ASSESSMENT OF ANIMAL HEALTH SERVICE DATA IN THE PASTORAL AND AGRO-PASTORAL PART OF ETHIOPIA

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### Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AHA</td>
<td>Animal health assistants</td>
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<tr>
<td>AHT</td>
<td>Animal health technicians</td>
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<tr>
<td>APHRD</td>
<td>Animal and plant health regulatory directorate</td>
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<td>CAHWs</td>
<td>Community based animal health workers</td>
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<td>DVOs</td>
<td>Department of veterinary offices</td>
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<tr>
<td>FAO</td>
<td>Food and agricultural organization</td>
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<tr>
<td>LCRD</td>
<td>Livestock crop and rural development office</td>
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<tr>
<td>MoA</td>
<td>Ministry of Agriculture</td>
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<tr>
<td>MoARD</td>
<td>Ministry of agriculture and rural development</td>
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<tr>
<td>NAHDIC</td>
<td>National animal health diagnosis and investigation center</td>
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<tr>
<td>NGOs</td>
<td>Non-governmental organizations</td>
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<tr>
<td>NVI</td>
<td>National veterinary institute</td>
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<tr>
<td>PDO</td>
<td>Pastoral development offices</td>
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<tr>
<td>PRIME</td>
<td>Pastoralist areas resilience improvement through market expansion</td>
</tr>
<tr>
<td>PVPs</td>
<td>Private veterinary pharmacies</td>
</tr>
<tr>
<td>RVL</td>
<td>Regional Veterinary laboratory</td>
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<tr>
<td>RVS</td>
<td>Regional veterinary service</td>
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1. Executive Summary

In Ethiopia pastoralism and agro-pastoralism are an important means of livelihood for more than four million people, with most pastoralists living in the Somali, Afar, Oromiya and Southern Nations regions with huge potential for livestock sector. The livestock sector is; however, challenged by drought and unreliable rainfall, little livestock sector investment, limited support services (Animal health, input supply, and extension and financial) degradation of rangelands. Animal health services are the major felt needs of the pastoral communities and the lack of them tends to cripple the very hand that feeds the community. This assessment was conducted in the three clusters of PRIME operational areas namely, the Eastern Cluster, Southern Cluster, and Afar Clusters. The assessment was primarily conducted by the Haramaya University PRIME team as part of the year one activity plan of PRIME. The objective of the assessment was to capture the Animal health service data specifically on the veterinary service delivery and livestock disease reporting, surveillance and controlling measures in the pastoralist/agro-pastoralist areas of southern, eastern and Afar clusters. The assessment employed desk review, and key informant interviews to gather relevant information. This assessment revealed that pastoral/agro-pastoral livestock have been obtaining most of the veterinary services from government veterinary offices. However, inadequate budget, logistic problems, poor veterinary infrastructures, shortage of trained manpower, illegal drug circulation, unavailability of wide range of treatment options and poor quality drug and poor management capacity of the sector were found to be the main deficiencies of the government veterinary services. Community based Animal Health workers (CAHWs) have proven effective at bringing quality veterinary healthcare to pastoralists. CAHWs are the most important agent that has enhanced the improved the accessibility of veterinary service to the pastoral areas although it was found out in this assessment that CAHWs were challenged by lack of sustainable drug supply source with reasonable price and lack of linkage with private veterinary pharmacies (PVPs), limited refresher training in the face of unfamiliar diseases “new to the area”. Moreover, competitions by inexperienced owners getting access to black market veterinary drugs and their orientation in conflict prone areas.

Information exchange custom and good knowledge of pastoralists are the two pillars for disease surveillance and information dissemination. Contrarily, the assessment showed that government veterinary staffs did not have access of disease information unless they fortunately asked livestock owners visiting veterinary clinics/health posts for needy of help. Therefore, the government and NGOs should work hand in hand to improve the animal health information system in these pastoral areas vis-à-vis integrating the traditional information exchange mechanism with modern technologies. The assessment discovered that routine reports collected from health posts and veterinary clinics are sent to DVOs who in turn reports to their respective high level veterinary offices using a standard reporting format, while outbreaks are reported to on monthly basis to the National/Regional Epidemiological Units of the Animal health directorate office.
under the Ministry of Agriculture (MoA). Outbreaks are reported to major diseases of economic importance like pasturellosis, CBPP, CCPP, LSD etc. The assessment revealed that the existing livestock disease reporting system is constrained by lack trained manpower, irregular reporting, poor recording and documentation and poor infrastructures etc. Nonetheless, there are fast reporting of some diseases outbreaks, well prepared formats and continuous budget allocation for sending outbreak reports.

Both active and passive surveillance system are in place in all clusters. Active surveillance is done based on DVOs outbreak report and when compulsory situation happened. The livestock disease surveillance requires the full integration of professionals, para-professionals, communities and laboratories. The assessment bring to the surface that regional laboratories are not well equipped and have inadequate budget and logistic problem. Therefore, the existing disease surveillance has low capacity to detect all field disease status, to provide definitive diagnosis and to investigate livestock health events timely. Disease control is dominated by prophylaxis, but chemoprophylaxis and chemotherapy has wider roles. These services are provided by local public veterinary clinics with support of diagnostic RVLs, as well as other NGOs and private clinics. However, lack of adequate budget, contingency plan, logistic problems and lack of qualified human resource were found to be major restraints for responding fully and immediately to different disease outbreak. NGOs involvement in the animal health service delivery through the CAHWs program besides the financial and logistic support rendered to the local governments is paramount; however, their activity has to be harmonized and integrated into the government to sustain the efforts after they are gone.
2. Context Analysis

In Ethiopia pastoralism and agro-pastoralism are an important means of livelihood for more than four million people, with most pastoralists living in the Somali, Afar, Oromiya and Southern Nations regions. Ethiopia’s arid or semi-arid pastoral lands comprise approximately 63% of the total land area. The Ministry of Agriculture and Rural Development (MoARD) estimates that nationally, pastoralists own 73% of the goats (equivalent to 7.05 million head), 25% of the sheep (equivalent to 4.25 million head), 20% of the cattle (equivalent to 7.70 million head) and a substantial proportion of the camels (approximately 1 million head) (MoARD, 2008).

The livestock sector is, however, challenged by drought and unreliable rainfall, little livestock sector investment, limited support services (Animal health, input supply, and extension and financial) degradation of rangelands. Pastoral and agro pastoralists in the PRIME intervention areas have a significant livestock population (35 million) with a significant source of livestock export trades in the country. Despite the fact there are large numbers of livestock populations, the sector’s national economic contribution and benefits accruing to the pastoralists in particular through livestock export are quite minimal. number of constraints impede these outcomes including, limited inputs supply (feed and animal health), limited or poor extension services, high disease prevalence, poor marketing infrastructure, vastness of the areas, lack of marketing support services, limited credit services, absence of effective producers cooperatives and natural resource degradation (Aklilu, 2002). Moreover, the mobile lifestyle of pastoralists over vast areas, high delivery costs, and reluctance among qualified vets to live in remote areas has hampered veterinary service provision for Ethiopia’s pastoralists (Gedlu and Gijs, New agriculturists; MoA, 1995).

Animal health services are the major felt needs of the pastoral communities and the lack of them tends to cripple the very hand that feeds the community. Animal health service delivery in pastoral areas has been a major challenge to all providers in light of policy shift towards privatization. Implementing the animal health privatization policy in pastoral areas requires a radical change from the conventional approach prescribed for the high potential areas of the country. The challenge is greater, considering the conditions in pastoral areas such as insecurity, poor infrastructure, low cash economy, high cost of service delivery, vastness of the area, lack of veterinary personnel, among others. Due to inadequate or lack of AHS in pastoral areas, various service delivery initiatives, including CAHWs systems, have emerged as an alternative options (Catley et al., 2002). The initiatives have been started by NGOs and this system is yet to pass the test of time on sustainability and viability because it was done on voluntary basis, hardly sustainable beyond the life span of the supporting projects package CAHWs delivery initiatives within the privatization framework to make them sustainable and economically viable (Charless and Alistair, 2002).

The government is paying for the routing animal disease information, reporting, surveillance as well as the prevention and control of animal diseases rampant in the pastoral part of Ethiopia. However, the government can no longer offer these services because of budgetary constraints and fiscal deficits resulting in structural adjustment programs. As a result, the viability and quality of veterinary services has declined. This has necessitated a change of policy allowing the private sector to participate and promote the delivery of AHS (Berhanu, Undated).
Therefore, an integrated effort of the public-private service delivery should be enhanced. Additionally, the government and NGOs should strategize intervention plans based on currently available animal health data in pastoral part of areas.

3. Methodology

The assessment team reviewed previous studies, guidelines, manuals and literatures were reviewed to assess current veterinary service and surveillance and reporting systems across the border. The secondary data collected pertaining to the investigated issues was also collected from different concerned bodies. Routine activities and outbreak reporting formats developed at different veterinary offices were thoroughly assessed. Moreover, In-depth information was made using interviewing key informants who have deep knowledge on livestock health services in the area. Interview involved Livestock Offices, Animal Health Assistants, (AHA) and veterinarians/officers who are working in government veterinary offices and NGOs participating veterinary services. The information collected using different methods from different sources was triangulated and was narrated and documented in a more systematic way.

4. Key Findings

4.1. Veterinary Service Delivery System

The interview with key informants revealed that pastoral area livestock owners have been getting veterinary service by the veterinary clinics in the zone and health posts at woreda level as well as CAHW’s at Kebele level. Sometimes this division is not respected and livestock owners can get the services from which ever animal health services but mostly cost and distance determine the preference of the livestock owners and also not undermining the mobile nature of the pastoralists. In general, Government veterinary staffs mostly are delivering the services at veterinary clinics or posts while CAHWs at field. CAHWs and government veterinary staffs were identified curative service providers in the assessed areas. The service was found to be limited to administration of antibiotic, antihelmitic and trypanocidal drugs; closed castrations and minor surgical treatments.

Veterinary infrastructures and professionals in the southern, eastern and Afar clusters as presented in Table 1. In the Southern clusters these services were found to be given at 16 veterinary clinics and 103 health posts and laboratory with a total of 270 veterinary professionals (Veterinarians, AHA, AHT) (Table 1). In the Eastern cluster, these services are provided by 32 veterinary clinics and 489 Animal health posts and 3 laboratories with about 1066 professionals. Likewise in the Afar cluster there are 27 veterinary clinics, 44 animal health posts and 1 laboratory with a total of 92 veterinary professionals.
### Table 1. Veterinary professionals and infrastructures in the southern, eastern and Afar clusters of PRIME

<table>
<thead>
<tr>
<th>Pastoral Area</th>
<th>No of CAHWs</th>
<th>No of PVPs</th>
<th>Vet clinics</th>
<th>AH posts</th>
<th>Vet labs</th>
<th>Professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Cluster</td>
<td>371</td>
<td>24</td>
<td>16</td>
<td>103</td>
<td>1</td>
<td>270</td>
</tr>
<tr>
<td>Eastern Cluster</td>
<td>1,654</td>
<td>35</td>
<td>32</td>
<td>489</td>
<td>3</td>
<td>1066</td>
</tr>
<tr>
<td>Afar Cluster</td>
<td>616</td>
<td>13</td>
<td>27</td>
<td>44</td>
<td>1</td>
<td>92</td>
</tr>
</tbody>
</table>

The establishment of these infrastructures has been carried out mainly by governments although some NGOs have involved in construction of health posts. The existing veterinary clinics and health posts were not found enough to level cover the vast areas.

Veterinary service offices in each clusters mentioned that PVPs have started participating in supply of veterinary drugs mainly, antibiotics, antihelminitic drugs and acaricides. However, there number is very few. It was recorded that there are 24, 35, and 30 registered PVPs in the southern, eastern and Afar clusters respectively (Table 2). Therefore, only few drugs are available in the formal market for CAHWs and hence to pastoralists that might have encouraged free illegal drug circulation in the market. In addition, the assessment revealed that most of livestock keepers treated their sick animals by themselves using antibiotics and trypanocidal drugs especially in remote areas where veterinary services are inaccessible although the area coverage of CAHWs was found to be by far greater than the government veterinary staffs. Although CAHWs have increased the accessibility of the veterinary service to the remote part of the pastoral community there number is still very low to provide service o the vast greater area and huge amount of animal population.

There are only 371, 1654 and 617 CAHWs in the southern, eastern and Afar clusters respectively (Table 2). Moreover, there activities are constrained by lack of sustainable drug supply source with reasonable price and absence of supervisions. In all clusters especially in the Eastern and southern clusters black-market drug dealers were found to be challengers of private practitioner, CAHWs’ veterinary service and even government veterinary service. The cumulative effects of those problems consequently results in reduction of the number of CAHWs regularly report their activities to DVOs and increasing CAHWs withdrawals.
Therefore, recruitment of more qualified pastoralists (presumably those who practices traditional veterinary care) in the CAHWs program and also increase the participation of PVPs vis-à-vis creation of linkage between these actors will have a paramount significance in improving the AHS delivery in the pastoral part of Ethiopia.

Table 2. Livestock population, the number of CAHWs and PVPs in the southern, eastern and Afar clusters of PRIME

<table>
<thead>
<tr>
<th>Pastoral Area</th>
<th>Area (km²)</th>
<th>Livestock pop. (millions)</th>
<th>No of CAHWs</th>
<th>No of PVPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Cluster</td>
<td>69,373</td>
<td>8.2</td>
<td>371</td>
<td>24</td>
</tr>
<tr>
<td>Eastern Cluster</td>
<td>282,300</td>
<td>23.428</td>
<td>1,654</td>
<td>35</td>
</tr>
<tr>
<td>Afar Cluster</td>
<td>95,958</td>
<td>3.04</td>
<td>616</td>
<td>13</td>
</tr>
</tbody>
</table>

4.2. Livestock Disease Information Flow

Information exchanging is very crucial in the day today activities of the pastoralists who always struggle to survive in the face of hostile and dynamic environment. They use this information as a means to protect their families, livelihoods and assets. It helps them know and understand current situations like market price, rainfall situation, and conflict and disease outbreak. This traditional information enable communities to access animal health information very fast and also helps to respond to situations in the most safe and appropriate way. These assessment, also found that information exchanging custom and good knowledge of pastoralists to be an opportunity for disease surveillance and information dissemination. Contrarily, the assessment showed that government veterinary staffs did not have access of disease information unless they fortunately asked livestock owners visiting veterinary clinics/health posts for needy of help. Therefore, the government and NGOs should work hand in hand to improve the animal health information system in these pastoral areas vis-à-vis integrating the traditional information exchange mechanism with modern technologies.
4.3. Livestock Disease Reporting

4.3.1 Routine disease reporting

In all the assessed areas included in the study, in general, there are two types of reports that will be accomplished by veterinary offices. These reports are the routine activities report containing specific cases, curative service of veterinary clinics and health posts and mass vaccinations information and the other one is outbreak report that contains information related to disease outbreak.

According to the explanations of veterinary officers there have been reporting routine activities of veterinary clinics/posts through hierarchal chains from local (kebele) to woreda to zones and region and finally to national office. That means the CAHWs at Keblel level or the animal health assistants (AHA) or Animal Health technicians (AHT) at the veterinary posts report the disease scenario to the DVOs who in turn make a routine reporting to the next higher veterinary officer in the hierarchy. The reports are submitted to their respective high level veterinary offices on monthly basis using a standard reporting format.

The formats of routine activities reports were, in general, prepared in such a way to collect type of species, age and number of animal treated; type of diseases diagnosed; clinical findings, laboratory diagnosis results, disease diagnosed and type and dose administered treatment are found on format to be recorded at clinics and health posts. Species and number of animals vaccinated and type vaccine used data could be included to these reports format if vaccinations were done.

Besides that irregularity in reporting and poor recording and documentation of data collected from specific cases were also observed as weaknesses of routine activities reporting which undermine quality of report and also create a delay in the reporting schedule quite frequently. This is mostly the case of remote health posts and DVOs. Apart from that lack of transport facilities, communication problems and absence AHAs on their duty stations were given as main reasons for not being reported timely. Earlier observation revealed reporting rate of 4.71%, 8.28%, 18.33% and 50.47% for Somali, Afar, Dire dawa and Oromia during five years period from 2007-2011. All these figures are below the required OIE standards of at least 80% reporting rate (Adapted from APHRD (Gulima, 2011) presented on VACNADA workshop, 05-07 December, 2011, Debre-Zeit, Ethiopia).

The Animal and Plant Health Regulatory Directorate (APHRD) has made efforts to improve the low rate of disease reporting, mainly through training and awareness creation, and by providing preprinted reporting formats, envelops, and required prepaid stamps. Little or no improvements have been achieved. Probably, this could emanate from systemic and structural weakness of the
reporting process, which centers mainly on woreda direct report to the Federal Authority i.e., to the APHRD, sometimes without the knowledge and consensus of Regional Authorities who have a direct control over the public staff in their areas. It appears that the issue of reporting requires some type of re-assessment and adjustment accordingly. The Competent Authorities in Regions should bear full responsibility for overseeing and ascertaining that this national and international commitment is properly addressed in their region. They may assign a competent person(s) to monitor and take all the necessary actions for realizing regular reports on animal diseases of the areas under their jurisdiction. The direct communication of information (reports and other issues related to disease occurrence or outbreak) between the HQs at the APHRD and woredas, in essence is appreciable, but lack practicality and reliability. Woredas are marred with a host of problems in their animal health delivery, as they are, among others, underfunded in field allowances, ill-equipped with transport and communication facilities and many of them isolated from main road networks (MoA Final Year book, 2012).

Above all some veterinary officers mentioned that the collected data quite often are not well recorded and documented, limiting the reliability and the quality of the data. This was mostly observed in the Siti Zone and Moyale Woreda of Borean Zone. These could be a consequence of lack of trained manpower and lack at least one computer at DVO level.

4.3.2. Outbreak reporting system

According to the key informants in all the three clusters the outbreak report contains information relevant to specific outbreak cases. The reporting is mostly done through mobile calls mostly by CAHWs, AHT, AHA and veterinarians who live in the PAs, and persons who are going to town of the district at community level. Once the outbreak reaches the nearby veterinary clinic/post then the information is passed to the Woreda LCRDO which then reports to the Zone (DVOs/PDOs), finally the DVOs/PDOs record the data in a well structured format and after reported outbreaks have been recorded on prepared formats, they are monthly sent to National/Regional Epidemiological Units of the Animal health directorate office under the Ministry of Agriculture (MOA) through mail. The Yabello and Jijiga DVO indicated that the frequency of the report depends on the degree of outbreak and the speed of response. The outbreak reporting formats is found to be well prepared so as to collect all important epidemiological data. Sometimes, these outbreaks could be immediately reported to high veterinary office if there is no vaccine or budget available to take action and to National Veterinary Laboratories if they are unknown and serious.

The assessment in all the clusters revealed that these reports were focused on list A and B diseases which has a significant effect on the productivity and lead to mortality of animals. These includes anthrax, blackleg, Lumpy skin disease (LSD), sheep and goat pox, pasteurrollosis, Peste
des Petits ruminants (PPR), and Contagious Caprine Pleuropnemonia (CCPP) outbreaks. Exception to this, the DVOs in Dire Dawa indicated that all outbreaks are reported to the Federal level offices.

Fast reporting at community level for some outbreaks, well prepared reporting format and regular allocation budget to costs of post offices were found to be strong sides of the present outbreak reporting system in Eastern cluster especially the Dire Dawa DVO. In all the clusters, except in the Afar cluster, the DVOs mentioned that, the improvement of communications such as mobile services in the area was found to be opportunity for timely reporting outbreaks. In Afar, lack of strong mobile network was the number one deterring factor in the current reporting system. With the exception of Dire Dawa DVOs, transport and communication were still found the two limiting factors in reporting system. These problems were resulted in irregular/absence of outbreak reports for some remote health posts and DVOs. Beside that financial problems and poor functionality of district post offices was obtained to be another hindrance of reporting outbreaks.

4.4. Livestock disease surveillance system

In general in the three PRIME clusters assessed both active and passive surveillance is carried out. In Moyale, however, the surveillance is dependent solely on passive surveillance. A major part of passive surveillance is disease reporting. Passive surveillance also constitutes assessing documented reports and analyzing samples sent from field services and from other clients to diagnostic laboratories. Unfortunately, most of disease reports, to-date, in Ethiopia are not laboratory confirmed and are, rather, reports based on suspicions and on owner information. Even these are not regularly submitted from all woredas on the monthly basis, as intended by the competent authorities and according to OIE requirements.

This assessment revealed that active surveillance in all the clusters are not regular coordinated activities instead some surveillances were undertaken when there are compulsory situations happens. This shows existing diseases surveillance system is based on active outbreak reports sent to DVOs. In most visited clusters, the DVOs mentioned that surveillance was done by the participation of communities, professionals, CAHWs, GO and NGOs. The major participants include professionals (collection of blood, analyzing data and prepare a report), laboratories (regional laboratories and/or NAHDIC/NVI-sample analysis), CAHWs (blood collection and reporting), community elders (Coordination and mediation), and NGOs (provide funding). In Dire Dawa and Shinille, however, teams of AHT and veterinarians will go out in the field and collect epidemiological data and samples. After they make analysis and interpretation the result and make a report to the concerned bodies.
The livestock diseases investigations at national level are done by Sebeta National Animal Health Diagnosis and Investigation Center (NAHDIC) complemented by the National Veterinary Institute (NVI). At regional level, Regional Veterinary Services (RVS) which, with the support from Regional Veterinary Laboratories (RVL), are charged with collection, collation and reporting of information on their activities and on animal health situation to their Regional Bureaus of Agriculture (RBoA). Regional Veterinary Laboratories are charged with conducting surveillance and diagnostic activities in their respective regions. Therefore, in the Eastern Cluster mainly at Jigjiga Regional Laboratories, at Southern cluster, at Yabello regional Laboratory, while in Afar at the Semera regional laboratory contribute a lot in provision of quick diagnostic service and frequent disease surveillance in the area. These laboratories, has also been undertaken routine disease, investigation, disease outbreak investigation and sero-surveillance to address the status of livestock diseases. The capacity of these laboratories has suffered because of limited human resource and laboratory facilities, i.e. shortage of equipments and kits and inadequate budget and logistic problem as well as the remoteness of these laboratories from the pastoral and agro-pastoral. Such weaknesses of the laboratory were found to be causes for unimproved the lower capacity to investigate outbreaks timely and to carry out regular surveillance activities.

The key informants suggested establishment of local veterinary laboratories could be a solution for distance problem of responsible laboratory. Furthermore, given the huge opportunities in the pastoral setting in the three clusters, including good community knowledge of livestock diseases, good community information exchanging custom, improvement telecommunication infrastructures and willingness of NGOs to participate in improvement of reporting and surveillance system, livestock disease surveillance can be improved if the regional veterinary laboratories are capacitated with veterinary supply.

4.5. Livestock Disease Prevention and Control Measures

Disease control in Ethiopia is also dominated by prophylaxis, but chemoprophylaxis and chemotherapy have wider roles. While selected diseases are planned and coordinated by the Federal Government with collaboration and support of Regional Authorities, the bulk of animal disease and other animal health problem control activities are performed by local public veterinary clinics with support of diagnostic RVLs, as well as other NGOs and private clinics.

The assessment result revealed that the livestock disease control and prevention method by the government is through provision of preventive services through mass vaccination and by curative and prophylactic treatment. But sometimes animal slaughtering and restriction of animal movement was some of additional provisions. In southern cluster herd diversification was
mentioned as the government’s animal health strategy in the prevention of disease in the pastoral or agro-pastoral herds.

Currently, most of the economically important diseases are controlled by mass vaccination in the three clusters. Some of these diseases include blackleg, anthrax, PPR, LSD, FMD, sheep and goat pox and, bovine and ovine pastuerollosis outbreaks were controlled by mass vaccination of the risky population following the reports their occurrences. CCPP and CBPP outbreaks controlled by mass administration of oxytetracycline injections for risky population. Most or all vaccinations are provided free of charge but antibiotic injections were made by the interest of the owners and they also covered all costs of the injections. Antibiotics are also provided free of charge by NGO’s especially in Moyalle, Yabello, Negelle and Dollo, which is claimed as the main factor that discourage the PVPs in these areas thereby affecting the service delivery by CAHWs in the remote part of the pastoral area. However, in Afar and Eastern cluster voucher system was the main practice by NGOs.

Most of the vaccinations happened after the short and long rainy seasons in all clusters, i.e, just before the expected occurrence of outbreaks which is the dry season, while prophylactic vaccinations happen any time. Several actors are known to be involved in vaccination campaigns. These include, CAHWs, professions (veterinarians, AHA and AHT), agricultural office (provide the vaccines) and NGOs (provide financial support and logistics).

Lack of adequate budget, logistic problems and lack of qualified human resource were found to be major restraints for responding fully and immediately to different outbreak reports. Moreover, lack of control over circulation of low quality drugs and access to black market drugs (Moyale, Yabello, Jigjiga) also weaken control strategies because of drug resistance issues. Lack of or unavailability of appropriate quarantine station, no proper linkage between CAHWs and PVPs and poor livestock input supply (Afar and Eastern Cluster) are also other potential constraint of effective disease control and prevention in the clusters.

5. Conclusions and Recommendations
This assessment result on the existing animal health service data (veterinary service delivery, livestock disease reporting and surveillance system and prevention and control measures, has lead to the following conclusions:

5.1. Conclusions

The existing veterinary service is very unreliable and constrained by shortage of trained manpower, inadequate budget, and logistic problem, lack of basic veterinary equipments and poor infrastructures of the area. Although the government has shown positive attitude towards the activities of CAHWs service, their activity has become weakened as the result of lack of drug
sources with reasonable price and absence of monitoring and supervisions and also challenged by black-market dealers and conflicts. There is flourishing of Private practitioner in recent years in the pastoralist parts of Ethiopia; however, their involvement in veterinary sector is insignificant and limited only to veterinary drugs supply.

Livestock disease information is an integral part of the pastoral community to make an effort in the bigger sense of disease control and prevention and hence custom information exchange and good knowledge animal health problems of pastoral communities are great opportunity to strengthen disease reporting and surveillance system. The existing livestock disease reporting system is constrained by lengthy chains of order so low annual reporting rate across all the clusters especially, Somali, lack of commitment to prepare the report by the veterinary professional, lack trained manpower, irregular reporting, poor recording and documentation and poor infrastructures etc. Nonetheless, there are fast reporting of some diseases outbreaks, well prepared formats and continuous budget allocation for sending outbreak reports.

The livestock disease surveillance requires the full integration of professionals, para-professionals, communities and laboratories. Although such participatory approach is essential for effective disease surveillance, the laboratories are not well equipped and have inadequate budget and logistic problem. Therefore, the existing disease surveillance has low capacity to detect all field disease status, to provide definitive diagnosis and to investigate livestock health events timely.

Disease control is dominated by prophylaxis, but chemoprophylaxis and chemotherapy has wider roles. While selected diseases are planned and coordinated by the Federal Government with collaboration and support of Regional Authorities, the bulk of animal disease and other animal health problem control activities are performed by local public veterinary clinics with support of diagnostic RVLs, as well as other NGOs and private clinics. However, lack of adequate budget, logistic problems and lack of qualified human resource were found to be major restraints for responding fully and immediately to different outbreak reports.

NGOs involvement in the animal health service delivery through the CAHWs program besides the financial and logistic support rendered to the local governments; however, their activity has to be harmonized and integrated into the government to sustain their efforts

5.2. Recommendations

In light of the above conclusions, the following recommendations have been made:

- Local government veterinary laboratories and clinics need to be equipped well with veterinary equipments and necessary operational budget and logistic facilities has to be provided so as to improve definitive diagnosis field disease events and timely veterinary services provision.
- Appropriate control should be put in place over illegal drug circulation in the normal drug and other veterinary input supply chain and the supply of veterinary drugs should be increased both in quality and quantity to reduce people looking for black-marketed drugs as result of lack of options.

- The government must stop subsidizing the veterinary services and drugs to promote the participation of private practitioners in the sector and encourage veterinary practitioners to involve in provision of mobile services instead of retailing veterinary drug.

- The government should inform its National/Regional Epidemiological Units to be well organized and to integrate custom and modern information to fasten the disease reporting system and reduce the time period it takes to respond to disease. Moreover, automation of the reporting system should be the way forward to fasten interventions.

- There should be a consistent and persistent push of the DVOs or higher authorities to strengthening animal disease surveillance by committing substantial resources in terms of required financial, infrastructural and adequately trained and skilled manpower inputs.

- An important prerequisite for effective and efficient surveillance system is the availability of competent and capable diagnostic laboratory; hence the regional laboratories should be adequately supplied with human, capital and logistic resources to provide confirmed test results to field findings or suspicion on animal diseases of internal or external origin, and for guiding subsequent response plans and actions.

- The Ethiopian governments have to put supporting CAHWs on the ground by establishing good supervision systems of their activities and introducing strong regulations of revolving fund provided by NGOs.

- The participation of private actors in the veterinary deliver system through provision of quality drug is highly required in these part of the country hence the government should assist the private sector actors to develop markets for critical inputs, stimulate systematic change to sustainably enhance production quantity, quality and timelines- that is responsive to input market demands. And the NGOs should continue to support the bridging of the linkage between CAHWs and PVPs.

- The NGOs involvement in the government is immense hence a continuous alignment of their activities with the government has to be monitored to sustain the concerted efforts made after they leave the areas.
References

7. Annexes

Check List for Animal Health Data

Information gathering Checklists for Animal Health Services Data

Name of Team/ Data Collector/ …………………………………………………

Date ………………………………………………………………………

I. GENERAL INFORMATION

A. Location: Region_________Zone __________Woreda_______________ Kebele___________

B. Profile of contact Person/Interviewed:
   Name:____________________________________:Organization/Bureau:_______________
   Position:____________________________      Phone: _ __________________________

C. General Area profile

   1. Area of the District …………………………………… Ha
   2. Total Population…………………………..Male ……………… Female…………… ……………..
   3. Total Number of PAS ……

II. VETERINARY SERVICES DELIVERY

A. Veterinary Services
   • What kind of veterinary services do the pastoralists/farmers get?

   • Who gives the services?

B. Livestock disease information flow
   • What is the importance of the information?

   • From whom do pastoralists or farmers get information?
C. Livestock disease reporting system

1. Routine activities of reporting
   • Why do you report?
     • For whom/to whom do you report?
     • How frequent?
     • What are problems that hinder your reporting?
     • What are their possible solutions?

1. Outbreak reporting
   • To whom do farmers do report outbreaks of disease?
     • For which diseases outbreaks do they report? Why?
     • How do they report?

D. Livestock disease surveillance

   • How does surveillance carry out?
   • Who are involved in disease surveillance? What are their roles?
• What are constraints/challenges for disease surveillance?

• What are possible solutions to improve the disease surveillance?

E. **Livestock disease prevention and control measures**

• How do prevent and control livestock diseases?

• For which diseases do vaccinate animals? When?

• What are constraints/challenges for prevention and control measures taken

• What are their possible solutions to improve prevention and control of livestock diseases?

• List at least 5 main animal health service-related constraints?

• What are the possible for solutions of those constraints to improve the service in future?
III. NUMBER OF VETERINARY PROFESSIONALS OF THE WOREDA:

1. Doctor of Veterinary Medicine (DVM) ..........................................................
2. Bachelor of Veterinary Science (BVS) ..........................................................
3. Animal Health Assistance (AHA) ..................................................................
4. Animal Health Technician (AHT) .................................................................
5. Laboratory Technician (LT) ........................................................................

III. VETERINARY INFRASTRUCTURE (FACILITIES) IN THE AREA/WOREDA

1. Number of veterinary clinics _____________ __
4. Number of health posts _____________ ___
5. Number of abattoirs____________________
6. Number of animal laboratory______________
7. Number of research centers______________
8. Number of PVPs  ______________________
9. Number of CAHWs  _____________________

IV. LIVESTOCK POPULATION

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<th>s/ n</th>
<th>Area/woreda</th>
<th>Livestock population</th>
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<tr>
<td>1</td>
<td></td>
<td>Cattle Goat sheep camel Mule Horse Donkey Poultry Total</td>
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<td>2</td>
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