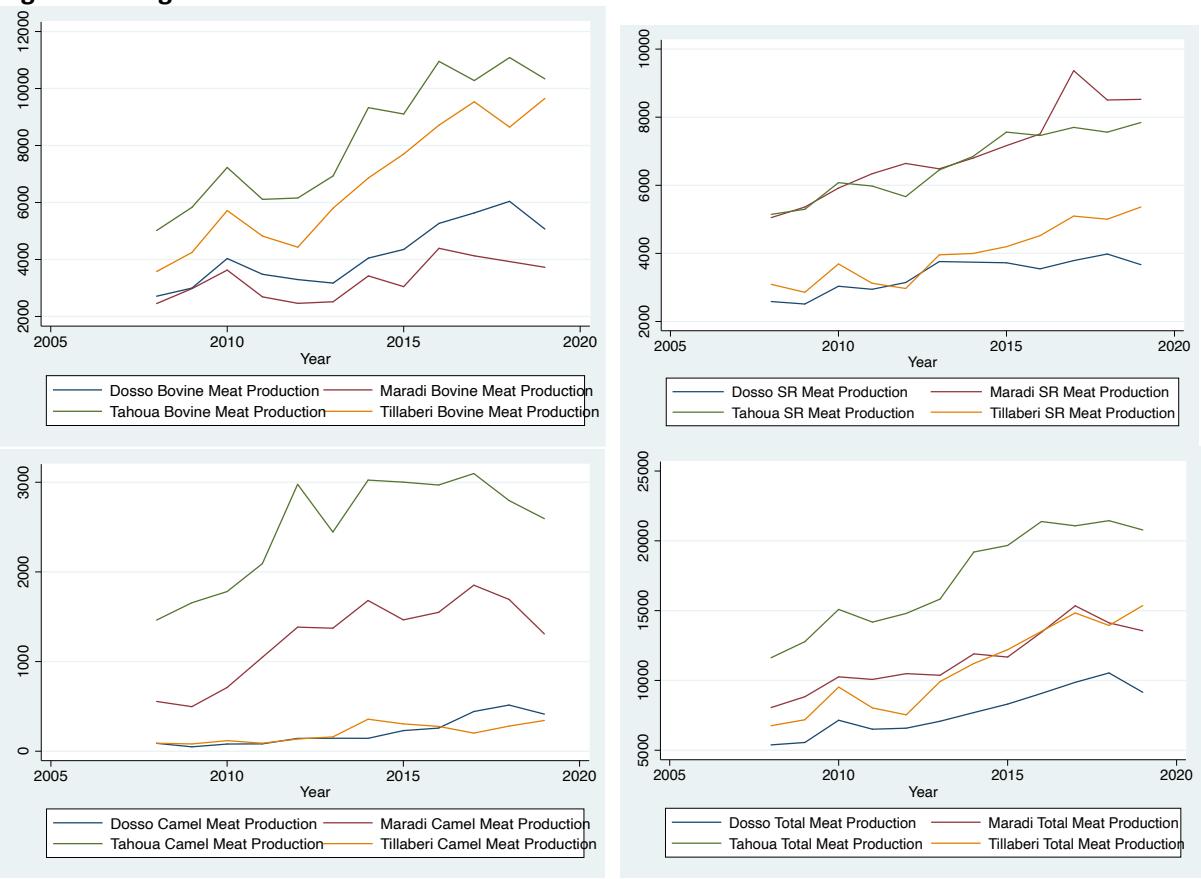
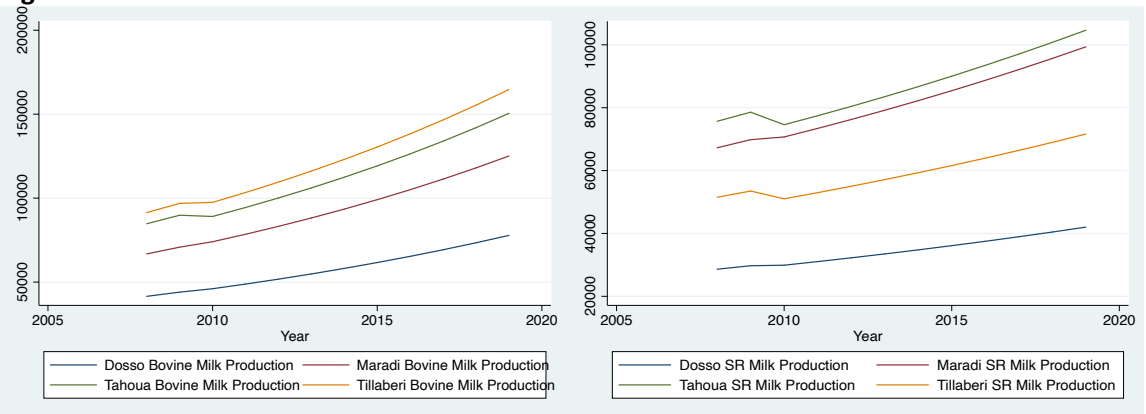


Figure 49: Regional Trends of Meat Production



Similarly for milk production, only yearly data were available from SIM Bétail. Apart from camels, the production of all types of milk has increased. However, as seen before (in the case of meat) the region of Dosso produces much less milk than the other regions. Meanwhile, the region of Tillabéri has low production of camel milk compared to the other regions. Camel milk could be less prevalent here due to the lower camel population, or because transhumance pastoralists typically own more camels, and may not be in the region during all times of the year, thereby limiting the supply of camel milk all year round.

Figure 50: National Trends in Milk Production



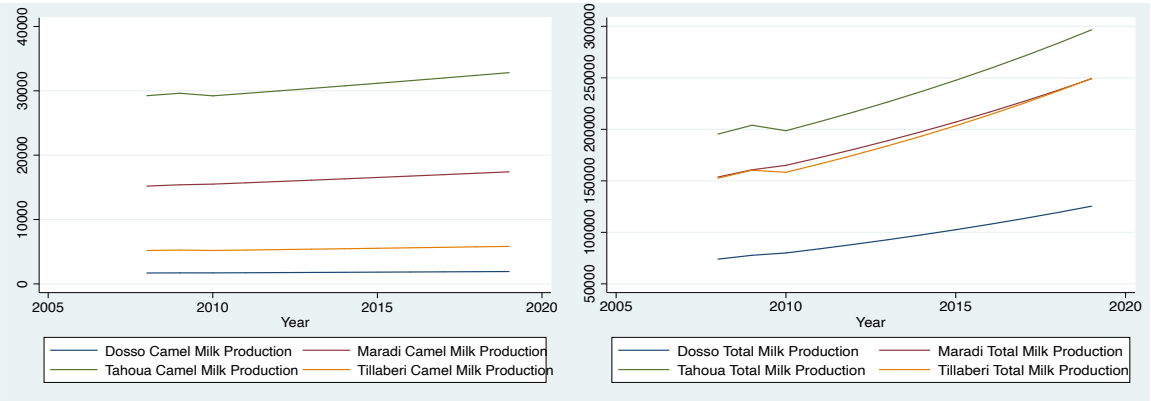


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Figure 51: National trends of price and supply/demand camels

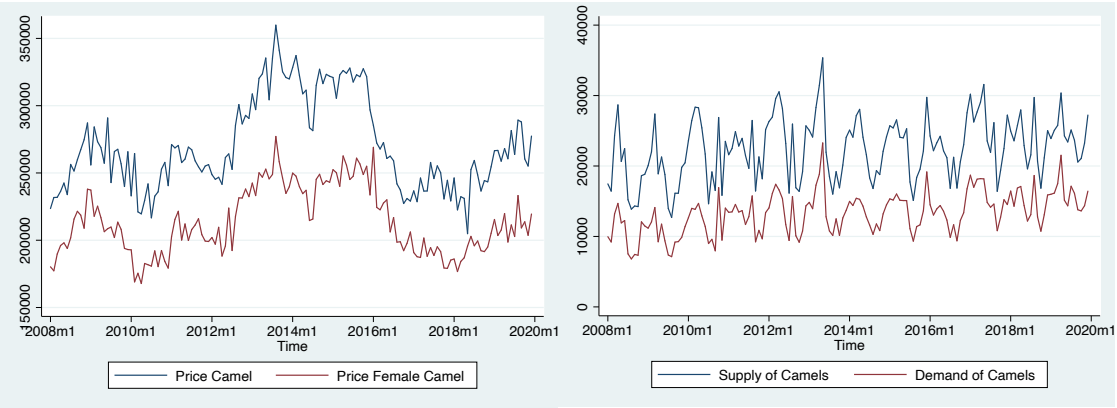

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Figure 52: National trends of equine (horse) prices

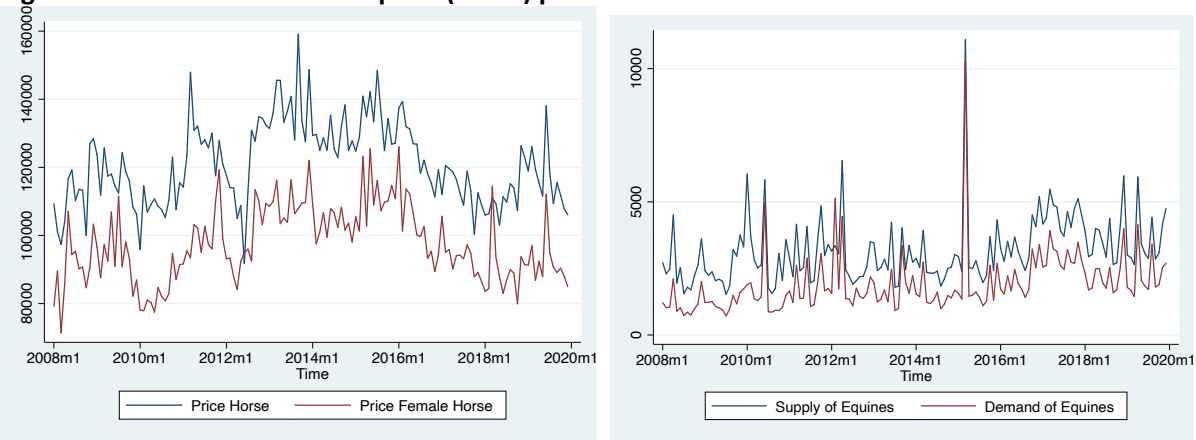

Figure 53: Regional trends of equine (horse) price and supply

ANNEX 4: FORMULA FOR COMPUTING MORTALITY AND MORBIDITY RATE

Mortality and morbidity rates for different livestock diseases have been estimated using the following equations. The morbidity is the prevalence of a disease over a specific time period in a herd of animals. The mortality/morbidity rate is calculated in terms of death/prevalence per 1,000 heads a year in livestock population. It is estimated using the equations provided by the Center for Disease Control and Prevention (CDC). The underlying assumption is that the size of the population (the denominator) is mid-year or midway of the specific time-period under consideration. For this study, the current number of animals has been assumed as the proxy for that in the middle of the year. The mortality and morbidity rates, as calculated using the below, are presented in percentages.

$$\frac{Death\ occuring\ during\ a\ specific\ time\ period}{Size\ of\ the\ population\ among\ which\ the\ death\ occured} \times 100 \qquad (1)$$

$$\frac{Prevalence\ of\ disease\ during\ a\ specific\ time\ period}{Size\ of\ the\ population} \times 100 \qquad (2)$$

ANNEX 5: NRME IMPLEMENTATION – SIGNING OF SOCIAL ACCORDS

Table 38: Summary of the achieved deliverables[46]

Results	Expected deliverables	Achieved deliverables
Municipality Dingazi		
A certificate of recognition of agricultural harvests is signed	A Commitment signed by the PAP concerned to release the space occupied on the corridor	A Commitment was signed by the PAP concerned to release the space occupied on the corridor
A report (Procès Verbal) is prepared on the delimitation and geo-referencing	5 reports (Procès Verbaux) to be prepared on the delimitation and geo-referencing	5 reports (Procès Verbaux) were prepared on the delimitation and geo-referencing
Reports (Procès Verbaux) were prepared on the status of the site	5 reports (Procès Verbaux) to be prepared on the status of the site	5 reports (Procès Verbaux) were prepared on the status of the site
Order clarifying the land status of the corridor to be marked out	An Order clarifying the land status of the corridor to be marked	An Order was prepared, clarifying the land status to be marked
Land reclamation site land status clarification orders	Two orders clarifying the land status of the site	Two orders were prepared, clarifying the land status of the site
Order clarifying the land status of the construction site of a pastoral pumping station	An Order clarifying the land status of the construction site of a pumping station	An Order was prepared, clarifying the land status of the construction site of a pumping station
Order clarifying the land status of a pond to be developed	An Order clarifying the pond status	An Order was prepared, clarifying the pond status
Social agreement – corridor marking	A report (Procès Verbal) of social agreement	A report (Procès Verbal) of social agreement was prepared
Social agreements for the reclamation of land, the seeding of herbaceous plants and the destruction of invasive plants	2 reports (Procès Verbaux) of social agreement	2 reports (Procès Verbaux) of social agreement were prepared
Social agreement for the construction of a pastoral pumping station	A report (Procès Verbal) of social agreement	A report (Procès Verbal) of social agreement was prepared
Social agreement for the desilting of the pond	A report (Procès Verbal) of social agreement	A report (Procès Verbal) of social agreement was prepared
Municipality Dioundiou		
Signing of certificates of recognition of agricultural harvest	Sixty-three (63) Commitments signed by the PAPs concerned with the release of the space occupied on the corridor	Sixty-three (63) Commitments were signed by the PAPs in relation to the release of the space occupied on the corridor
Social agreements – corridor marking	A report (Procès Verbal) of social agreement	A report (Procès Verbal) of social agreement was prepared
Orders clarifying the land status of corridor to be marked	2 Orders clarifying the land status of the corridor	2 Orders clarifying the land status of the corridor were prepared
Social agreements for marking pastoral areas	3 reports (Procès Verbaux) of social agreement	3 reports (Procès Verbaux) of social agreement were prepared
Social agreements for the reclamation of land, the seeding of herbaceous	3 reports (Procès Verbaux) of social agreement	3 reports (Procès Verbaux) of social agreement were prepared

[46] Source of Information - MCC PRAPS Activity documentation.

plants and the destruction of invasive plants		
Orders clarifying the land status of areas to be developed	4 Orders clarifying the land status of the sites	4 Orders were prepared clarifying the land status of the sites
Social agreement for the desilting of ponds	3 reports (Procès Verbaux) of social agreement	3 reports (Procès Verbaux) of social agreement were prepared
Orders clarifying the land status of ponds to be developed	2 Orders clarifying the land status of the sites	2 Orders clarifying the land status of the sites were prepared
Municipality Simiri		
Signing of certificates of recognition of agricultural harvest	Four (4) Commitments signed by the PAPs concerned with the release of the space occupied on the corridor	Four (4) Commitments were signed by the PAPs in relation to the release of the space occupied on the corridor
A report (Procès Verbal) is prepared on the delimitation and geo-referencing	5 reports (Procès Verbaux) were prepared on the delimitation and geo-referencing	5 reports (Procès Verbaux) were prepared on the delimitation and geo-referencing
Reports (Procès Verbaux) were prepared on the status of the site	5 reports (Procès Verbaux) were prepared on the status of the site	5 reports (Procès Verbaux) were prepared on the status of the site
Orders of clarifying of the land status of corridor to be marked	1 Order clarifying the land status of the corridor to be marked out	1 Order was prepared clarifying the land status of the corridor to be marked out
Land reclamation site land status clarification orders	2 Orders clarifying the land status of the site	2 Orders were prepared clarifying the land status of the site
Order clarifying the land status of the construction site of a pastoral pumping station	1 Order clarifying the land status of the construction site of a pumping station	1 Order was prepared clarifying the land status of the construction site of a pumping station
Order clarifying the land status of a pond to be developed	1 Order clarifying the land status of a pond	1 Order was prepared clarifying the land status of a pond
Social agreement – corridor marking	A report (Procès Verbal) of social agreement	A report (Procès Verbal) of social agreement was prepared
Social agreements for the reclamation of land, the seeding of herbaceous plants and the destruction of invasive plants	2 reports (Procès Verbaux) of social agreement	2 reports (Procès Verbaux) of social agreement were prepared
Social agreement for the construction of a pastoral pumping station	A report (Procès Verbal) of social agreement	A report (Procès Verbaux) of social agreement was prepared
Social agreement for the desilting of the pond	A report (Procès Verbal) of social agreement	A report (Procès Verbal) of social agreement was prepared
Municipality Zabori		
A certificate of recognition of agricultural harvests is signed	A Commitment signed by the PAP concerned with the release of the space occupied on the corridor	A Commitment was signed by the PAP in relation to the release of the space occupied on the corridor
Social Agreements of the desilting of the pond	Signing of 3 reports (Procès verbaux) of social agreement	Signing of 3 reports (Procès verbaux) of social agreement
Social agreements for marking pastoral areas	Signing of 2 reports (Procès verbaux) of social agreement	Signing of 2 reports (Procès verbaux) of social agreement
Social agreements for marking the international transhumance corridor	A report (Procès Verbal) of social agreement	A report (Procès Verbal) of social agreement was prepared

Social agreements for the restoration of grazing areas through the recovery of degraded land and the destruction of invasive plants	Signing of 3 reports (Procès verbaux) of social agreement	Signing of 3 reports (Procès verbaux) of social agreement

Table 39: Summary of results achieved by location[47]

Location of Intervention	Planned Actions	Results Achieved
Municipality Dingazi		
Corridor from Korou to Yilwa	Marking and securing over 14 km	A report (Procès Verbal) of social agreement was prepared
Korou (Djinarey Tanda set)	Land reclamation, herbaceous seeding and destruction of invasive plants	A report (Procès Verbal) of social agreement was prepared
Korou Bangou	Desilting of the pond	A report (Procès Verbal) of social agreement was prepared
Kangaraou komo	Land reclamation, herbaceous seeding and destruction of invasive plants	A report (Procès Verbal) of social agreement was prepared
Ada Baba koira	Construction of a pastoral pumping station	A report (Procès Verbal) of social agreement was prepared
Municipality Dioundiou		
The corridor on the whole commune	Marking and securing over 16.7 km	A report (Procès Verbal) of social agreement was prepared
Bomboro grazing area	Land reclamation, herbaceous seeding and destruction of invasive plants	A report (Procès Verbal) of social agreement was prepared
	Marking of the grazing area	A report (Procès Verbal) of social agreement was prepared
	Desilting of the pond	A report (Procès Verbal) of social agreement was prepared
Pond of Geba	Desilting and control of invasive plants	A report (Procès Verbal) of social agreement was prepared
	Land reclamation, herbaceous seeding and destruction of invasive plants	A report (Procès Verbal) of social agreement was prepared
Grazing area of Tombon Moché	Marking of the grazing area	A report (Procès Verbal) of social agreement was prepared
	Desilting of the Najoudjé pond and fight against invasive plants	A report (Procès Verbal) of social agreement was prepared
Marédi grazing area	Land reclamation, herbaceous seeding and destruction of invasive plants	A report (Procès Verbal) of social agreement was prepared
	Marking of grazing area	A report (Procès Verbal) of social agreement was prepared

[47] Source of Information - MCC PRAPS Activity documentation.

Municipality Simiri		
The corridor on the whole commune	Marking and securing over 33 km	A report (Procès Verbal) of social agreement was prepared
Guinaou Bangou	Land reclamation, herbaceous seeding and destruction of invasive plants	A report (Procès Verbal) of social agreement was prepared
Guirbi Iyé	Desilting of the pond and fight against invasive plants	A report (Procès Verbal) of social agreement was prepared
Guirbi Iyé	Pastoral pumping station	A report (Procès Verbal) of social agreement was prepared
Kounam	Pond development	A report (Procès Verbal) of social agreement was prepared
Municipality Zabori		
The corridor on the whole commune	Marking and securing over 1.6 km	A report (Procès Verbal) of social agreement was prepared
Faloula grazing area	Land reclamation, herbaceous seeding and destruction of invasive plants	A report (Procès Verbal) of social agreement was prepared
	Marking of the grazing area	A report (Procès Verbal) of social agreement was prepared
Gala grazing area	Land reclamation, herbaceous seeding and destruction of invasive plants	A report (Procès Verbal) of social agreement was prepared
Géba Tourba grazing area	Land reclamation, herbaceous seeding and destruction of invasive plants	A report (Procès Verbal) of social agreement was prepared
	Marking of the grazing area	A report (Procès Verbal) of social agreement was prepared
The Geba Zabori pond	Desilting and control of invasive plants	A report (Procès Verbal) of social agreement was prepared
The Bouma pond	Desilting and control of invasive plants	A report (Procès Verbal) of social agreement was prepared
The Toudou pond	Desilting and control of invasive plants	A report (Procès Verbal) of social agreement was prepared

ANNEX 6: COMMENTS AND RESPONSES

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
Multiple	***13, 35, 67, 69, 101/102***		This statement seems problematic if true, "Since none of the reconstructed markets are expected to be collection markets, herders may not be the biggest beneficiary of the MAF sub-activity." If this is true, how are we measuring benefits". There is a similar statement on Page 25. Page 67 says that one market is a collection market, which I believe is incorrect? I have it as an export market in my records. Page 69 does say that Tanda is currently collection but being changed to Export so perhaps the text on page 67 just needs to be clarified. On page 101/102, they go as far as to say, **"Greater focus on constructing/rehabilitating collection markets could lead to more direct benefits for pastoralists.** As per program documents, the 18 markets to be reconstructed/rehabilitated under PRAPS, 11 will be consolidation/cluster markets, 6 will be export markets, and 1 will be consumer market. There will still be pastoralist/herders' presence in the reconstructed markets, but these are expected to be dominated by intermediaries, livestock product sellers, exporters, consumers, and foreign	We expect both the herder and the intermediaries to benefit from the MAF sub-activity. Intermediaries may end up having a higher share of profits due to rehabilitated markets. The benefit is expected to be twofold-more animals sold and each animal selling at a higher price due to the efficient functioning of the markets. Both can be measured using SIM Bétail data. Page 67 identifies Tanda as a collection market based on its current function, but it is added later that it will function as an export market after MAF implementation.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
			importers. Pastoralists/herders mostly bring their animals to the collection markets for sale, and their presence is limited in the three other categories of livestock markets. Therefore, rehabilitation/construction of other types of markets more directly affect the traders and/or sales intermediaries who accrue the largest share of the benefit from livestock trade." Which seems problematic at best.	
Multiple	***24, 101***		Are there any specific ideas suggested to streamline implementation? Reference text: The PRAPS Activity implementation which has primarily been slow, could be streamlined to ensure timely completion. The implementation of the PRAPS Activity in Niger has been slow. The Compact is in its third year of implementation, and the NRME and MAF sub-activities are yet to begin. Security issues, particularly in the bordering regions, have been one of the contributing factors to delays. The ongoing pandemic has also contributed to the delays in implementation. Limited availability of quality local contractors who can tackle the feasibility studies and implementation efficiently, has also been reported as a potential reason for the delays. Therefore, an assessment of the planned interventions and their	Thank you for the comment. This assessment was based on the feedback we received from stakeholders in Niger. A2F is suggesting that the implementation plan be further discussed/reviewed to identify potential bottlenecks and understand what is feasible within the stipulated timeline.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
			relevance/value added and streamlining the implementation accordingly could lead to timely completion.	
The Gender Perspective	***98***		This is a comment primarily for MCC consumption but could be relevant to the consultant as well. The following text, "**The PRAPS Activity implementation can increase access to water for female community members and improve commerce and trade activity.** About 43% of the respondents obtain water from ponds and natural water sources, which can sometimes become difficult given the possibility of conflict with transhumance pastoralists. Therefore, the development of water sources and separation of water bodies for farmers and herders would benefit both parties, as was suggested by the community members and herders interviewed. This will particularly benefit women since they are mainly responsible for fetching water, both for household consumption and small-scale cultivation purposes. Women can run their farms and businesses more profitably with fewer threats to their safety." Implies that water will be available on a continuous basis. With the exception of Maradi, these are weekly markets and water will only	This text in the report is in reference to the NRME Sub-activity which plans to improve water and rest areas for livestock animals along the target transhumance corridors in the four regions. The separation of water sources dedicated to transhumant pastoralists and the local population will minimize the probability of conflicts on water access. Since women in the region are usually responsible for carrying water from wells, they will benefit from NRME sub-activity by secure access to water during the transhumance period.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
			be provided on market day. Communal water supply is out of scope of the PRAPS project.	
Multiple	***All***		There is a lot of repetition in the document (you'll notice that my first comment is addressed on 4 or 5 separate pages)	Thank you and noted. The report was structured according to the MCC report template.
Executive Summary	***21***		There is a reference to social accords having to be developed in accordance with the IFC PS. It should read "with MCC Environmental Guidelines, including the IFC PS"	Adjustment done in the text.
Multiple	***All***		Climate change is mentioned in a few paragraph headlines as contributing to pastoralist behavior changes, but then in the body of the narrative there is little to no climate change influence highlighted. In several cases they mention soil degradation, but that could be associated with a wide array of influences beyond climate change. So, I would suggest the evaluators try to clarify the links they identify (beyond mention of droughts 40 to 50 years ago and a generic paragraph citing USAID assessment). The CT has been asked (as have all compacts) to highlight climate change influence in our project areas and how our interventions are addressing those, so greater clarity in this report would be helpful.	Added to section 5.1.4
Market Dynamics	***76 – 77***		The reference to WB's findings is very relevant. However, the data seem a little old (2007 – 2017). Any	More recent information have been included in section 5.3.1

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
			studies/findings more recent? CBPP and PPR are highly contagious diseases, and their incidence can change relatively quickly. Things may have significantly evolved since 2017	
Access to Veterinary Services	***83***		Why did the survey only focus on a three-month period (and the period with the least mortality and morbidity of the year)? Couldn't the survey investigate for the entire year? Three months might be misleading, especially if come endline surveys we wind up picking a different season	The survey reported mortality rate for 2020 and morbidity rate for the first 3 months of 2021. Morbidity rate for each animal in the herd is most likely subject to recall bias. It is very difficult for herders to remember these kinds of information as far as one year. A 3-month timeline for morbidity data renders more reliable information. However, we do not anticipate significant seasonal trend in the endline survey observations, because the endline survey will also follow the annual vaccination campaign.
Multiple	***All***		The report has too many sub-titles which make it too long. You could save space by not going all the way to 4 levels of subtitles	Noted. We believe the report would be too complex with fewer sections. Further simplifying it may however not allow proper appreciation of the 'baseline' findings.
Multiple	***Multiple***		Outside of the Animal Health component, did the evaluation team inquire in other PRAPS countries and compare the level of advancement in other components (market infra, NRM)? If so, how does Niger PRAPS fare in comparison?	Added to section 5.3.5
Executive Summary	***24***		It is said that NRME hasn't started yet, this is incorrect. a. Also on page 24 you say the following as a summary of PRAPS slow progress to date:	The baseline report mentions that technical studies and social accords finalized for the sub-activity. However, we have not received any data/information from MCC

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
			"*Therefore, an assessment of the planned interventions and their relevance/value added and streamlining the implementation accordingly could lead to timely completion*". It is not clear what the proposed 'streamlining' is. If it was that simple, it would have been done. I would suggest the evaluators try to be a bit more specific with recommendations.	on any market construction under NRME. The assessment on page 24 was based on the feedback we received from stakeholders in Niger. A2F is suggesting that the implementation plan be further discussed/reviewed to identify potential bottlenecks and understand what is feasible within the stipulated timeline.
Executive Summary	***25***		"Several implementation partners pointed out to the level of responsiveness and communication as potential areas of improvement," it would be helpful if you clarified which entity is needing to improve responsiveness and communication. Are there more details that might facilitate targeted improvement recommendations? Granted, the last 2 comments from pages 24 and 25 come from what seems to be a 26 page executive summary (too long perhaps for an ES?), they are not elaborated upon in the remainder of the document. I recognize that these 2 questions aren't central to your evaluation role, but if they're going to be included in the report then you may as well try to add value with them by being more clear.	All the data we have reported in the baseline report has been anonymized as per MCC's reporting guidelines. Also, the comment we received from the implementation partner does not have this level of details.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
Multiple			There was a comment on security been issue that led to delays	A2F has not received the security related data from the American embassy in Niger. As a result we have not been able to do any data analysis to conclude whether security was the issue which led to delays in implementation.
From Damiana				
Multiple			I think it is important that in your report you describe the methodology DSGV uses to calculate vaccine coverage and discuss if this is aligned with OIE's recommended methodologies.	Added to section 5.3.4.1
Multiple			The DGSV report for the 2020-2021 campaign (per your report) is inconsistent with the preliminary attached report, maybe it was an issue of timing but I am not sure. Your report p. 88 says "The 2020-21 vaccination campaign reports have not b eenpublished, but as per DGS V, the vaccination coverage r ate for CBPP is 41%and for PPR, 36%." Which the attached report by DSGV has 54% and 59% respectively.	Vaccination coverage (VC) for 2020-2021, as reported by DGSV during A2F's interview with them in April 2021 is the following: VC: 40.8% (rounded 41%) in bovine (CBPP) and 36% for PPR. These figures have now been updated in the report as per the latest figures shared by DGSV. Edited text can be found in Section 5.3.4.1 of the report.
Multiple			For instance, PPR seems endemic in Niger based on data from OIE that shows the disease remains rampant in the country from 2007 to 2017. The data indicates that 879 small ruminants were susceptible to it; in total, 113 were sickened, and, subsequently, 60 deaths were caused by the disease. Similarly, with CBPP, over 200 cattle were deemed susceptible; 58 became sick,	This information on PPR and CBPP incidence was from OIE and made available to us during the Evaluability Assessment stage of the PRAPS evaluation. We have replaced it with updated information and the relevant citations.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
			17 died, indicating a case fatality rate of 29.3%, a mortality rate of 8.5%, a morbidity rate of 20.5%, and an incidence rate of 29.0%. Where are the data from? What susceptibility means? The rates of susceptible, sick and dead animals looks unsignificant if they were applied to Niger 's 12 million cattle and 20 million small ruminants	
Multiple			Also I would like to get in writing clarification about the vaccination season because yes vaccination must finished by April due to heat in May/June, but it has always been explained to me that vaccination stars Dec (not Oct).	It was confirmed by DGSV that the vaccination period starts December/January and ends in April. For the 2020-2021 vaccination campaign, they decided to start in November in order to increase the vaccination time and coverage but failed to do so because of delayed release of funds.
Multiple			Please note that I am not disagreeing that the coverage from 2018 to now has decreased, I am merely asking it to put it in the larger historical trend from 2011 to date. Perhaps also important to discuss how before the Compact the MAGEL was financing the campaigns (basically adding up smaller financing from an array of donors –every year shopping for donors so the coverage was fluctuating a lot) Also, the declining rates are discussed but not possible explanations are provided (i.e. : 1) COVID-19 early shut down of the 2019 2020 vaccine –shutting down 1	Adjustment made in the text in section 5.3.41

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
			month earlier due to sanitary measures imposed by govt that limited movement, 2) the 2020-2021 vaccination campaign had procurement challenges that included a bid challenge and a bidder presenting a questionable lab certification which had to be investigated all caused at least a month delayed in procurement which in a 3 month campaign is detrimental.	
Multiple			Also appreciate the discussion of the other disease but it should be noted in the report that the MAGEL has prioritized those 2 diseases for vaccination - not only under the compact but historically the past 15+ yrs.	Added to section 5.3.2
Multiple			It will be also important to discuss issues of incidence of animals illness and fatality rate of this diseases in the context of the entire livestock population for bovines and small ruminants.	Agreed, but this will require funding for country-wide epidemiological surveys.
LABOCEL & Other Stakeholders				
Executive Summary	8	Joindre un tableau synthétique des principaux indicateurs de PRAPS MCA-N avec les valeurs de bases que vous avez déterminées ainsi l'année considérée comme celui de base, sur les données manquantes (Voir TBD dans ITT). Ces données ainsi déterminées serviront à la comparaison à mi-parcours et en fin de projet (évaluation ex post)	Attach a summary table of the main indicators of PRAPS MCA-N with the base values that you have determined as well as the year considered as the base one, on the missing data (See TBD in ITT). These data thus determined will be used for the comparison at mid-term and at the end of the project (ex post evaluation).	Included
Executive Summary	9	Pour bien cerner la question de l'évolution des	To fully understand the issue of the evolution of	Noted. The text in section 5.3.4.1 has been edited to

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		chiffres de vaccination, il faut partir des chiffres de vaccination d'avant le démarrage du PRAPS MCA NIGER et ainsi on appréciera la valeur ajoutée de la contribution des SVPP installés et renforcés.	vaccination figures, it is necessary to start from the vaccination figures before the start of PRAPS MCA NIGER and thus we will appreciate the added value of the contribution of the installed and reinforced SVPPs.	include vaccination rates starting from 2011.
Executive Summary	10	Comment une enquête de collecte des valeurs de référence peut se transformer en une évaluation du progrès de mise en oeuvre, sachant que le corridor n'est qu'à la phase d'étude pour l'élaboration des plans d'aménagement, les marchés à bétail à la phase d'élaboration des APS/APD pour le génie civil et le choix du modèle de gestion pour l'assistance technique? Bref seule la composante AH a connu une mise en oeuvre, elle même perturbée par la Covid 19 (arrêt précoce de l'édition 2019/2020 de la campagne de vaccination du cheptel) tandis que pour l'édition 2020/2021, le temps pris par l'exécution du marché de fourniture des vaccins a entrainé un mois d'interruption de la vaccination (février 2021).	How a survey to collect reference values can turn into an evaluation of the progress of implementation, knowing that the corridor is only at the study phase for the development of development plans, markets to livestock during the development phase of APS / APD for civil engineering and the choice of management model for technical assistance? In short, only the AH component has been implemented, itself disturbed by Covid 19 (early end of the 2019/2020 edition of the herd vaccination campaign) while for the 2020/2021 edition, the time taken by the execution of the vaccine supply contract resulted in one month of interruption of vaccination (February 2021).	Noted. This approach was agreed upon with key stakeholders and is reflected in the evaluation design report.
Executive Summary	10	Qui sont-ils? En tout cas au niveau région, l'équipe régionale MCA-Niger n'a pas du tout été entendue.	Who are they? In any case at the regional level, the MCA-Niger regional team was not heard at all.	The list of the stakeholders interviewed is included in section 4.2.2.2
Executive Summary	11	Nous sommes en 2021 et on donne des références de 2007, soit 14 ans en arrière, les choses ont vraiment évolué, il faut actualiser les	We are in 2021 and we are giving references from 2007, 14 years ago, things have really changed, we need to update the data. To my	We will appreciate if the DGSV could share more recent poverty data with the evaluation team if available.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		données. A ma connaissance, aucun représentant de ce cabinet n'a passé à la Direction Générale des Services Vétérinaires pour demander des informations par rapport à quoi que ça soit. Tout a été fait de loin.	knowledge, no representative of this firm has gone to the General Directorate of Veterinary Services to request information on anything. Everything was done from afar.	International travel to Niger was not permitted, however the local evaluation team conducted meetings in addition to the virtual meetings that took place during the baseline data collection.
Executive Summary	11	Sur l'ensemble du document, les references documentaires font mention des sources sous régionales et rarement celles du Niger.	Throughout the document, documentary references mention sub-regional sources and rarely those of Niger.	There was a lack of Niger-specific publications on some topics, as a result, for general regional observations, studies based in the region were included in the text.
Executive Summary	11	Votre enquête s'est limitée aux agropasteurs et n'a donc pas touché beaucoup de transhumants car elle s'est déroulée au moment où ces derniers sont pour la plupart dans le Nigéria.	Your investigation was limited to agro-pastoralists and therefore did not affect many transhumants because it took place when most of them are in Nigeria.	A quarter of the survey sample included transhumant pastoralists. The report also comprises KIIs with transhumance herders in NRME AND MAF sub-activity. Interviews with key stakeholders including SVPPs and AEs also discussed transhumance-related issues. Security was the main factor which limited the presence of transhumance herders in the sample.
Executive Summary	11	Quand on introduit des nouveaux concepts il faut les expliquer. Pastoralisme de transhumance et Pastoralisme sédentaire sont des nouvelles appellations qui ne sont pas notre langage quotidien. Les termes connus c'est élevage sédentaire, élevage nomade, élevage transhumant. Le pastoralisme n'est pas synonyme de l'élevage.	When we introduce new concepts we have to explain them. Transhumance pastoralism and sedentary pastoralism are new names which are not our everyday language. The known terms are sedentary breeding, nomadic breeding, transhumant breeding. Pastoralism is not synonymous with livestock.	Explanation of terms included as a footnote in the text of the Executive Summary.
Executive Summary	11	je suis d'accord avec Hassane pour l'indroduction des nouveaux concepts. le consultant peut exploiter	I agree with Hassane for the introduction of new concepts. the consultant can use the law on pastoral care for all purposes	Thank you, this is noted.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		pour toutes fins utiles la loi sur le pastorale		
Executive Summary	11	Est ce ce n'est pas le contraire? Les animaux se vendent mieux chez les sédentaires et agropasteurs que chez les transhumants. En tout cas en zone agricole, les animaux coûtent plus cher qu'en zone pastorale, ici au Niger.	Is it not the opposite? The animals sell better among sedentary and agro-pastoralists than among transhumants. In any case, in agricultural areas, animals are more expensive than in pastoral areas, here in Niger.	This result is directly based on the replies of the AH survey. For cattle, the highest profit was reported by transhumant herders. The agro-pastoralists in the survey reported higher profits in small ruminants trade.
Executive Summary	11	il y'a vraiment une contradiction avec le texte 167 arches 167 t sur la possession des animaux par types d'élevage	there is really a contradiction with the previous text on the possession of animals by type of breeding	There is an error in translation in the line. The associated text is for cattle specifically and not all animals at large.
Executive Summary	11	Pour leur plupart, les éleveurs vivant en zone pastorale pratiquent la transhumance. Pouvez vous dire 167 arches de tribus ou groupements avez vous visité dans cette zone?	Most of the herders living in pastoral areas practice transhumance. Can you tell how many tribes or groupings have you visited in this area?	666 herders were surveyed. The sample was stratified by regions. It was not stratified by tribes or groupings.
Executive Summary	12	généralement les éleveurs pasteurs pour vendre leurs animaux aux 167 arches font le convoyage à pieds des animaux	generally pastoral breeders to sell their animals at the markets convey the animals on foot	The information on transportation costs was collected from the sample of 666 herders in the AH survey.
Executive Summary	12	Trop de déduction. Franchement votre enquête partielle et superficielle ne permet pas statistiquement d'arriver à de telles conclusions. Ceci est valable pour beaucoup de points dans le document.	Too much deduction. Frankly your partial and superficial investigation does not statistically allow such conclusions to be reached. This is valid for many points in the document.	The relation between animal health and sale of animal was observed using the survey data. The sample size for the survey was computed statistically to represent the target population. The methodology was reviewed and approved by MCC.
Executive Summary	12	Etes vous sur d'avoir interrogé 90%???	Over 90% of community members surveyed in targeted regions	The text conveys that among the community members surveyed, over 90% mentioned observing transhumance activities during the rainy season.
Executive Summary	121	Apparemment, seules les données de Tillabéri sont disponibles?	Apparently, only Tillabéri data is available?	KIIs for the NRME sub-activity were also conducted in 4 communes which were selected from Dosso and Tahoua each, and 2

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
				communes from Tillabéri and Maradi each. The respondents of the interviews included local governance members, community members, and livestock herders.
Executive Summary	12	Il n'y a pas du tout d'aire de repos, ou elles sont rétrécies et/ou insuffisantes???	There is no rest area at all, or they are small and / or insufficient ???	All community members from Tilabéri reported that there is no rest area.
Executive Summary	12	L'accès à l'eau n'est pas la seule sources de conflits comme le laisse croire cette conclusion..	Access to water is not the only source of conflict as this conclusion suggests.	This is a misunderstanding. The text only refers to sharing natural resources, such as water, as one of the reasons of conflict.
Executive Summary	12	L'état des pâturages et le fonctionnement du dispositif de sécurisation des ressources naturelles sont deux choses bien distinctes. Il ne faut pas faire l'amalgame.	The state of the pastures and the functioning of the system for securing natural resources are two very distinct things. We must not mix it up.	Noted. NRME KIIs included questions on land registration in relation to conflict and land use in the region.
Executive Summary	13	Revoyez cette affirmation. Les conflits fonciers étaient plus importants dans les années 90 et c'est leur recrudescence qui a conduit aux premières sécurisations foncières. Depuis lors, les conflits ont connu une baisse sensible, donc on ne peut pas parler de montée de violence aujourd'hui.	Review this statement. Land disputes were more important in the 1990s and it was their resurgence that led to the first land securitizations. Since then, conflicts have declined significantly, so we cannot speak of an increase in violence today.	Violence in the region was noted not only in the interviews, but also in secondary sources of information the evaluation team reviewed for the analysis. While not all violence is related to land, competition over natural resources is usually considered the leading cause.
Executive Summary	13	Dans la sous région, la fermeture des frontières due à la Covid n'a nullement affecté la transhumance, mais plutôt l'insécurité physique due aux kidnapping et vol d'animaux.	In the sub-region, the closure of borders due to Covid has in no way affected transhumance, but rather physical insecurity due to kidnapping and theft of animals.	According to a few reports, the pandemic is one of the reasons for border closures and stranded transhumance herders, along with insecurity.
Executive Summary	13	Trop d'affirmation gratuite. Vous vous exprimez comme s'il y a eu apparition d'une maladie qui a décimé des troupeaux? Pratiquement dans tout le	Too much free assertion. Are you speaking as if there has been an outbreak of a disease which has wiped out herds? Almost throughout the document, one gets the	It was not the intention to assert that livestock breeding in Niger is on the verge of extinction, but the assessment does report potential animal health risks

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		document, on a l'impression que l'élevage au Niger est en voie d'extinction.	impression that livestock farming in Niger is on the verge of extinction.	in Niger. The assessment is based on the findings of the primary and secondary data analysis that were carried out for the baseline phase.
Executive Summary	13	Chercher une source fiable pour le Niger	Find a reliable source for Niger	Th evaluation was based on an extensive review of available evidence. However, if additional studies are available, we would appreciate if these are shared with us.
Executive Summary	13	Préciser que c'est dans la région de Tillabéri	Specify that it is in the Tillabéri region	The cited report in question shows stranded transhumance herders in other regions included in the PRAPS Activity as well.
Executive Summary	13	Le pastoralisme a existé depuis des décennies et il s'est toujours adapté aux différents changements. Certes, certains pays commencent à devenir réfractaires à ce système jusqu'à violer les conventions sous régionales, mais au Niger et dans beaucoup d'autres pays du sahel, ce système, outre son caractère culturel, constitue au contraire des stratégies d'adaptation à la saisonnalité des ressources en eau et pâturage.	Pastoralism has existed for decades and has always adapted to different changes. Certainly, some countries are beginning to become resistant to this system to the point of violating sub-regional conventions, but in Niger and in many other Sahel countries, this system, in addition to its cultural character, constitutes on the contrary strategies of adaptation to the seasonality of water and grazing resources.	Noted.
Executive Summary	13	Text- Les pasteurs nigériens ont généralement des familles nombreuses, l'enquête sur la santé animale ayant révélé que la taille moyenne de la famille est d'environ 10 membres. Sources??? Pas chez les pasteurs???	Text- Nigerien pastoralists usually have large families, with the animal health survey finding that the average family size is about 10 members. Sources??? Not among pastors???	The information quoted is from the AH survey that was conducted for this evaluation, and it focused on pastoralists.
Executive Summary	13	Pour éviter des problème au projet de construction et de réhabilitation des marchés à bétail, il faut faire un résumé du	To avoid problems with the project of construction and rehabilitation of livestock markets, it is necessary to make a summary of the	The A2F team would appreciate if such studies to identify the markets could be shared. Further analysis is also recommended on the

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		diagnostic des marchés qui existe et éliminer cette partie. C'est pas la peine de déformer ce qui existe et justifie mieux pourquoi le choix de ces marchés qui ont une fréquentation importante avec des présentations des animaux importants.	diagnosis of the markets that exists and to eliminate this part. It is not worth distorting what exists and better justifies why the choice of these markets which have a significant attendance with presentations of important animals.	value chains in the identified markets.
Executive Summary	13	Ceci donne la preuve que vos visites n'ont vraiment pas touché la zone pastorale, car dans la région de Maradi, le marché de Ourséna (commune de Gadabédji) constitue un marché type de collecte. Eviter les affirmations gratuites	This gives proof that your visits have really not touched the pastoral zone, because in the Maradi region, the Ourséna market (commune of Gadabédji) constitutes a typical collection market. Avoid gratuitous affirmations	There was no reference of a market called Ourséna in the list of markets to be rehabilitated by MCC. There was a Wouriséna market which is labeled as a cluster market that is planned to remain a cluster market after reconstruction.
Executive Summary	13	l'analyse est biaisée car avec la mobilité (transhumance) les éleveurs font de va et vient entre la zone pastorale et la zone agricole en passant par la zone agropastorale et partout ou les éleveurs passent les marchés à bétail constituent leur centres d'intérêt. d'ailleurs même dans les marchés agropastoraux vous allez trouver un nombre important des éleveurs qui viennent soit pour vendre leur bétail, soit pour acheter des produits de première nécessité.	the analysis is biased because with mobility (transhumance) the herders go back and forth between the pastoral zone and the agricultural zone, passing through the agro-pastoral zone and wherever the herders pass the cattle markets constitute their centers of interest. moreover, even in agro-pastoral markets you will find a large number of pastoralists who come either to sell their cattle or to buy basic necessities.	It is agreed that all types of market participants exist in all the identified markets. The suggestion by the A2F team is to study the levels of concentration of different types of pastoralists, herders, intermediaries, etc. in the different types of markets to ascertain potential benefits to each type of market participants through the reconstruction of a specific form of market
Executive Summary	13	Il faut connaître l'origine des marchés à construire ou à réhabiliter par le MCA-Niger avant de se lancer dans certaines analyse. Ces marchés ont été identifiés par l'Etat du Niger à travers le PRAPS BANQUE MONDIALE. Tout animal	You have to know the origin of the markets to be built or rehabilitated by MCA-Niger before embarking on certain analyzes. These markets have been identified by the State of Niger through the PRAPS BANQUE MONDIALE. Any animal placed on a market	Agreed.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		mis sur un marché a pour origine un éleveur. Dans le cadre de l'amélioration de la chaîne de valeur animale, l'amélioration des conditions de vente des animaux et de la gestion des marchés à quel niveau que se soit va contribuer à l'amélioration des conditions de vie des producteurs. Toute analyse simpliste risque de nous faire perdre des marchés que d'autres étaient prêts à aménager.	originates from a breeder. As part of the improvement of the animal value chain, improving the conditions of sale of animals and the management of markets at any level will contribute to improving the living conditions of producers. Any simplistic analysis runs the risk of making us lose markets that others were prepared to create.	
Executive Summary	13	Fournir des chiffres comparatifs des fréquentations des marchés à bétails (MAB) par acteurs et par types de marchés qui prouvent que les "éleveurs" sont plus nombreux au niveau des marchés de collecte avant de tirer toute déduction.	Provide comparative figures for frequentation of livestock markets (MAB) by players and by type of market which prove that there are more "breeders" at the level of collection markets before drawing any deductions.	Such a study would indeed be useful. The evaluation report was based on the classification used by SIM-Bétail.
Executive Summary	13	Fournir les définitions des termes qui peuvent être différemment interprétés par exemple quel est le contour du concept "éleveurs" pour l'étude. On rappelle aussi à toute fin utile que l'objectif de développement du PRAPS est :"d'améliorer l'accès à des moyens et services de production essentiels et aux marchés pour les pasteurs et agro-pasteurs dans des zones transfrontalières et le long des axes de transhumance. Partant, toute analyse doit tenir compte des pasteurs et des agro-pasteurs sans que les uns ne soient au détriment des autres	Provide definitions of terms that can be interpreted differently e.g. what is the outline of the concept "breeders" for the study. It is also recalled for all intents and purposes that the development objective of PRAPS is: "to improve access to essential means and services of production and markets for pastoralists and agro-pastoralists in cross-border areas and along transhumance axes. Therefore, any analysis must take into account pastoralists and agro-pastoralists without one being to the detriment of the other.	Noted. The definition will be added. The report does not portray pastoralists and agro-pastoralist as detrimental to each other.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
Executive Summary	14	En expliquant mal le diagnostic qui a été fait et suite auquel la nécessité de moderniser les marchés, est apparu vous créez des confusions dangereuses. Les marchés doivent répondre au critère de rentabilité économique, donc il faut un seuil de présentation des animaux. Si les marchés ne sont pas réorganisés, on ne peut pas les contrôler convenablement et limiter la pléthore d'intermédiaires. Un étude est en cours pour retenir les modes de gestion des marchés qui valorisent mieux les produits de l'élevage.	By explaining badly the diagnosis which was made and following which the need to modernize the markets, you create dangerous confusions. The markets must meet the criterion of economic profitability, so there must be a threshold for the presentation of animals. If the markets are not reorganized, we cannot control them properly and limit the plethora of intermediaries. A study is underway to select the methods of market management that better enhance the value of livestock products.	More detailed elaboration of the aspects of the diagnostic which were insufficiently explained, would be appreciated.
Executive Summary	14	Citez ces produits de l'élevage qui seront plus importants que le bétail dans les marchés	Name those livestock products that will be more important than livestock in the markets	This is a misunderstanding.
Executive Summary	14	Pourtant vous venez d'affirmer que les 18 marchés à reconstruire, il n'y a aucun marché de collecte. Quelle contradiction flagrante!!!!	Yet you have just said that the 18 markets to be rebuilt, there is no collection market. What a blatant contradiction !!!!	This is a misunderstanding.
Executive Summary	14	Ces détails ne sont vraiment pas d'une grande importance au regard de l'objectif de votre étude qui est la collecte des données de référence pour les évaluations futures des résultats de l'activité PRAPS, comme le taux de recouvrement des taxes, les présentations, les ventes des animaux ainsi que le taux de vente, avant l'amenagement des marchés.	These details are really not of great importance to the objective of your study which is to collect baseline data for future evaluations of the results of the PRAPS activity, such as tax collection rate, presentations. , animal sales as well as the sales rate, before market development.	Such aspects are of importance, for instance, for phytosanitary and gender considerations. KII respondents confirmed that this was a major consideration for them.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
Executive Summary	14	Détails inutiles. Ce sont ces problématiques qui ont conduit au choix de ces marchés pour leur aménagement. Donc vous n'avez pas à le rappeler ici.	Unnecessary details. These are the issues that led to the choice of these markets for their development. So you don't have to reiterate it here.	Such aspects are of importance, for instance, for phytosanitary and gender considerations. KII respondents confirmed that this was a major consideration for them.
Executive Summary	14	Trop de détails inutiles. Moi le terme "stocker les animaux" me dérange. Ce ne sont pas des sacs de son tout de même!!!!!!!!	Too many unnecessary details. The term "storing animals" bothers me. These are not bags of sound all the same !!!!!!!!	Such aspects are of importance, for instance, for phytosanitary and gender considerations. KII respondents confirmed that this was a major consideration for them.
Executive Summary	14	Quelle type de perte? mortalité, vol??	What kind of loss? mortality, theft ??	The KII respondents did not provide more details.
Executive Summary	15	Raison de plus pour les aménager. Vous même vous dites qu'il ya une corrélation entre le flux des animaux sur les marchés et les mouvements de transhumance, ce qui signifie que les éleveurs présentent les animaux au niveau de toutes les catégories de marchés (Collecte,....., consommation).	All the more reason to arrange them. You even say to yourself that there is a correlation between the flow of animals on the markets and the movements of transhumance, which means that the breeders present the animals at the level of all the categories of markets (Collection, ..., consumption).	As mentioned in the report, breeders are present in all types of markets. The issue is the level of participation in each market type.
Executive Summary	15	J'aimerai vraiment une idée sur les équipes qui ont conduit ces enquêtes. J'ai du mal à comprendre à accepter que sur une grande région d'élevage comme Tahoua, qu'on me dise qu'un seul exportateur a été interrogé.	I would really like an idea on the teams that conducted these surveys. I find it hard to understand accepting that in a large breeding region like Tahoua, people tell me that only one exporter was interviewed.	The sample for the AH survey was selected using stratified random sampling. The methodology was agreed upon in the Evaluation Design Report (EDR).
Executive Summary	15	Pour comprendre la véritable part des exportation, vous ne devez pas vous limiter à interroger les éleveurs. En effet, pour leur plupart, ils ne sont pas des exportateurs.	To understand the true share of exports, you don't have to limit yourself to interviewing ranchers. Indeed, for the most part, they are not exporters.	The research methodology was agreed upon in the EDR. Livestock market participants were also interviewed on the opportunity to export. Please find the details in section 5.2.3

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		Votre méthodologie d'enquête au niveau des marchés à bétail montre beaucoup d'insuffisances pour vous permettre à mieux cerner le mécanisme qui régit le fonctionnement de ces marchés. Pour conclure, sachez que vous n'avez fourni aucune données de référence concernant les marchés à bétail. Il faut reprendre cette partie.	Your survey methodology at the level of livestock markets shows many shortcomings to allow you to better understand the mechanism that governs the functioning of these markets. In conclusion, please note that you have not provided any benchmark data for livestock markets. We must take this part again.	
Executive Summary	15	Pour la question de la santé animale il aurait été plus pertinent de résumer la problématique pour mieux contextualiser l'intervention du PRAPS MCA NIGER à travers les différents appuis (vaccins, équipement, SVPP renforcement de capacités, réformes, sensibilisation, etc..). Faire le point de l'impact de cette intervention dans l'amélioration des chiffres de vaccination dans les départements cibles en lien avec l'installation des SVPP.	For the issue of animal health, it would have been more relevant to summarize the problem to better contextualize the intervention of PRAPS MCA NIGER through the various supports (vaccines, equipment, SVPP capacity building, reforms, awareness, etc.). Take stock of the impact of this intervention in improving vaccination figures in target departments in connection with the installation of SVPP.	Most of the mentioned points are included in the discussion in section 5.3.4
Executive Summary	15	Source de cette affirmation. Citez ces maladies!. Sachez que parmi les maladies les plus meurtrières qu'a connu le cheptel du Niger, on peut citer la peste bovine (éradiquée depuis des décennies par la vaccination), la peste des petits ruminants dont les foyers sont actuellement réduits par la vaccination, la PPCB également	Be aware that among the deadliest diseases experienced by Niger's livestock, we can cite rinderpest (eradicated for decades by vaccination), peste des petits ruminants whose outbreaks are currently reduced by vaccination, CBPP also combated by vaccination. Apart from these diseases, all the others have a minor impact in terms of loss through mortality.	This statement is not in line with the feedback from the KIIs.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		combattue par la vaccination. En dehors de ces maladies, toutes les autres ont une incidence mineure en terme de perte par mortalité.		
Executive Summary	15	Text- Le Niger compte plusieurs maladies du bétail qui ont un impact important sur la situation économique du pays en raison des pertes qu'elles génèrent et/ ou de leur nature zoonotique.: Il faut expliquer	Text- Niger has several livestock diseases that have a significant impact on the country's economic situation due to the losses they generate and / or their zoonotic nature. :We Must Explain	Please elaborate which aspects should be clarified.
Executive Summary		Préciser le document de l'OIE qui donne ces informations.	Specify the OIE document that provides this information.	The source of the older data (OIE) could no longer be found. The information was therefore replaced with the more recent data shared by DGSV.
Executive Summary	15	Donnez la source de cette littérature, il y'a un doute sur la fiabilité des taux de morbidité et de mortalité de la PPR. En effet, le taux de mortalité ne peut pas être supérieur à celui de la morbidité.	Give the source of this literature, there is a doubt about the reliability of the morbidity and mortality rates of PPR. Indeed, the mortality rate cannot be higher than that of morbidity.	The source of the older data (OIE) could no longer be found. The information was therefore replaced with the more recent data shared by DGSV.
Executive Summary	10	Ah bon! l'itinéraire de la transhumance est toujours le même selon les régions.	Really! the route of transhumance is always the same according to the regions.	The sources of the information are indicated in the report. If there are other relevant sources of information, then kindly share the source of the information for comparison.
Executive Summary	16	Il faut relativiser ces affirmations. En effet, comparés aux années 90, aujourd'hui on note une diminution drastique de ces conflits grâce aux multiples efforts entrepris par la sécurisation du foncier pastoral et les actions d'amenagement..	These statements must be put into perspective. Indeed, compared to the 90s, today we note a drastic decrease in these conflicts thanks to the multiple efforts undertaken by the security of pastoral land and development actions.	The text refers only to the current state, and not a comparison with previous decades.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
Executive Summary	16	Nous, nous ne connaissons la maladie de la jambe noire? Maladie de la bouche du mouton? Mais pourquoi le cabinet n'a pas passé à la DGSV du Ministère pour avoir les vraies informations??? Un travail de ce genre ne peut pas se faire sur des bases théoriques, sur des documentations en ligne.	We don't know about blackleg disease? Disease of the mouth of the sheep? But why didn't the cabinet go to the Ministry's DGSV to get the real information??? Work of this kind cannot be done on theoretical bases, on online documentation.	DGSV was interviewed. The secondary information was also complemented using interviews with SVPPs, AEs, and AVA/PRs, who mentioned observing most of these diseases.
Executive Summary	16	Dans tous les pays de ce monde, les maladies existent chez les humains comme chez les animaux. les signaler ne veut rien dire. Ici il s'agit de recueillir les données sur l'impact qu'elles représentent sur l'économie de l'éleveur et par là même sur celle du pays.	In all countries of this world, diseases exist in both humans and animals. reporting them does not mean anything. Here it is a question of collecting data on the impact they represent on the economy of the breeder and thus on that of the country.	Noted
Executive Summary	16	Les petits ruminants de cet âge sont rarement gardés dans les troupeaux. Cette information n'est pas pertinente. La durée économique d'un petit ruminant c'est autour de 3 ans.	Small ruminants of this age are rarely kept in herds. This information is not relevant. The economic duration of a small ruminant is around 3 years.	The data was reported by the herders surveyed during fieldwork.
Executive Summary	17	C'est curieux que VSF ne vous a pas dit tous les appuis qu'ils ont fourni aux SVPP (matériel, équipements et formation) grâce au financement de MCA-Niger. c'est quoi une chirurgie avancée? Vous voulez parler des salles de cliniques équipées avec un matériel de dernier cri? Sachez que l'un des critères de recrutement d'un SVPP c'est ses compétences à faire des interventions chirurgicales dans les zones reculées et enclavées.	It is curious that VSF has not told you all the support they have provided to the SVPP (material, equipment and training) thanks to funding from MCA-Niger. what is advanced surgery? Are you talking about clinic rooms equipped with state-of-the-art equipment? Be aware that one of the criteria for recruiting an SVPP is its skills to perform surgical interventions in remote and isolated areas.	VSF's efforts are noted in the report, for instance in the section on training and setting up new SVPPs (please see section 5.3.4.4 and 5.3.5). Few SVPPs interviewed mentioned that they wish to be trained further with specializations. The lack of adequate equipment for treatment and emergency care of the animals was also mentioned during the interviews.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
Executive Summary	17	Les auxiliaires d'élevage n'ont pas reçu de formation de matrones.!!!	Livestock auxiliaries have not been trained as matrons.!!!	It is a translation error. It was meant to convey animal birth and not childbirth. This was reported by most AEs and AVA/PRs in the interviews.
Executive Summary	17	Est ce qu'il est necessaire de rapporter ces données si déjà 75 à 90% des personnes enquêtées ont affirmé avoir accès à des services vétérinaires et des médicaments pour leurs animaux..		Both the availability and use of services were considered necessary parameters in the assessment.
Executive Summary	17	Pourquoi faire toujours référence à des études réalisées hors du Niger, alors qu'il existe des données plus fiables aux Niger. Il y'a un doute sur le sérieux de vos recherches documentaires.	Why always refer to studies carried out outside Niger, when there are more reliable data in Niger. There is a doubt about the seriousness of your documentary research.	While the study has included recent Niger specific data as provided by clients, these regional studies also add value to the analysis.
Executive Summary	17	Pour être sérieux il faut quand même faire ce que chacun fait: la situation avant projet et la situation avec l'intervention du PRAPS. Il faut faire le point des chiffres de vaccination dans les département où le PRAPS a installé ou appuyé les SVPP.	To be serious, you still have to do what everyone does: the situation before the project and the situation with the intervention of the PRAPS. It is necessary to take stock of the vaccination figures in the departments where the PRAPS has installed or supported the SVPP.	Noted. Vaccination rates from 2011 onwards are added to the text.
Executive Summary	17	Il y a là une confusion terrible entre le taux de couverture vaccinale et le taux d'immunisation (séroprévalence après le seromonitoring): les taux de couverture vaccinale de 41% et 55% concernent la campagne de vaccination 2016/2017 et c'est sur ça que les séroprévalence T0 ont été calculées pour la PPCB et la PPR, qui étaient de 36% pour la PPCB et 64,2% pour la PPR. Pour la campagne 2019, financée	There is a terrible confusion between the vaccination coverage rate and the immunization rate (seroprevalence after seromonitoring): the vaccination coverage rates of 41% and 55% concern the 2016/2017 vaccination campaign and this is why the T0 seroprevalence was calculated for CBPP and PPR, which were 36% for CBPP and 64.2% for PPR. For the 2019 campaign, funded by PRAPS-MCA Niger, vaccination	Noted. The team received the mentioned reports, and related data has been added to the text. (Section 5.3.1)

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		par le PRAPS-MCA Niger, les taux de couverture vaccinale sont de 82% et 72% respectivement pour la PPCB et la PPR pour l'ensemble du pays. Pour celle de 2020, ces taux sont respectivement de 78% et 60%. Pour 2021, nous sommes à des taux de couverture vaccinale de 54% et 59% respectivement pour la PPCB et la PPR. La séroprévalence T2 de la PPCB est de 41,03%, la T2 PPR n'est pas encore réalisée. Au besoin les détails par région sont disponibles.	coverage rates are 82% and 72% respectively for CBPP and PPR for the country as a whole. For the 2020 rate, these rates are 78% and 60% respectively. For 2021, we are at vaccination coverage rates of 54% and 59% respectively for CBPP and PPR. The T2 seroprevalence of CBPP is 41.03%, T2 PPR is not yet realized. If necessary, details by region are available.	
Executive Summary	17	Quelles sont les raisons avancées qui expliquent cette baisse. En tant que bon évaluateur ces résultats devraient vous amener à chercher ces raisons. Votre silence laisse penser des intentions non avouées, en clair celles à nuire le projet. Bon sachez que cette baisse est consécutive à la survenue de la pandémie de la Covid 19 qui a entrainé un arrêt précoce de la campagne de vaccination en 2019 et la rupture de vaccin qui a également entrainé un arrêt momentané de la vaccination pendant un mois en 2020. Toutes ces informations vous devrez les chercher pour une objectivité de cette évaluation.	What are the reasons given that explain this decline? As a good evaluator these results should lead you to look for these reasons. Your silence suggests unconfessed intentions, in other words those to harm the project. Be aware that this decline is due to the occurrence of the Covid 19 pandemic which led to an early stop of the vaccination campaign in 2019 and the rupture of the vaccine which also led to a temporary stop of vaccination for a month in 2020. All this information you will have to look for for an objectivity of this evaluation.	The reasons, including the pandemic, insecurity, and procedural delays are discussed in section 5.3.4.1.
Executive Summary	17	En quelle année?	In what year?	The data was collected via the AH survey, for 2020-

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
				2021. This has been updated in the text as well.
Executive Summary	17	Utilisez la terminologie: ovins, caprins	Use terminology: sheep, goats	Noted.
Executive Summary	17	Quel est ce coq à l'âne. On présente un tableau de chiffre de vaccination et on commence par une analyse de taux de mortalité dont on ne connaît pas à quelle maladie il se rattache. Il y a une incohérence notoire.	What is this rooster to the donkey. A table of vaccination figures is presented and an analysis of mortality rates is presented, which disease is not known. There is a notorious inconsistency.	As mentioned in the table and text above (in the report), these vaccination rates are for PPR and CBPP. The mortality rate reported here is the overall mortality rate, as informed by the herders in the survey. Mortality due to CBPP and PPR are further discussed in section 5.3.4.2.
Executive Summary	17	Sur la base d'une enquête de je ne sais combien de jours, il est très hasardeux d'avancer des chiffres comme ça. On donne des informations sans aucune référence fiable.	Based on a survey of I do not know how many days, it is very risky to put forward figures like this. Information is given without any reliable reference.	The survey methodology was agreed upon with all key stakeholders and presented in the EDR.
Executive Summary	18	Non le LaBOCEL a réalisé 3 seromonitoring pour la PPCB, et deux pour la PPR, veuillez vous y référer	No LaBOCEL has carried out 3 seromonitoring for the PPCB, and two for the PPR, please refer to them	Noted. Edited.
Executive Summary	18	3 seromonotoring PPCB furent exécutés par le LABOCEL et 2 enquêtes PPCB dont une sous financement du MCC. Les résultats de ces enquêtes furent partagés avec A2F même si un rapport global n'a pas été donné.	3 seromonotoring PPCB were executed by LABOCEL and 2 PPCB investigations including underfunding of the MCC. The results of these investigations were shared with A2F although an overall report was not given.	Noted. Edited
Executive Summary	18	Ici vous n'êtes plus entrain d'évaluer le PRAPS mais plutôt la politique de la santé animale au Niger. Mais c'est encore dommage, car dans ce paragraphe vous voulez dire qu'il vaut traiter que de prévenir. Citez nous les pays de la sous région ouest africaine qui ont éliminé la PPCB et montrer ainsi la défaillance de la politique du Niger.	Here you are no longer evaluating the PRAPS but rather the animal health policy in Niger. But it is still a pity, because in this paragraph you mean that it is worth treating than preventing. Quote us the countries of the West African sub-region that have eliminated the CBPP and thus show the failure of Niger's policy.	This is a misunderstanding.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
Executive Summary	18	Je ne pense pas qu'un cabinet d'étude puisse se permettre de juger une politique d'un pays en matière de santé animale, aussi indépendant soit-il. Nous avons des Plans Nationaux Stratégiques d'Eradication de la PPR et de Contrôle de la PPCB, élaborés avec l'appui de l'OIE, qui est l'organisation qui gère la santé animale dans le monde, et tout ce que nous faisons au Niger pour contrôler ces deux maladies est contenu dans ces documents validés techniquement et politiquement.	I do not think that a research firm can afford to judge a country's animal health policy, however independent it may be. We have National Strategic Plans for ppr eradication and CBPP control, developed with the support of the OIE, which is the organisation that manages animal health around the world, and everything we do in Niger to control these two diseases is contained in these technically and politically validated documents.	This is a misunderstanding.
Executive Summary	18	L'approche pour l'évaluation de la vaccination est faite par les enquêtes de séroprévalences. Les protocoles exploités par le LABOCEL édifient sur l'évaluation de la vaccination contre la PPCB. Ces protocoles furent partagés et vous permettraient de savoir que l'OIE a développé de mécanismes de contourner les limites de ce que vous dites. Conf : Protocole T1 & T2 PPCB	The approach to the evaluation of vaccination is made by seroprevalence surveys. The protocols operated by LABOCEL build on the evaluation of vaccination against CBPP. These protocols were shared and would let you know that the OIE has developed mechanisms to circumvent the limits of what you say. Conf: T1 & T2 PPCB Protocol	Noted
Executive Summary	19	Il fallait le noter depuis que vous parlez de la baisse de chiffres de vaccination. La repetition n'est jamais de trop dans de telle circonstance si on est objectif.	This had to be noted since you talked about the drop in vaccination figures. Repetition is never too much in such circumstances if one is objective.	These reasons are further explained in section 5.3.4.1.
Executive Summary	19	Pourtant vous avez accepté l'affirmation comme quoi le SVPP manque de matériel, équipement et formation	Yet you have accepted the assertion that the SVPP lacks materials, equipment and	This is a misunderstanding.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		pour mener à bien leur activité. Vous avez un problème de raisonnement cohérent. Tous les différents points traités, dans ce document, semblent être indépendants, alors qu'il y'a beaucoup de lien entre eux.	training to carry out their activity. You have a consistent reasoning problem. All the different points dealt with in this document seem to be independent, while there is a lot of connection between them.	
Executive Summary	19	Dans notre politique de santé animale, nous parlons de Service Vétérinaire Privé de Proximité (SVPP). Ces services sont officiellement installés dans des Départements après tout un processus. Les PTF appuient l'Etat dans ce sens, c'est comme ça qu'il faut comprendre les choses.	In our animal health policy, we talk about Private Veterinary Service of Proximity (SVPP). These services are officially installed in Departments after a whole process. The TFPs support the state in this sense, that's how we have to understand things.	Noted.
Executive Summary	19	Ce qu'il faut comprendre ce que le problème de la santé animale n'est pas seulement la PPCB et la PPR, et si notre pays a mis l'accent sur la lutte contre ces deux maladies, c'est parce qu'elles les plus meurtrières pour le bétail, entrainant des pertes économiques énormes quand elles surviennent. C'est d'ailleurs pour ces raisons que les vaccinations sont gratuites pour l'éleveur. Sinon, le contrôle des autres maladies animales est également d'une grande nécessité pour améliorer durablement la santé du cheptel et maximiser sa productivité.	What needs to be understood is that the animal health problem is not just CBPP and PPR, and if our country has focused on fighting these two diseases, it is because they are the most deadly for livestock, resulting in huge economic losses when they occur. It is for these reasons that vaccinations are free for the breeder. Otherwise, the control of other animal diseases is also of great need to sustainably improve the health of the herd and maximize its productivity.	Noted.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
Executive Summary	19	Le rapport est disponible et peut être obtenu auprès de la DGSV et le MCA	The report is available and can be obtained from the DGSV and the MCA	Thank you, it has been incorporated to the text.
Executive Summary	20	Il faut vérifier les TdR de ces études avant de formuler ce paragraphe. Ces études sont un préalable.	The ToR of these studies should be checked before formulating this paragraph. These studies are a prerequisite.	This is a misunderstanding.
Executive Summary	20	Merci de clarifier cette affirmation.: Cependant, ceux-ci ne font pas partie du travail de l'activité PRAPS 182 inance par le MCC.	Please clarify this statement.: Constructions have been reported at Guidan Roumji market in Maradi and Tabalak market in Tahoua. However, these are not part of the work of the MCC-funded PRAPS activity. However, these are not part of the work of the MCC-funded PRAPS activity.	Some construction was reported during the interviews with market participation. MCC subsequently clarified that this construction work was not under the Compact.
Executive Summary	21	La gouvernance locale et les membres de la communauté, ainsi que les éleveurs, s'attendent à ce que moins de conflits et une augmentation des rendements agricoles soient les principaux résultats de l'activité PRAPS. Merci de clarifier cette partie	Text: Local governance and community members, as well as pastoralists, expect fewer conflicts and increased agricultural yields to be the main outcomes of the PRAPS activity. Please clarify this part	Due to demarcation of the corridor, these groups expect increased yields.
Executive Summary	21	Revoir cette partie, c'est peut être la traduction qui n'est pas bonne. On penche vers une mauvaise compréhension du résultat attendu de la sécurisation des corridors et de leur aménagement. La vocation pastorale va demeurer. Nous sommes dans le cadre de la promotion et de la sauvegarde de la mobilité du cheptel	Reviewing this part may be the wrong translation. We are leaning towards a poor understanding of the expected result of securing the corridors and their development. The pastoral vocation will remain. We are in the framework of the promotion and the safeguard of the mobility of the herd	This is a misunderstanding. While herders reported an expected increase in access to resources such as water and pastureland, community members and local governance members from the region also expect to benefit from the activity.
Executive Summary	22	N'inventer pas la dichotomie là ou elle n'existe pas. On Niger il n'y a pas de discrimination liée au genre dans les services	Do not invent the dichotomy where it does not exist. On Niger there is no gender discrimination in livestock services at all levels.	The reported data is as collected during the survey. The data collected was gender-disaggregated.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		d'élevage à tous les niveaux. Evidemment les gens peuvent faire votre jeux pour vous plaire.	Obviously people can make your game to please you.	
Executive Summary	22	Le vrai blocage c'est la difficulté des études vétérinaires et les exigences spécifiques de ce métier qui font qu'il y a peu de candidates femmes. Les divisions de travail existent dans toutes les sociétés humaines. Chacun à des prédispositions.	The real obstacle is the difficulty of veterinary studies and the specific requirements of this profession that mean that there are few female candidates. Divisions of labor exist in all human societies. Each has predispositions.	Issues mentioned in the text are as reported by women interviewed for this evaluation.
Executive Summary	23	Les éleveurs transhumants ne connaissent pas la différence entre le champ d'un homme et celui d'une femme. Les champs ne sont pas marqués. Pour l'hydraulique il faut éviter de faire l'amalgame entre les points d'eau pastoraux et les points d'eau villageois. Merci de bien parcourir les corridors, bien connaître le système d'élevage sur lequel nous travaillons et sa différence avec l'élevage de ferme ou de ranching.	Transhumant breeders do not know the difference between the field of a man and that of a woman. Fields are not marked. For hydraulics, it is necessary to avoid conflating pastoral water points with village water points. Thank you for walking the corridors well, knowing the breeding system we are working on and its difference with farm or ranching breeding.	The issues were mentioned by women community members during interviews. We agree that men also reported similar issues.
Executive Summary	23	Nous ne sommes pas dans ce type d'élevage.	We are not in this type of breeding.	This is a misunderstanding.
Executive Summary	23	Est ce que le fait de ne pas aller à l'école doit être synonyme de ne pas avoir aucune éducation?	Does not going to school have to mean not having any education?	Years of schooling is a commonly used indicator for education.
Executive Summary	19	Une agence a été recrutée exclusivement pour mener des actions de sensibilisation sur la campagne de vaccination. Elle est actuellement sur le terrain.	An agency has been recruited exclusively to carry out awareness-raising activities on the vaccination campaign. She is currently on the ground.	Noted
Executive Summary	23	Il faut avoir à l'esprit que l'installation des vétérinaires privés est une politique du gouvernement amorcée depuis les années	It must be borne in mind that the installation of private veterinarians is a government policy initiated since the 90s. The State,	Noted.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		90. L'Etat à travers ses services déconcentrés assure un contrôle régalien de suivi de la qualité. Les projets viennent en appui. Qui dit appui dit que le bénéficiaire n'est pas pris en charge à 100%.	through its decentralised services, ensures a sovereign control of quality monitoring. The projects are supportive. Who says support says that the beneficiary is not 100% supported.	
Executive Summary	23	Attention dans la politique de SVPP, il n'y a pas AE à part et vétérinaire à part. Le responsable c'est le vétérinaire. Il a un réseau d'AE. C'est lui qui reçoit les redevances. C'est le maître absolu du SVPP. Il est responsable de la santé animale de sa zone d'influence. Merci de	Attention in the policy of SVPP, there is no separate EA and veterinarian apart. The person in charge is the veterinarian. It has an EA network. He is the one who receives the royalties. He is the absolute master of the SVPP. It is responsible for the animal health of its area of influence. Thank you for	Noted.
Executive Summary	24	S'il vous plait le PRAPS a renforcer significativement le plateau technique du LABOCEL et actuellement il produit suffisamment de vaccin. Pour la formation des vétérinaires l'Ecole de Dakar est disponible. Elle est régionale.	Please the PRAPS has significantly strengthened the technical platform of LABOCEL and currently it produces enough vaccine. For the training of veterinarians the School of Dakar is available. It is regional.	Noted. The lack of a veterinary school in Niger was bought up several times during the stakeholder interviews.
Executive Summary	24	Renseignez vous sur les raisons, les vraies raisons de ces retards.	Find out the reasons, the real reasons for these delays.	Several reasons are discussed through the report.
Executive Summary	24	Revoir nos commentaires plus pour savoir si votre affirmation n'est pas fausse. Conséquence de votre fausse référence. Il faut comparer avec les chiffres des années d'avant PRAPS.	Review our comments more to find out if your claim is not false. Consequence of your false reference. It is necessary to compare with the figures of the years before PRAPS.	The vaccination rates from the survey as well as the data reported at the time by DGSV were lower because the 2021 campaign lasted longer than usual. This information was provided subsequently and the data in the analysis has been adjusted. Notwithstanding, the fall in rates in last three campaigns is still observable and confirmed by additional sources provided as well.
Executive Summary	25	Se référer aux raisons du gouvernement du choix des marchés à aménager pour répondre aux demandes	Refer to the government's reasons for choosing the markets to be developed to meet the demands	Please provide the A2F team with the studies done to identify the markets.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
Executive Summary	25	Il faut recadrer ces propositions avec les volets qui ont été ciblé par le MCC dans le cadre de son appui au Niger à travers la composante 2 du PRAPS. Vos propositions doivent s'inscrire strictement dans ce cadre si veut qu'elles soient pertinentes. La question de l'alimentation animale aussi importante soit elle ne peut pas trouver des solutions ici. Les accords d'entité signés avec le Ministère en charge de l'Elevage ont pris en compte certains aspects qui ne sont pas dans ce qui a été votre champ d'investigation. Il faut bien circonscrire votre travail pour qu'il ait une valeur ajoutée.	These proposals need to be reframed with the components that have been targeted by the MCC as part of its support to Niger through component 2 of the PRAPS. Your proposals must be strictly within this framework if they are to be relevant. The issue of animal feed, as important as it is, cannot be solved here. The entity agreements signed with the Ministry in charge of Livestock have taken into account certain aspects that are not in what has been your field of investigation. It is necessary to circumscribe your work so that it has an added value.	Noted. The issue of animal feed was included as it was the main animal health concern reported by veterinarians, AEs, etc. in the interviews.
Executive Summary	25	Il ne faut pas mélanger marchés à bétail et conflits agriculteurs et éleveurs. Il faut vous référer à CA17 qui a le dossier de gestion des marchés à bétail pour mieux comprendre comment les différentes parties prenantes sont prises en compte. Evitons de faire une sorte de salade entre les problèmes de gestion des parcours et les problèmes de marchés à bétail. Les aspects de l'hydraulique pastorale et de l'hydraulique tout cours sont biens connus de tous et bien appréhendés à leur juste valeur. Ne faite pas de tempête dans un verre. Les problèmes agriculteurs éleveurs existent mais il faut bien les comprendre pour leur trouver des	Livestock markets should not be mixed with farmer-herder conflicts. Refer to CA17 which has the livestock market management file to better understand how the different stakeholders are taken into account. Let us avoid making a kind of salad between the problems of rangeland management and the problems of livestock markets. The aspects of pastoral hydraulics and all-course hydraulics are well known to all and well understood at their true value. Don't make a storm in a glass. The problems of farmers and breeders exist, but they must be well understood in order to find adequate solutions. You did say that farmers are becoming agropastoralists,	This is a misunderstanding. The paragraph mentions market distortions in livestock markets and conflicts between farmers and herders as potential problems that require further analysis. Both problems are separate, and the text does not mix the two topics to be studies together.

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		solutions adéquates. Vous avez bien dit que les éleveurs sont en train de devenir des agropasteurs, donc il faut bien analyser vos propositions.	so we must analyse your proposals carefully.	
Executive Summary	26	Cette conclusion n'est pas en harmonie avec le texte ci-dessous écrit plus haut : « Par conséquent, les preuves suggèrent que la pertinence des interventions de développement du couloir d'élevage doit être réévaluée avant de commencer tout travail de construction majeur ». Si cette assertion tient encore après votre relecture, alors fournir les nouvelles hypothèses de cette réévaluation	This conclusion is not consistent with the text below written above: "Therefore, the evidence suggests that the relevance of livestock corridor development interventions needs to be reassessed before any major construction work begins." If this assertion still holds after your proofreading, then provide the new assumptions of this reassessment	While the report recommended reassessment of the relevance of corridor development with focus on regional needs and scale, the report did not recommend no development. The paragraph in question discusses conflict between farmers and herders. To this end, the team recommends further analysis of the comparative benefits from demarcation of the transhumance corridor, separating water and pasture between farmers and herders, targeted awareness-raising efforts in the next context of reduced transhumance. The recommendations are all based on the information gathered through various KIIs, etc.
Julien Tougouri				
Executive Summary	9	Expliciter car il s'agit d'une évaluation de performance. Pourquoi perle-t-on de suivi de la mise en œuvre ?	Explain because it is a performance evaluation. Why is there a need to monitor implementation?	This is a misunderstanding. The evaluation methodology was agreed with all key stakeholders and reflected in the EDR.
Executive Summary	10	Peut-on collecter des données sur une cible « déjà polluée » par notre intervention et considérer le traitement des données issue de cette collecte comme référence ?	Can we collect data on a target "already polluted" by our intervention and consider the processing of the data resulting from this collection as a reference?	This is a misunderstanding. The evaluation methodology was agreed with all key stakeholders and reflected in the EDR.
Executive Summary	10	Est-ce que les troupeaux sélectionnés n'ont pas été touchés par notre campagne de vaccination ?	Were the selected herds not affected by our vaccination campaign? If so, can we deduce that the data are	This is a misunderstanding. The evaluation methodology was agreed with all key

Report and Section Name	Page number	Comment in French (if applicable)	Comment in English (if applicable)	A2F Response to the comment
		Si oui pourra-t-on en déduire que les données sont des données de référence, en ce qui concerne la composant AH que je conçois comme des données avant notre intervention.	reference data, with regard to the AH component, which I conceive as data before our intervention.	stakeholders and reflected in the EDR.
Executive Summary	5	Est ce qu'on peut dire que la tendance s'est poursuivie plus d'une décennie plus tard, c'est-à-dire de nos jours ?	Can we say that the trend has continued more than a decade later, that is, today?	Yes. These factors along with insecurity are further discussed in section 5.1
Executive Summary	11	Donner ici une petite explication.	Give a little explanation here.	The link to the source is no longer active unfortunately.
Executive Summary	11	Vous parlez de bétail qui regroupe l'ensemble des animaux ?	Are you talking about cattle that includes all the animals?	There was a translation error on this part, instead of animal, it should be cattle.
Executive Summary	11	Les tendances décrites par les prix ne reflètent pas la phrase précédente s'il s'agit du bétail en général	The trends described by the prices do not reflect the previous sentence if it is livestock in general	This is a misunderstanding. The information reported by the herders in the AH survey pointed to both higher prices and higher costs faced by transhumance herders. Though transhumance herds are considered better quality and earn a higher price, insecurity and limited availability of pasture on the corridor, among other reasons, are leading to increasing agro-pastoralism.
Executive Summary	17	Qu'est-ce qui explique cette différence significative ?	What explains this difference?	Agreed. Further analysis would be recommended.
Executive Summary	17	Il est mieux d'adopter la terminologie Ovin pour les moutons et Caprins pour les chèvres.	It is better to adopt the termsheep inology for sheep and goats for goats.	Noted. updated.
Executive Summary	22	Faites-vous cette affirmation à « caractéristiques égales » ?	Do you use this statement to "equal characteristics"?	It is difficult to ascertain if both women and men herders selling their produce have "equal characteristics", but the prices and costs reported are for per cattle, or per sheep, or per goat.

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