

Enhance the Health Status of the Nomadic Pastoralists in Filtu Woreda, Liben Zone, Somali Region, Ethiopia

One Health Operational Research Report



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Executive Summary

The Operational Research (OR) “Enhance the Health Status of the Nomadic Pastoralists in Filtu Woreda, Liben Zone, Somali Region”, was implemented in the district (*woreda*) of Filtu from May 2015 to February 2016, in partnership with the Somali Regional State Health Bureau (SRHB), the Somali Regional State Livestock, Crop and Rural Development Bureau (SRLCRDB), and the Bureau of Finance and Economic Development (BOFED).

The present report stems from a combination of fieldwork and literature review and summarizes the OR background, the methodology applied, the main findings and the identified axes for future interventions in the area.

1. OR objectives

The main purpose of the OR was **to assess local pastoralists’ needs, perceptions and behaviours towards human and animal health, in relation to the local socio-ecological context.** Special attention was given to the strategies of adaptation to the environment – also in relation to climate change – and to the hindrances that prevent people to access the existing human and animal health facilities.

The OR was directed to:

- estimate the feasibility, efficacy and efficiency of future interventions aimed at the integration of human and animal health services;
- provide all project stakeholders with relevant information on the specific needs and behavioural patterns of the population, as well as with recommendations on potential strategies and interventions with high acceptance level;
- identify sustainable links between pastoralists and the existing national healthcare and veterinary systems.

2. OR approach

The One Health approach recognizes the interrelation of human, animal and environmental health, and aims at developing cross-sectorial and cross-level interventions designed to reduce and address health risks. The implementation of the OR activities combined a plurality of perspectives and experiences: One Medicine (implemented by CCM in 2004-2005 in Somali Region); One Health (see literature review); Medical Anthropology; Human Ecology; Ethnography; Local Knowledge and Practices towards human and animal health. It results in an “augmented” OH approach aimed at identifying multivariate solutions to enhance maximum agency of the herder and his household through a multidimensional matrix of options – behavioural, political, economic etc. – in order to obtain a “Household Health Serenity” based on health security, health accessibility, health sustainability and health compatibility.

3. OR methodology

In line with the interdisciplinary dimension of the OR, the activities have been conducted by a multidisciplinary team composed by: experts in anthropological, veterinary, environmental and medical sciences, cultural mediators and workshop/focus group facilitators. Local community members were also recruited on the field to ease the interaction with pastoralists' household members.

The OR involved the local population at different levels: herders and relatives (elders, men, women, youth, children); human and animal health professionals (biomedical, traditional); authorities, leaders and representatives (governmental, religious, customary). The majority of the information was collected at household level, considering it the main agency unit in the pastoral system.

After a preliminary discussion of the operational research with representatives of the concerned regional authorities in July (to analyse its aims and methods and ensure the alignment with national/regional plan), field activities developed into 5 steps between September and January (end of dry season - wet season - beginning of dry season):

1. *Introduction of the OR to stakeholders at woreda level (governmental authorities and NGOs representatives) and participatory selection of the main OR sites;*
2. *Introduction of the OR to leaders and elders of the selected kebele and mapping of community and territory (through the support of TriM applied geography experts and the development of GIS thematic maps);*
3. *Qualitative data collection at community and household levels (through semi-structured interviews, focus group discussions, participant observation of pastoralists' daily life) and secondary data collection in the concerned offices.*
4. *OR data analysis through the support of external experts and advisors;*
5. *Presentation and discussion of the OR findings and identified axes of intervention in a final workshop with concerned authorities and pastoralists community representatives.*

The OR implemented a total number of 31 field missions (from 1 to 5 days each); 38 site visits (in both outreach areas and Filtu town's strategic locations); 5 workshops; 62 Focus Group Discussions and 61 semi-structured, qualitative interviews.

The methodology applied allowed to ensure the acknowledgement, ownership and accountability of future one health actions through the participatory involvement of pastoralists community members and representatives in both data collection and decision-making processes. A continuous, open dialogue with Woreda and Regional authorities has been maintained throughout all the OR implementation.

4. OR population and environment background

The woreda of Filtu, Liben Zone, Somali Region of Ethiopia, borders on the South with the Dawa River (which separates it from Moyale and Udet woreda); on the West with Dekasuftu

woreda; on the North and East with the Ganale River (which separates it from Afer Zone), and on the Southeast with Dolo Ado woreda.

According to 2015 local estimates, the woreda acknowledges 108,340 inhabitants (50.1% males and 49.9% females). 90% of the population is defined “rural”, but the proportion between pastoralists and agropastoralists has not been ascertained. The population is divided in 16,415 households (with an average of 6.6 persons per household). The majority of people are Somali, organized in patrilinear clans; the family residence is patrilocal and Islamic polygamy is widespread. The livestock population is mainly composed of camels, cattle, goats, sheep, and in minor number donkeys.

The social system of nomads is organized in moments of fusion – the aggregation of people and livestock in temporary settlements near big water points and dry-season grazing areas - and fission – the separation of large groups and herds in small units of people and animals (households) in case of diffused resources (temporary water holes, rain triggered pastures). In Filtu woreda, short distances from highlands to the rivers provide pastoralists with a manageable territory: long-range nomadic transhumance is not common, except in case of severe droughts. Contrary to a standard long-range pastoralists’ model, herders can reach dry season wells, ponds and rivers without being too far from their households and extended family camps. The impression from the OR is that absolute nomadic pastoralism is progressively decreasing, due to several factors, such as: climate changes and consequent decrease of rainfall, grass/water availability and livestock number; long-term consequences of local conflicts and inaccessibility of disputed pastures and areas; input of resettlement governmental strategies.

Resettlement plans elicit ambiguous responses by local pastoralists. On one side, the concentration of human and livestock population in areas equipped with services like water points, schools, health facilities etc. and the taking away of the best grazing lands for agriculture, increase the human/animal density and reduce the availability of pastures, harming the pastoral way of life. On the other side, the establishment of social services in resettled sites is ideally perceived as positive and attracting. Actually, in visited sites the OR assessed lacks in services provisions, due to: i) distance from Filtu town; ii) malfunctioning of the infrastructures and shortage of manpower (as in the case of schools and water constructions); iii) abandonment of the areas where recent conflicts occurred (around Dawa river and on the border with Dekasuftu woreda), with consequent flow of IDPs.

Sedentarization trends cannot be stopped or deviated. Future planning and interventions should consider the presence of both nomadic and agro-pastoral communities, with the final target to provide differential high-quality services and to enhance decision making at household level (so that some would settle, finding efficient permanent services and assistance to agriculture; while others would remain nomadic, receiving full assistance through mobile services and innovative strategies).

5. OR key findings and recommendations

The three classical goals of One Health – “healthy people, healthy animals, healthy environment” – have been seen by CCM’s OR under a different perspective, with the determinants considered as vectors: environment *for* health/disease; livestock *for* health/disease; people *in* health/disease.

Environment for health/disease

Besides subsistence, Filtu environmental context is the natural feedback system for pastoralists seeking health for themselves and their livestock. This relationship is not peaceful, since it elicits defensive responses by the environment. This means that a “healthy environment” is not necessarily providing health to pastoral communities: a repulsive disease could be the unwelcome answer.

Key findings:

Pastoralists need grass and leaves, both derived from rains. Most of the field narratives involve a strategy based on ‘We follow the rains, wherever they fall’. In Filtu woreda, rainfall is erratic in time and space, that is why mobility is an imperative for nomads. Moreover, pastoralists developed a “vegetal geography”; plants and features provide the herder a mental map to follow with patterns of land use: goats and camels must be driven to bushy areas since they are browsers; sheep and cows need grass, being grazers; both groups have to be taken to salt licks, a combination of minerals and water.

The construction of big water points partially modified the paths of pastoralists, that today gather around these resources. Side effects of the process are the overcrowding of adjacent grazing areas, the development and spread of water-borne diseases, the inadequacy and frequent malfunctioning of the supply. Beside grazing and water, one of the main factors driving pastoralists’ movements is the need to avoid risks as pest infestations and presence of livestock/human diseases in some area.

Pastoralists are well integrated in the ecosystem, even if climate change is progressively reducing available pasture, pushing them towards agro-pastoralism and sedentarization. Major perceived risks are droughts and floods; moreover, rapid climate changes affect the seasonal and geographic disease distribution, challenging traditional prevention methods and behaviours. When climate change combines with conflicts, farming land expansion, and unavailability of proper services, the multi-dimensionality of disasters pose actual threats to pastoralists’ survival.

Recommendations:

- A deeper understanding of local diseases and environmental risks prevention methods (related to diseases contagion/transmission; pest infestations; floods, droughts etc.) in order to valorise, exchange and diffuse existing best practices and to enhance pastoralists’ resilience.
- Community awareness campaign should be constantly updated in relation to climate changes (new health threats by evolution of environment) and social transformations (i.e. sedentarization).

Livestock for health/disease

The report describes observed pastoralists' everyday practices to ensure the health of their livestock: from the regulation of reproduction, the care of newborns, the nourishment and management of the herd, to the treatment of diseases. Moreover, the OR analysed the gaps of the local veterinary health system and the barriers preventing the access to existing services.

Key findings:

Part of the survey focused on the collection of local knowledge about animal sicknesses, in order to compare it with veterinary conceptions and plan appropriate interventions and awareness campaigns, good strategies of communication and identify local best practices and knowledge to valorise and extend to contiguous socio-ecological systems. Results are analysed and discussed in the related sections.

In most of the visited sites, the OR remarked the lack of awareness on the transmission of zoonotic disease and the persistence of harmful practices related to the use of infected livestock's meat, milk and hides. Moreover, both pastoralists and animal health workers complained of the presence of widespread diseases affecting livestock, especially camels, that appear as not yet scientifically identified due to the lack of researches.

To treat livestock diseases, pastoralists rely on a variety of practices, such as traditional medicine (use of herbs, manipulation etc.), religious treatments (prayers, amulets etc.) and veterinary medicine (drugs and techniques). The most diffused way of treatment was identified in self-care (self-administration of biomedical drugs, traditional or religious practices), operated directly by livestock owners and/or "skilled" household members.

The delivery system of animal health service in Filtu woreda appears inadequate to respond to the existing needs and requests. Main gaps and barrier of the system will be further analysed, and appear mainly related to the shortage of drugs, vaccines and equipment supply; of trained manpower; of facilities and structures.

Drug contraband across the borders with Somalia and Kenya is widespread, due to the major availability and minor cost of illegal drugs. Negative aspects of this practice are related to the lack of controls on drug's composition, expiration date and conservation, with consequent minor efficacy and potential side-effects of the treatments.

Recommendations:

- Valorisation of local good practices to maintain and manage livestock's health and implementation of awareness campaigns on side-effects of harmful practices.
- Training of animal health workers, valorisation of household members' skills.
- Implementation of participatory epidemiological research to identify unknown animal diseases.
- Enhancement of drug and vaccines supply and distribution, to balance the use of contraband of drugs.

People in health/disease

The report discusses pastoralists' practices related to the management of people's health/diseases, from reproductive and maternal health, to hygiene and prevention methods, to the treatments of diseases affecting different family members. It also analyses the structural, socio-cultural and economic hindrances preventing pastoralists to access the existing healthcare facilities.

Key findings:

Local everyday practices towards health and disease management are embedded in Islamic religious conceptions. Biomedicine's exclusive focus on organic-biological dimension of reproduction and sickness processes, and lack of consideration of their emotional and spiritual aspects is one of the major factors preventing patients' compliance. Moreover, socio-cultural contexts shape local ideals of health and wellbeing. Meaningful examples are the persistence of home-delivery practices and the unacceptability of family planning interventions. Whereas local Islamic conceptions overlap with biomedical ones (as in the case of breastfeeding), behavioural change more easily undergoes.

Local good practices related to the prevention of disease transmission within the families have been identified and would need further insights to be enhanced.

The "medical system" of Filtu woreda comprehends plural health and therapeutic resources, as: i) traditional "professional" healers and practitioners; ii) domestic treatments applied within the household; iii) biomedical resources, public and private; iv) environmental resources and their role in pastoralist's movement in search for health. Sickness is a social event that affects the entire social group; decisions concerning the treatment and the resource to apply are taken within the household group, and are related to family and gender roles and inter-relational dynamics.

The quality of existing healthcare services is considered inadequate to respond to family needs. Main barriers delaying the access will be discussed in detail, and are mainly related to the social and economic costs of healthcare services (including transport, admission, recovery, treatments fees; risks related to leaving livestock and children; fear of social stigma); the geographic distribution of outreach facilities and the lack of curative services; the bad perception of lower-level services and the lack of trust in health workers' skills. Therefore, pastoralists often privilege traditional/religious treatments, private services (pharmacies/mobile health workers) and self-administration of biomedical drugs (often obtained from contraband channels).

Governmental health workers face several challenges related to the lack of resources and transport means. Contrary to the interest shown by animal health workers towards human health, they seem to underestimate the importance of animal health and the risks related to zoonotic diseases.

Recommendations:

- Reconsider the importance of spiritual/religious dimensions of health and sickness, and involve religious and customary leaders in health education campaigns, through a constant, peer to peer negotiation of different perspectives.
- Valorise and enhance pastoralists' good practices towards hygiene keeping and risk prevention.
- Enhance the quality of services concerning drug and equipment supply, manpower skills and tools (i.e. transport means) and healthcare structures.
- Enhance healthcare workers' awareness of the importance of zoonotic disease, of the need to cooperate with animal health workers and to establish relations of trust and compliance with patients.

6. Conclusions:

Methodological strengths, challenges faced, constraints and limitations of the OR are discussed in the conclusive paragraphs. The main result of the OR is the participatory identification, discussion and acknowledgement of intervention axes to guide future planning and intervention in the area.

Proposed intervention axes, analysed in detail in the main text, also in relation to existing previous experience and good practices in Filtu and neighbouring area, implemented either by governmental and NGO stakeholders, are:

- Integration of the human and animal healthcare delivery systems;
- Enhancement of the animal health services;
- Enhancement of the human health services;
- Human resources training and capacity building;
- Awareness and demand creation;
- Information and communication;
- Economic interventions;
- Research promotion.

We consider this OR as providing CCM, concerned stakeholders and future donors with a critical path analysis on the human/animal health priorities of the pastoral communities of Filtu woreda in order to design and validate a new project proposal that: i) promotes an optimal common health for humans, animals and environment in the area of intervention; ii) effectively responds to the needs of local pastoralists; and iii) integrates its action with the current government strategies within the *Health System Special Support Directorate* of the Federal Ministry of Health and the new Ministry of Livestock and Fisheries.

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Acronyms

ABE	Alternative Basic Education
AHP	Animal Health Post
AHA	Animal Health Assistant
AHT	Animal Health Technician
APC	Assistant Project Coordinator
BOFED	Bureau of Finance and Economic Development
CISP	<i>Comitato Internazionale per lo Sviluppo dei Popoli</i>
CAHW	Community Animal Health Worker
CCM	<i>Comitato Collaborazione Medica</i>
COOPI	<i>Cooperazione Internazionale</i>
CR	Country Representative
CV	Community Volunteer
DVM	Doctor of Veterinary Medicine
EVA	Ethiopian Veterinary Association
ETB	Ethiopian Birr
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
FMOH	Federal Ministry of Health
GFS	Global Forecast System
GPM	Global Precipitation Measurement
GPS	Global Positioning System
HA	Health Advisor
HC	Health Centre
HHA	Household Health Agents
HEW	Health Extension Worker
HO	Health Officer
HP	Health Post
HSDP	Health Sector Development Program
HW	Health Worker
IGP	Income Generating Project
IDP	Internal Displaced People
MW	Midwife
NAHDIC	National Animal Health Diagnostic and Investigation Centre

NGO	Non-Governmental Organisation
NLM	Norwegian Lutheran Mission
OH	One Health
OHU	One Health Unit
OM	One Medicine
OR	Operational Research
ORNTM	Operational Research Nurse Team Member
ORVTM	Operational Research Veterinary Team Member
PC	Pastoralists Concern
Pc	Project coordinator
PHC	Primary Health Care
PHCU	Primary Health Care Unit
PHEP	Pastoralists Health Extension Programme
PSNP	Productive Safety Net Programme
SES	Socio-Ecological System
SOWDA	Social Welfare & Development Association
SR	Somali Region
SRLCRDB	Somali Regional State Livestock Crop and Rural Development Bureau
SRHB	Somali Regional State Health Bureau
STD	Sexual Transmitted Disease
TA	Technical Advisor
TBA	Traditional Birth Attendant
TriM	Translate Into Meaning
TRMM	Tropical Rainfall Measuring Mission
WHO	World Health Organization
WoHO	Woreda Health Office
WLCRDO	Woreda Livestock Crop and Rural Development Office
WVO	Woreda Water Office
WWCYAO	Woreda Women, Children and Youths Affair Office

Introduction

The Operational Research (OR) “Enhance the Health Status of the Nomadic Pastoralists in Filtu Woreda, Liben Zone, Somali Region”, has been implemented in the district of Filtu¹ (Liben Zone, Somali Region) from May 2015 to February 2016.

The main purpose of the OR was to assess the pastoralists’ perceptions and behaviours towards human and animal health, in relation to the local socio-ecological context - in order to identify intervention axes to design an integrated system to enhance the health status of pastoralists, their livestock and the environment in Filtu woreda.

This report shows the results of the OR activities as a combination of a plurality of approaches: One Medicine (implemented by CCM in 2004-2005 in Somali Region); One Health (see literature review); Medical Anthropology; Human Ecology; Ethnography; Local Knowledge and Practices towards human and animal health.

This methodology combines in a single Socio-Ecological System (SES) the majority of determinants leading to a new approach to health care derived from: field experience, local perception, existing public health system and parallel resources. The goal is to enhance health for people, livestock and environment providing multivariate solutions to pastoralists.

The OR involved the local population at different levels:

- Herders and relatives (elders, men, women, youth, children)
- Human and animal health professionals (biomedical, traditional)
- Authorities, leaders and representatives (governmental, religious, customary)

We chose to get information at household level, considering it the main agency unit in the pastoral system. Thus, individuals interviewed and behaviours observed have been considered inside the framework offered by the household, its relationships and decision-making processes.

According to the OR proposal, CCM explored the feasibility, efficacy and efficiency of the One Health approach in the specific context of Filtu woreda. The knowledge base of the report (database and management of data) will further lead to our theoretical frame derived from fieldwork.

¹ Ethiopia is a Federal State, administratively organised into Regional States and chartered cities, Zones, *Woreda* (districts) and *Kebele* (wards). Kebele are the smallest administrative units, then divided into sub-kebele, villages and smaller settlements.

Chapter 1: OR background

1. The One Health Approach in the existing literature

The “One Health” approach has received a growing attention since 2004², becoming a key-concept in Global Health and attracting policy makers, funders and practitioners and influencing research and policy programmes. In the following years, it has obtained a wide echo mainly in relation to the very high-impact interactions between people, animal production and wildlife health and to the emergence of global zoonotic pandemics and infectious diseases deemed to have arisen in animal species (e.g. SARS coronavirus, H5N1 and H1N1 influenza virus, Nipah virus, Hendra virus, human immunodeficiency virus [HIV] and recently Ebola virus). In 2007, the World Health Organization remarked that most of the new infectious diseases appeared since the 1970s are transmittable between animals and humans. Therefore, the need of developing integrated approaches to improve human, animal and environmental health through multidisciplinary, cross-sectorial and cross-level interventions, designed to reduce and address health risks, has increasingly gained resonance³.

In a recent paper on the “Political Economy of One Health Research and Policy”, Galaz, Leach, Scoones and Stein highlight three narratives dominating the conceptualization of the One Health approach⁴ (Galaz et al. 2015, p. 3-5).

The first widespread narrative on “One Health, One World” insists on the centrality of an integrated approach. A holistic attitude is necessary to deal with complex interactions between ecology, animals, people and disease at global level, and cannot be implemented by one discipline or one sectorial agency alone⁵. The second narrative is related to the outbreak of epidemics and their global diffusion. One Health is defined as a way of preventing risk and responding to crises in a more efficient and rational way through improved diagnosis and surveillance, and prevention and control activities⁶. The third narrative focuses on the potential economic benefits of implementing One Health approaches that combine human and animal health interventions⁷.

² The concept was officially launched during the international conference “One World, One Health: Building Interdisciplinary Bridges to Health in a Globalized World”, convened by the Wildlife Conservation Society with support from the Rockefeller Foundation. Most of the analysis reviewed during this report, the international resonance obtained from the concept are strictly linked to the emergence and spread of avian influenza in the early 2000s.

³ Among many others, see for ex. Coker et al. (2011); Day (2011); Galaz et al. (2015); Jones et al. (2008); King et al. (2008), Lee & Brumme (2013); Osburn, Scott, Gibbs (2009); Zinsstag et al. (2006); Zinsstag et al. (2009); Zinsstag et al. (2011).

⁴ The article is the result of an analysis of the bibliographical literature published on One Health from 2007 to early 2014, of the policy documents issued between 2004 and 2013, and of 83 interviews conducted between 2008 and 2013 with a range of international stakeholders with active professional interests in One Health (Galaz et al. 2015, p. 1).

⁵ According to the authors, examples of this framing include FAO-OIE-WHO (2010), WHO (2008), World Bank (2010), and FAO (2013) and a number of review articles in academic and scientific key journals, as Zinsstag et al. (2009); Zinsstag et al. (2011); Zinsstag et al. (2012a and b); Okello et al. (2011); Coker et al. (2011); Kahn et al. (2009); Conraths et al. (2011); Rabinowitz and Conti (2013); Hueston et al. (2013); Leboeuf (2011); Lee and Brumme (2013); Anholt et al. (2012); Conrad et al. (2013).

⁶ The authors quote for example CDC (2011), Dry and Leach (2010), Elbe (2010), Galaz (2014).

⁷ On this issue, the authors point out: World Bank (2012), Grace (2014), Rushton *et al.* (2012), Häslar *et al.* (2013a and b), Zinsstag *et al.* (2006), Narrod *et al.* (2012).

Finally, the authors remark the ‘marginalisation of an alternative fourth narrative rooted more in local ecological and disease contexts, and voiced by people living with, and responding to disease⁸. This perspective argues that integrated surveillance and response must be built on local contexts and understandings’ (Galaz et al. 2015, p. 5). This marginalized narrative is emerging in works resulted from the cooperation of social scientists and health practitioners and is based on the experimentation of inclusive and participatory methodologies⁹. As they point out, ‘local agendas suggest that there is not One World, One Health, but in fact multiple ways of understanding and producing healthy animals, bodies and ecologies, involving an array of localised practices situated within wider sets of structural drivers¹⁰ and fundamentally requiring a social science perspective that integrates fully with community knowledge and priorities¹¹’ (*ibid.*, p. 18).

Moreover, other authors remark the need to widen the scope and to relate the incidence of zoonotic diseases with the socio-cultural and economic conditions that facilitate the spread of epidemics and the appearance of syndemics, especially as a result of inequalities within and between human populations and groups:

A syndemic involves two or more afflictions that, by interacting synergistically, contribute to excess burden of disease. (...) By emphasizing the entwining of human biology with social systems, the syndemic concept does challenge the conventional way of understanding and defining diseases as ‘distinct, discrete, and disjunctive entities that exist (in theory) separate from other diseases and from the social groups and social contexts in which they are found’ (Singer & Clair 2003, p. 24; in Rock et al. 2009, p. 992).

The circular relation between socio-economic inequalities, disease occurrence, development of syndemics and further deterioration of life conditions needs to be highly considered, both in assessment studies and in operational interventions. According to Zhou,

new evidence shows that the highest burden of zoonotic infectious diseases worldwide is mainly found in the poverty-stricken areas of the LDCs (least developed countries) as well as low and low-middle income countries. For example, Ethiopia, Nigeria, Tanzania, and India have particularly high zoonotic disease burdens with widespread illness and death. The numbers of infected humans and animals cause huge economic losses through the establishment of vicious circles of disease, reduced work ability and poverty. In order to understand the relationship between disease and poverty, the term “infectious diseases of poverty (IDPs)” has been coined to describe a number of diseases known to be more prevalent amongst poor populations (Zhou 2012, p. 1).

Connecting global analysis with micro-local, field-based research helps to understand the socio-political dynamics that embed causes and management of sickness and health. Planning multi-sectorial, holistic “One Health” strategies and interventions can enhance people’s health reducing risks and consequences of syndemics through the improvement of life conditions in the widest sense.

⁸ Dry and Leach (2010); Scoones (2010); Bardosh et al. (2014a and b).

⁹ References quoted in the paper are: Dry and Leach (2010); Scoones (2010); Bardosh *et al.* (2014a and b) Hinchliffe (2007); Forster (2012); Waltner-Toews (2001); Grace *et al.* (2012a and b); Spiegel *et al.* (2005).

¹⁰ Wallace et al. (2014).

¹¹ Craddock and Hinchliffe (2014); Lapinski et al. (2014); Bardosh (2014); Parkes et al. (2005).

2. One Health augmented

The assumption behind the OM and OH approaches among nomadic pastoralists is based on the supposed symmetrical relation between human and animal health: if livestock is and remains healthy, the same will be for nomads, and vice versa. The wellbeing of the pastoral household is based on the quantity, quality and productivity of its livestock; therefore the sickness of a few animals will lead to a decrease of nutrition and health of the community. On the other hand, livestock needs to be tended and cured with the outmost attention: only healthy people can properly do it.

CCM's researches in 2004-2005 and 2015-2016 outlined a significantly different pattern. The relationship between human and animal health appears to be asymmetric. According to the observed practices, nomadic pastoralists privilege to enhance livestock health in order to protect the wellbeing of the household for economic, social and territorial reasons. A sick herder faces economic problems in leaving his animals (stampedes, accidents, epidemics), social troubles (contempt, isolation), and constraints (environment, distances, access: often the distance of the health facilities forces to prolonged absences from the herd). There is a deep gap between the concepts of health promoted by Public Health initiatives and interventions and the local health strategies. Due to the impossibility to grant any optimum in health, nutrition and wellbeing, the pastoralists in Filtu seek practices and remedies able to guarantee them with a minimum of efficiency and minimize risks instead of optimizing results with their livestock. According to this, the sickness of an animal can affect the health of the whole household, while the sickness of a family member can be overtaken by money or social bonds (herders can pay someone to take care of the livestock, or ask a relative to do it).

Moreover, in Filtu pastoralists enact opportunistic strategies combining variable patterns of mobility and resources exploitation, adapting behaviours to pressures and circumstances. Sedentarization is increasing in some areas, due to reasons that have been assessed in the field (see findings). This process led us to widen the target of our OR, including semi-pastoralists and agro-pastoralists, because they show at best the flexibility of the system and the resilience mechanisms typical of pastoralists under stress. It would make no sense to provide specific health care intervention for only one of these groups, without inserting in the system adaptive tactics for different typologies of behaviour.

Thus, One Health concept elaborated by CCM in 2015 is augmented through the integration of biomedical and veterinarian scientific knowledge with local pastoralists' knowledge and practices, under the interpretative umbrella of collective movement of people and their livestock in search for pasture and in relation to the rainfall distribution: men, animals, environment. This approach is aimed to enhance maximum agency of the herder and his household thorough a multidimensional matrix of options - behavioural, political, economic etc. - in order to obtain a "Household Health Serenity" based on health security, health accessibility, health sustainability and health compatibility.

The three classical goals of One Health "healthy people, healthy animals, healthy environment" have been considered in our OR under a different perspective, with the combining determinants considered as vectors: environment for health/disease; livestock for health/disease; people in health/disease. One of the goals of OR was to get data and analyse

the way in which the three vectors interact in building health or disease among Filtu pastoralists.

3. Pastoralists' Health in Ethiopia

Climate change, globalization, urbanization, deforestation, and intensification of agriculture are all major drivers of environmental changes. They affect human health and create or widen gaps with regard to the socio-economic status between the rich and the poor in this world. (...) One of the most important consequences of the current geo-political dynamics and environmental change is the continued vulnerability of marginalized people to infectious diseases, which is fuelled by factors such as poverty, low social status, environmental degradation and changing ecosystems (Zhou 2012, p. 1).

This is particularly true if we look at pastoralists' health in developing countries like Ethiopia. Pastoral lands of Ethiopia cover about 60% of the total land area, with an estimation of about 8 million pastoralists accounting for about 10% of the total Country population. The healthcare delivery system among pastoral societies is extremely poor compared to rural places of non-pastoralists in Ethiopia. This is because of several factors generally associated with the pastoralist's lifestyle, including dispersed settlement patterns, seasonal mobility, and under-utilization of services even when and where they are available. Besides, health facilities in pastoralist communities are limited in number, understaffed and characterized by poorly organized service delivery, leading to infrastructures often operating at a level far below their potential capacity (FMOH, UNICEF, WHO 2011). These conditions are drivers of a situation described by relevant literature as typical of pastoralist communities: pastoralists are prone to suffer of higher infant, maternal and U5 mortality rates than non-nomadic communities; are more likely to be affected by water-borne diseases; and susceptible to zoonotic diseases such as brucellosis, Q-fever, bovine tuberculosis and botulism due to their association with and consumption of raw, unpasteurized milk (Schelling et al. 2003).

The Federal Ministry of Health (FMOH) is well aware and concerned about the matter and has been focusing on pastoral health since the *Health Sector Development Program II* (2002 – 2005), where the need of establishing appropriate delivery systems for increasing the coverage and utilization of healthcare services by the pastoralists is clearly prioritised. In the subsequent plans, a number of strategies have been identified to enhance accessibility and utilisation of the healthcare services among pastoral communities (e.g., modification of the national Health Extension Programme into the *Pastoralist Health Extension Programme*, PHEP; establishment of the *Pastoralist Health Promotion and Disease Prevention Directorate*, and more recently of the *Health System Special Support Directorate* under the Federal Ministry of Health), but despite several efforts their application proved inadequate to fully respond to the basic health needs of pastoral communities.

4. CCM actions towards pastoralists health

The area of the project is in the woreda of Filtu, Liben Zone, Somali Region of Ethiopia. Liben Zone has an estimated total population of 539,821 people, with about 45% women and 82,5%

people leading a pastoral life style¹². CCM has been working in Liben Zone since 2003, through actions aimed at strengthening the health system and improving the delivery of basic preventive and curative services, with a special focus on women and children. In 2005 *Comitato Collaborazione Medica* (CCM) piloted a *One Medicine* project to improve the health status of nomadic pastoralists in Filtu and Dollo woredas of Liben zone, extending a project started the previous year in Gode Zone. The project aimed at strengthening the existing healthcare services through the introduction of specific models fitting pastoralists' needs, and namely: i) the provision of care directly at community level, through mobile clinics; ii) the identification of Household Health Agents (HHA) among the nomadic community, to be trained and provide health education while dealing with common animal and human diseases; and iii) the creation of a network and referral system between the nomadic HHA and the existing health system in the area.

Capitalising the long-standing experience with pastoral communities, CCM is committed to identify effective strategies to address their still huge and not yet met health needs. The Operational Research "Enhance the Health Status of the Nomadic Pastoralists in Filtu Woreda, Liben Zone, SR", funded by the Swiss Development Cooperation, was implemented from June 2015 to January 2016 by *Comitato Collaborazione Medica* (CCM) in partnership with the Somali Regional State Health Bureau (SRHB), the Somali Regional State Livestock, Crop and Rural Development Bureau (SRLCRDB)¹³ and the Bureau of Finance and Economic Development (BOFED) of Ethiopia.

Chapter 2: OR aims and methods

1. Objectives

The Operational Research (OR) was conceived and designed as the key preparatory activity of a One Health Project to be implemented in the above mentioned intervention area. Basing on the OR results, CCM intends to analyse the health priorities of the pastoral communities in order to validate a new project proposal that: i) promotes an optimal common health for humans, animals and environment in the area of intervention; ii) effectively responds to the needs of local pastoralists; and iii) integrates its action with the current government strategies within the *Health System Special Support Directorate* of the Federal Ministry of Health and the new Ministry of Livestock and Fisheries.

The OR primary objective was to understand needs, perceptions and behaviours of local pastoral communities towards human and animal health, and their strategies of adaptation to the environment, also in relation to climate change. Special attention was given to the hindrances that prevent people to access to existing human and animal health facilities, and to

¹² CSA (2008). 2007 Population and Housing Census.

¹³ According to Federal directions, at the end of 2015 the Federal Government created the Ministry of Livestock Development and Fisheries, to separate livestock rearing and agricultural domains; consequently at Regional level the bureau became the Livestock and Pastoralists Development Bureau.

the identification of other therapeutic resources, locally available and used for the care of both people and their livestock (traditional medicines, domestic/self-treatments, religious healing practices, etc.).

The implementation of an OR prior to the start of the project activities has been considered essential to:

1. assess the possibility to realize future interventions aimed at enhancing the health status of the nomadic pastoralists through the integration of human and animal health services and to estimate their feasibility, efficacy and efficiency in the context of Filtu woreda;
2. promote sustainable links between pastoralists and the existing national healthcare and veterinary systems, and valorise local knowledge and practices towards a better health for both people and their animals;
3. ensure the acknowledgement of the future proposals by local communities, collecting their reactions on the research findings and building a shared, common plan for future actions based on field observations and information;
4. provide all project stakeholders with relevant information on the specific needs and behavioural patterns of the target populations, as well as informed recommendations on the adoption of sustainable implementing strategies and the inclusion of activities with high acceptance level.

2. Timing

The contract between the Swiss Federal Department of Foreign Affairs – acting through SCPO Addis Ababa – and CCM was signed on May 21st, 2015. The initial deadline was December 31st, 2015, but due to some logistics and organisation constrains, the project was extended for two months in 2016 (1 month, January, for fieldwork activities and 1 month, February, for data analysis, reporting and literature review).

In order to start the project implementation, the agreement between CCM, BOFED, SRLCRDB and SRHB was signed on June 26th, 2015.

The Anthropologist and Project coordinator (Pc) arrived in Ethiopia on July 14th, 2015, and moved to Filtu after a preliminary discussion of the project proposal and operational research with representatives of the concerned regional authorities (to analyse objectives and methodologies and ensure the alignment with national/regional plan), and the finalisation of the procurement and OR staff recruitment procedures.

Fieldwork activities started on September 2nd, 2015 and ended on January 27th, 2016, developing through 5 steps:

- 1 - *Introduction of the OR to stakeholders at woreda level* (governmental authorities and NGOs representatives), and *participatory selection of the research sites* (1st half of September 2015);
- 2 - *Introduction of the OR to leaders and elders of the selected kebele and mapping of community and territory* (2nd half of September 2015);

3 – *Fieldwork and data collection* on human and animal health and the relations between pastoralists and their environment (last week of September 2015 – last week of January 2016);

4 – *OR data analysis* through the support of CCM experts (Health and Technical Advisors) to identify research gaps and needs and guide the drafting the axes of intervention of the future One Health proposal (December 2015);

5 – *Presentation and discussion of OR findings and axes of intervention for the future One Health proposal* in a final workshop with concerned authorities and pastoralists community representatives (January 20th 2016).

An *External Final Evaluation*, with the main purpose of reviewing the performance of the Implementing Agency in organising and conducting the Operational Research, will be carried out at the end of the project implementation in May 2016.

3. Team

The core of the One Health approach is the integration of different forms of expertise, knowledge and professions, especially across human, animal and ecosystem health. In line with this interdisciplinary dimension, the OR has been conducted by a multidisciplinary team composed of:

- 1 *Medical Anthropologist* (Pc): Alessia Villanucci, employed by CCM;
- 1 *Logistician/Cultural Mediator* (Assistant project coordinator - Apc): Osman Ibrahim Isse, regularly based in Filtu as CCM focal person;
- 1 *Veterinary Doctor* (Operational Research Veterinary Team Member - ORVTM): Dr. Tahir Gerad Aden – Doctor of Veterinary Medicine. He started his collaboration with CCM on September 1st 2015. Due to his voluntary resignation, he was replaced by Dr. Zuleka Ismael Meder – Doctor of Veterinary Medicine – from November 25th 2015 to January 31st 2016;
- 1 *Nurse/Health Officer* (Operational Research Nurse Team Member - ORNTM): Mohamed Yunis Mohamed (Clinical Nurse). He started his collaboration with CCM on October 1st 2015. Due to his voluntary resignation, he was replaced by Belay Bekretsion Mehari – Health Officer – from October 10th 2015 to December 31st 2016. Hassen Abdi Yusuf – Clinical Nurse – was recruited from January 12th to January 31st 2016 during the project extension;
- 2 *Focus Group Discussions and Workshop facilitators*: one female facilitator, Shindeys Hassan, employed during the whole period of fieldwork to support the running of women FGD + one additional facilitator, Abdullahi Mohamed, recruited during the Technical Advisor’s field mission;
- 2 *Focal Experts from Woreda Technical Offices*: one Clinical Nurse, Omar Ali Arale, (seconded from the Woreda Health Office - WoHO) and one Animal Health Assistant, Mesfin Assefa, (seconded from the Woreda Livestock Crop and Rural Development

Office - WLCRDO) were appointed from September 15th 2015 to January 22nd 2016 to facilitate the relations between CCM and local authorities and the secondary and primary data collection in Filtu town and in outreach fieldwork areas;

- 1 *Liason Officer*: Mohammed Tahir Mohammud, regularly based in Jijiga to facilitate relations between CCM and Regional Authorities;
- Several local *workshop and focus group facilitators*: appointed on the field, according to the need and on a per diem basis, to allow the primary data collection among pastoralists communities.

The cooperation among professionals with different education and work background has been very fruitful for the OR data collection and analysis. The contribution of the Woreda experts has been very supportive and helpful as well, due to their deep knowledge of local socio-political context and dynamics, and their active participation and genuine commitment in all the research implementation steps. Despite their full involvement in the OR, in some cases their presence could hamper in the field the open collection of information from the pastoralists that may not feel comfortable of speaking in front of governmental representatives. In agreement with the Woreda officers, therefore, sometimes they did not take part to specific field activities.



Fig. 1: APC and WLCRDO focal expert during the first field mission

Moreover, the OR team has benefited of the remote and on-field supervision and cooperation of advisors and partners, in particular:

- *CCM Technical Advisor* (Human Terrain Analyst): Alberto Salza
- *CCM Health Advisor* (Public Health Expert): Micol Fascendini
- *TriM - Translate into Meaning* (Applied Geography Experts)¹⁴: Elena Isotta Cristofori, Anna Facello, Alessandro Demarchi

An open dialogue with Woreda and Region authorities has been maintained throughout the OR to guarantee a continuous, effective exchange and discussion on the research steps and findings.

¹⁴ Contacts: TriM s.r.l., Corso Sommeiller, 24,10128, Torino (Italy). Email: contact.trim@trimweb.it.

4. Methodology

One Health approach is more than integrating vets, medics and ecologists. It has to draw social scientists in, to better connect with local perspectives and community-level forms of expertise. The great challenge of linking different expertise requires the integration of local people's knowledge and everyday experience, involving a cultural brokering between different groups of people who have not worked together before.

In line with similar considerations, in our OR the anthropological perspective was the “glue” holding together all the other knowledge and expertise represented by the participants to the research (both professionals and local informants). This was the asset on which CCM founded its innovative approach to pastoralists' health. Following the anthropological methodology, holism has not to be considered as a sum of juxtaposed elements, but as a systemic relation among them; in particular, in our case, as a global space for reciprocity in discourses and narratives inside a shared space of field experience. The immersion in the local context is therefore essential since fieldwork aims not only at the registration and collection of data, but at a deeper understanding of the significance of people's behaviours, discourses and actions within a broader system of socio-cultural values and norms. Ethnography, therefore, consists in an exercise of decoding the meanings of practices and representations, and of their “translation” in a code comprehensible by a broader public, composed by partners, colleagues, workers, donors etc. This exercise is made possible thanks to an in-depth penetration in the field achieved through the long-term stay, and the embodiment of local social practices and values.

Field data collection was organized in two parallel activities:

- Secondary data collection through the support of concerned offices;
- Primary data collection in eight selected kebele, through: *collective meetings & focus group discussions* with community representatives (kebele leaders and elders) and local people (adult men and women, elders, youth); *participatory conversations* at household level (with groups of relatives of different age and gender); *semi-structured, qualitative interviews* with key-informants (governmental and private human and animal health workers, drug sellers, traditional healers, traditional birth attendants, livestock market operators); *participant observation* of pastoralists' daily life.



Fig. 2: Collective meetings with kebele leaders and elders and FGDs with household members



Fig. 3: Individual interviews with human and animal health professionals



Fig. 4: Participant observation of pastoralists' daily life

The selection and involvement of informants and participants to primary data collection has been conducted through a progressive approach to the communities, implemented through:

- Identification of woreda authorities and non-governmental representatives for the selection of sites and negotiations of relations with kebele authorities;
- Involvement of kebele authorities (leaders and elders) of selected sites for the authorization to the OR implementation and the participatory selection of sub-locations for data collection (average: 4/5 sites in each kebele administrative area);
- Identification of a local guide-facilitator (active pastoralist, territory wise, household head, acknowledged by leaders and community members, but not in a power position) to ease the interaction with pastoralist families and individuals;
- Introduction to communities of sub-locations and collection of general information on environmental and social conditions, animal and human health situation and services;
- Visits to the animal/human health services available and collection of primary and secondary data;
- Introduction to households' members and collection of specific information and life stories, plus observation of their daily life;
- Basing on information collected and relationships established, selection of further sub-sub-sites and households to be involved in the OR;

- Random encounters *en route* during movement to reach target sites and unforeseen assemblies of interested people.

A household is a physical, social and environmental habitat where all representatives of the community are supposed to be present: elders, adult men and women, youth, children, various livestock species. Due to the local gender sensitivity, we acknowledged the impossibility to deal with women in public and we thus opted to split the team to ease the collection of information related to mother-child and reproductive health. This was made possible thanks to the involvement of a female facilitator for the women FGD and of a female veterinary doctor in the second phase of the fieldwork.

As a secondary effect of the OR implementation, we saw the potential of a snowball effect by networking through persons informed by the data collection activity during fieldwork, encouraged to become facilitators and producers of awareness in those communities not directly touched by OR. These people acted as initiators by spreading from household to household the OR concepts and information (methodology and purposes, questions, hypothesis) disseminated during fieldwork. This process could lead to reach a level where human and animal health information, education and awareness would spill to the entire population.

4.1. Support and monitoring tools

- Distance supervisions and monitoring missions were planned together with CCM Head Quarter in Turin. A first mission in Filtu was held by CCM Country Representative (CR) and Desk Officer from Addis Ababa in September, to introduce the OR objectives and methodologies to local concerned authorities. A monitoring mission by CCM Health Advisor (HA) and CR was conducted in December, to support OR preliminary data analysis. A third mission by the CR was conducted in January, to allow an active participation to the OR final workshop.
- The TA support field mission in December dealt with a research focus on the relation between pastoralists and environmental conditions. An additional contribution in data processing and reporting from the TA was implemented during the following months.
- Two missions in Jijiga were accomplished by CCM OR team in July and October, to meet representatives from the three Regional Partners. The first mission aimed at announcing the start of the fieldwork, analysing objectives and methodologies of the OR and ensuring the alignment with national/regional plans. The second one aimed at submitting the mid-term report and sharing the preliminary research findings.
- One monitoring mission from Regional Authorities was held in January in Filtu in order to monitor the implementation of the project and participate to the OR final workshop.

5. OR activities

5.1 Introduction to concerned authorities and pastoral communities, and sites selection

During the first half of September, the OR project was introduced to the concerned authorities at woreda level (Zonal and Woreda Administration Offices; WoHO; WLCRDO; Woreda Woman, Children and Youths Affair Office - WWCYA) and to the non-governmental stakeholders present in town (Social Welfare & Development Association - SOWDA, Pastoralists Concern - PC).

Due to the long-term and good relations between CCM and local authorities and the general appreciation of its past interventions in the area, the project received a very good welcome and all the authorities showed readiness to cooperate and to share information related to the OR topics and objectives.

In the first weeks of September, several meetings with representatives from the WoHO, WLCRDO, WWCYAO, and SOWDA were conducted in order to select the main operational research areas through a participatory approach. The kebele selected are located in different directions from Filtu town and were identified as most relevant for the OR purposes and objectives. The main selection criteria were related to:

- 1) presence of wide potential livestock grazing areas, indicating a high concentration of pastoralist settlements during the dry and the wet seasons;
- 2) availability or lack of human health and animal health care facilities and/or mobile services and related higher or lower level of performance;
- 3) availability of natural/artificial water sources used by pastoralists and their livestock especially during the dry season;
- 4) best practices in gender empowerment activities (local associations of women, good performances in mother-child and reproductive health).

The 6 selected sites are:

- Melka Libi and Melkahager (respectively 21-23 and 35 km, north and north east of Filtu town);
- Jayga-ad and Aynle (42 and 70 km, south east of Filtu town);
- Mesajd (17 km, east of Filtu town);
- Haydimtu (22 km, north west of Filtu town).

Due to the unpredictable rainfall distribution and the related movements of pastoralists, as well as to the need of supporting the Woreda Livestock Crop and Rural Development Office in monitoring the incidence of animal disease suspected outbreaks, 2 additional kebele were involved in the on-going data collection activities:

- Bod Bod and Harabali (respectively 130 km and 40 km, south of Filtu town).

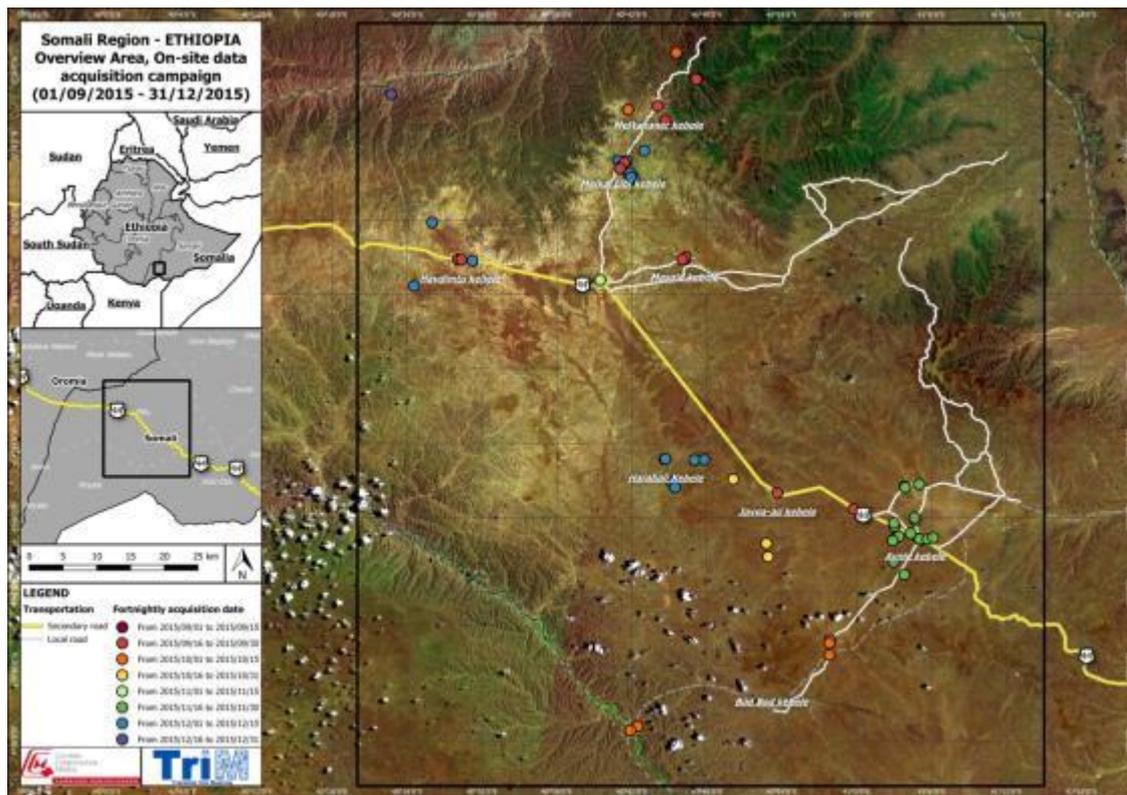


Fig. 5: Map of data acquisition campaign (from September to December) in the 8 selected sites

Besides, the OR team observed and visited additional sites such as important roads, rivers, watering points, vegetation and key-locations within Filtu town (livestock market, hospital, veterinary and medical pharmacies, animal health post) that could enrich the mapping exercise of the research territory.

Daily field missions in the previously selected kebeles were conducted between Sept. 16th and 20th 2015. CCM OR team, together with the WoHO and WLCRDO focal persons, introduced and shared the research goals and methodology to the kebele leaders, cabinet members and elders during different meetings, aimed also at retrieving basic and critical information on the social structure, territory and ecosystem of the intervention area mainly focusing on:

- status and location of animal and human health services
- seasonality and geography of migrations
- availability and location of water resources and grazing lands.

CCM was already known in most of the sites due to past interventions implemented to enhance the local PHC system and the OR team received always a very kind welcome. Local representatives and elders showed readiness to cooperate and willingness to participate in the OH project, suggesting important research focuses.

5.2 Mapping of community and territory

During 5 months of fieldwork, the OR team collected meteorological and environmental data and the GPS coordinates of human and animal health structures/services, both in Filtu and outreach areas, to ease the mapping of the research territory. Data collected were used to

develop thematic maps related to the topics and findings of the One Health OR using existing open-source geospatial technologies¹⁵.

The OR team collected GPS coordinates of the sites considered as most relevant from pastoralist community leaders and household members, and assessed the availability and distribution of health, water and grazing resources. More in detail, the geographic coordinates collected are related to:

- Healthcare and veterinary facilities distributed in rural areas, as Health Centres, Health Posts, Animal Health Posts and medical and veterinary private drug shops;
- Mobile professionals, both “traditional” (like Traditional Healers – providing care to animals and humans – and Traditional Birth Attendants) and “biomedical” or veterinary (as private health workers, Community Volunteers, Community Animal Health Workers and governmental Animal Health Technicians);
- Local administration buildings present in the kebele, included as relevant decision-making institutions;
- Open grazing lands and water resources like artificial ponds (collecting rain and used by pastoralists and livestock during the dry season), *birka* (cemented structures constructed by the government to collect rain for human consumption), wells (both hand-dug wells, directly excavated by pastoralists family members, and structures provided by government and NGOs).

Through the support of TriM experts, data have been elaborated in cartographic maps used to visualize the location of basic health resources and professionals for both human and animals along with the availability of further environmental resources such as water resources and grazing lands:

¹⁵ Cristofori et al. (in press).

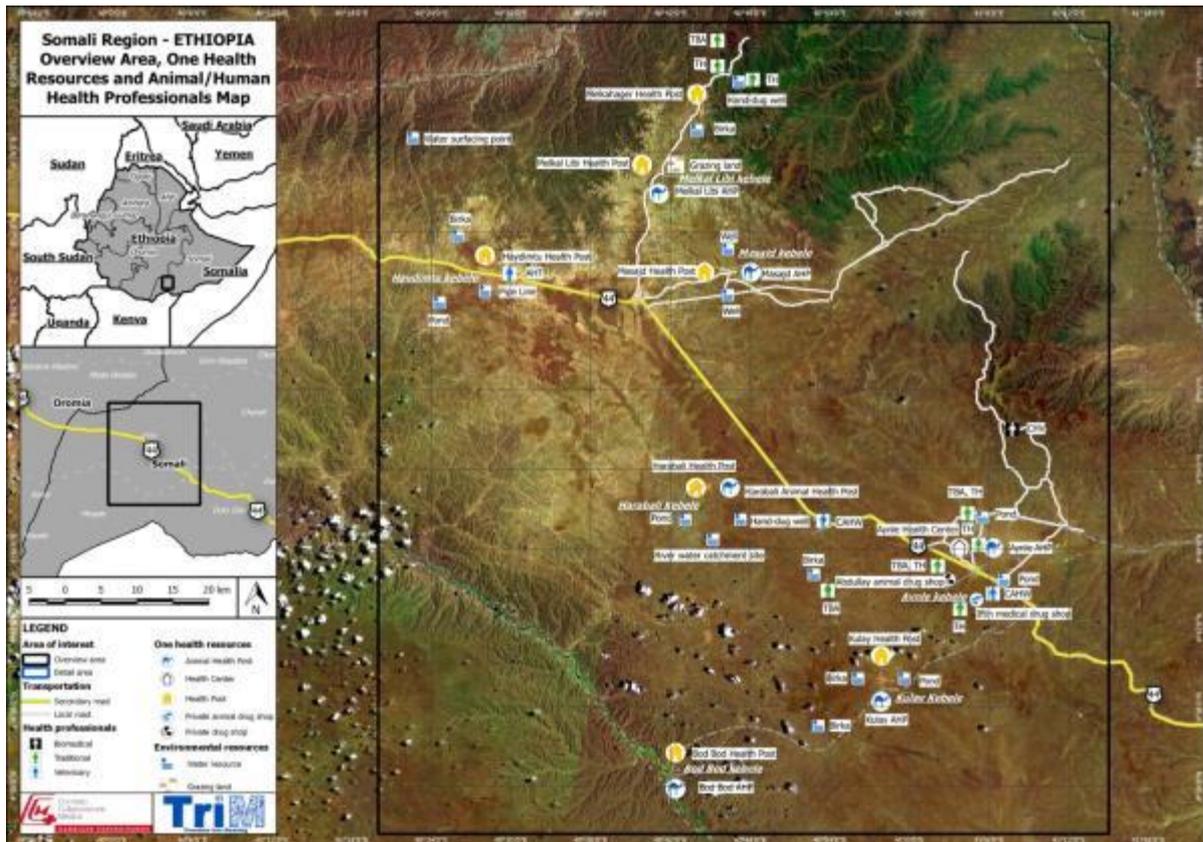


Fig. 6: Map of One Health resources available in OR selected sites

Different symbols have been used for depicting facilities and professionals in order to distinguish between mobile services and static facilities, adjusting standard samples according to local sensibility and perception. Symbols have been chosen with the aim of communicating meaningful and useful information to a wide range of end-users, both technical and non-technical, who have the need to easily and quickly understand the map.

Precipitation and temperature data were also collected daily since the beginning of September until the end of December, either in Filtu Office or in fieldwork areas.



Fig. 7: Precipitation measurement in CCM Filtu office and on field

The collection of meteorological variables has been considered important for three main reasons: firstly the assessment of daily weather conditions and the consequent change of movement plans; secondly the collection of ground measured data that can be compared with meteorological parameters obtained from satellite imagery and therefore enable the

validation of remote sensing precipitation estimates; and thirdly the promotion of awareness among local people about the importance and the measurability of climatological conditions.



Fig. 8: Community participation during precipitation measurements on field

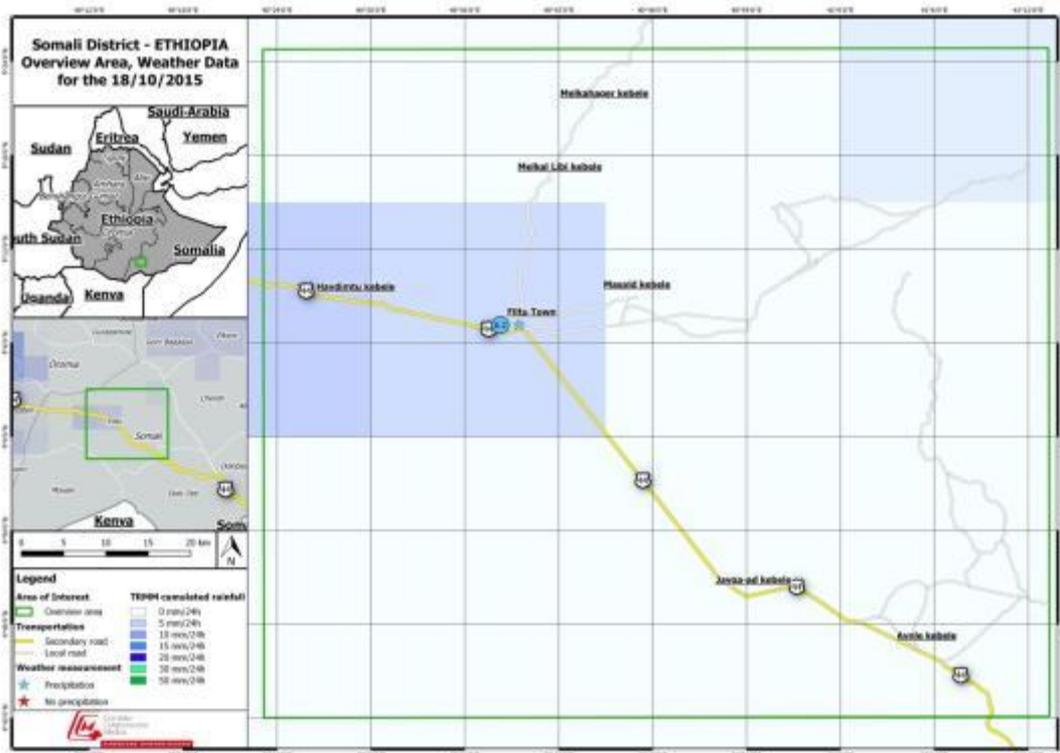


Fig. 9: Sample of meteorological map combining satellite estimates with on-site precipitations measurements

5.3 Data collection

- In the months of July and August, informal interviews and discussions were conducted in Addis Ababa and Jijiga with Federal and Regional Authorities (FMOH, SRHB, SRLCRDB), representatives of the Ethiopian Veterinary Association (EVA) and members of the OH committee of Jijiga University, in order to collect information on national and regional programmes and strategies towards pastoralists' health;
- In the first half of September, semi-structured interviews with local stakeholders (SOWDA, Filtu Hospital Medical Director and Health Workers) and experts from the

Woreda Offices were conducted in Filtu, to highlight the main hindrances in animal and human health service delivery to pastoralist communities;

- During the introductory daily missions in the selected kebele, FGDs with local leaders and elders, and semi-structured interviews with local Community Animal Health Workers, Animal Health Technicians, Health Extension Workers and Health Professionals were conducted assessing the status and functioning of the animal and human health facilities and services available;
- Prolonged fieldwork missions (from 2 to 5 days, with overnights) in each selected kebele administrative area were conducted between September 2015 and January 2016;
- Daily visits in the outreach selected sites and in Filtu town strategic sites (Animal Health Post, Livestock market, Private Veterinary Pharmacies, Filtu Hospital) were conducted in order to collect additional information on specific topics and to fill research gaps.

Throughout the whole OR period, the following activities were carried out:

- 31 field missions (from 1 to 5 days each)
- 38 site visits (in kebele centres, sub-kebele, pastoralists' temporary and permanent settlements and Filtu town's strategic locations)
- 5 workshops (3 with CCM OR team and advisors, 1 with religious leaders at woreda level and 1 with community and regional representatives)
- A total number of 62 Focus Group Discussions and 61 semi-structured, qualitative interviews.

5.4 Presentation and discussion of the research results and future axes of intervention to concerned authorities and members of pastoralists communities

The Final Workshop on January 20th 2016 involved Regional Authorities from Partners Bureaus; representatives from Zonal Administration, Woreda Administration and Technical Offices; local non-governmental stakeholders; kebele leaders, elders and pastoral community representatives that participated to the OR; CCM OR team and Country Representative. The active discussion among all the participants allowed CCM to ensure the acknowledgement of the research data and to discuss the OR findings and activities implemented. The main result achieved through the workshop is the collection of recommendations and inputs on the intervention axes for a future One Health proposal aimed at enhancing the health status of pastoralists' communities in Filtu woreda. In particular, the workshop discussions and consultations aimed at sharing a plan for future actions in the area and guaranteeing their acceptability and sustainability at all levels of the community structure.



Fig. 10: OR final workshop

Chapter 3: OR context of Filtu woreda

The area of the One Health (OH) Operational Research (OR) coincides with the woreda of Filtu, Liben Zone, Somali Region of Ethiopia, extending approximately between 40° 25' – 41° 30' E and 4° 20' – 5° 45' N. The woreda borders on the South with the Dawa River (which separates it from Moyale and Udet woreda); on the West with Dekasuftu woreda; on the North and East with the Ganale River (which separates it from the Afder Zone), and on the Southeast with the Dolo Ado woreda.

At the beginning of 2012 Filtu woreda was reduced in size with an approximately north-south scission at the level of Sero village, creating Dekasuftu woreda. The total population of Filtu woreda is currently estimated at 108,340¹⁶; 85% of population is pastoral and agro-pastoral, with a socioeconomic status highly dependent on livestock.

1. Physical Environment

The eastern part of Filtu woreda is below 500 m above sea level (asl) and is represented by the flat Cherti plain. The lowlands rise to the northwest to the Filtu highlands at about 1500 m asl and higher. The altitude varies from 400 m along the rivers, to 1540 m at mount Fiil, east of Filtu town. The whole area is part of the Ganale-Dawa river basin.

¹⁶ Data from Woreda Health Office, 2015.

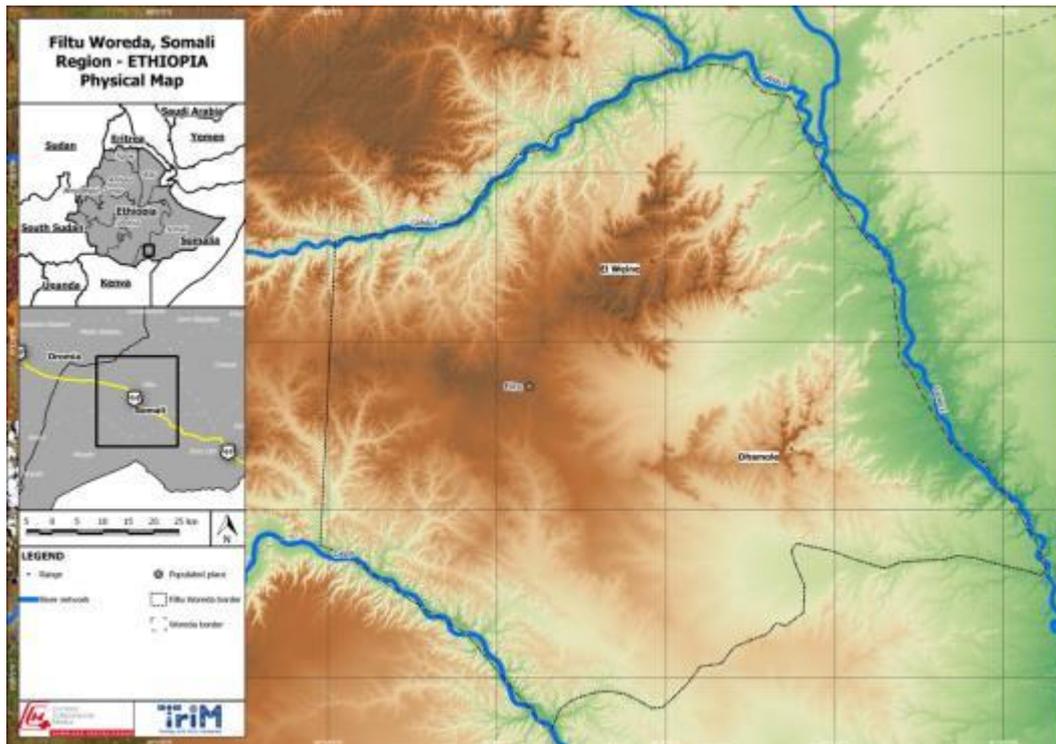


Fig. 11: Physical map of Filtu woreda

The morphologic structure of the woreda is characterized by two rivers, who encompass the area and constitute the main borders of Filtu woreda. The Ganale and Dawa rivers meet south-east of Filtu town, at Dolo, near the border with Kenya. The ecosystem is therefore like an almost closed system, that opens only at its western end, where it meets a very open savannah plain from the town of Negelle towards Filtu.

The main road Negelle – Dolo runs west to east-southeast on top of a low runoff rocky range, sometimes emerging as a ridge clearly separating two ecosystems towards the Dawa (south) and Ganale (north) rivers respectively, both organized in an alternation of valleys and hills. At the bottom of the hills the soil is black-cotton and fertile enough to sustain fields of maize and red sorghum. The run-off system drains all waters north of the road to the Ganale River; all southern ones flow to the Dawa River. The road, following the ridge to prevent floods is splitting in two sub-systems the OR area.

The north-north-eastern part of the ecosystem is characterized by two mountainous outcrops:

1. El Weyne ('the well with a lot of water') is bordering the Ganale River (flowing along its base) at NE, N and NW of Filtu: southwards the limit is given by the road Filtu-Kurale.
2. Dhamole ('the well where is deep to fetch water') is a rugged area east of Filtu, south of the Filtu-Kurale road, extending southwards as a triangle between the kebele Ahmeddow Amin, sub-kebele Sangar, and sub-kebele Halima Islow.

The two mountainous systems create a sort of 'funnel effect', attracting moist air from the North-North-East, directing it towards Filtu, when the *dayr* rains come. At the moment of field research, unusually heavy rains characterised the months of October and November around Filtu, probably due to side effects from the Pacific-originated periodic perturbation known as El Niño.

2. Dense bushland: in an arch starting north-east of Filtu to continue inside the El Wayne mountainous system north-east of Filtu, then dropping south cutting the flood plains due east of Filtu (limited by the Dhamole hills and mountains), crossing the road to Dolo, reaching Harabali area and joining the open shrubland in Bod Bod. Dense bushland is characterized by a close association of low acacias, tall acacias, and a variety of plants.
3. Exposed sandy soil: mostly in eastern woreda, in the mountainous systems before reaching the Ganale River and around the Filtu bush-and-shrub grassland, probably due to overgrazing and agro-pastoral land use.
4. Riparian woodland: along all banks of the Ganale River.

3. Human Terrain

Filtu woreda is divided into 28 kebele. According to 2015 local estimates, the woreda hosts a total population of 108,340 inhabitants, with 54,207 males (50.1%) and 54,133 females (49.9%). 10% of the population is considered urban. The population is divided in 16,415 households, which gives an average of 6.6 persons per household¹⁸.

According to data previous the division of the Filtu woreda, about 1% of the total surface was available for agricultural use, and even less was used for cultivation purpose; the trend is anyway rapidly increasing along the main road, but also around the semi-permanent settlements visited by the OR.

The current total animal population is estimated to be about 817,845¹⁹ animals, including:

Camels ²⁰	Cattle	Goats	Sheep	Donkeys	Mules	Poultry
217,672	164,246	59,300	59,300	14,366	1	4,760

Table 1: Livestock population in Filtu woreda (source: WLCRDO, 2015)²¹

The majority of people in Filtu woreda are Somali, with only a small number of other Ethiopians inhabiting Filtu town. The non-Somali in the area usually work for NGO's, the Government, at the hospital, or for foreign investments. There is a community of internal migrants from other Regions (especially Oromia) seeking menial jobs. Nearly 100% of the inhabitants are Muslims, following the Sunni way of Islamic law. Among the Somali, the majority come from the Degodiiiaa clan. Somali pastoralists are organized in a hierarchical structure: children, unmarried youth, reproduction age women, married women and adult men, family households, *reer* (related groups of households), patrilineal lineages, sub-clans, clans. All this is a network horizontally connected by blood-price (*dia*) group ties, marriage bonds and conflict alliances. The family residence is patrilocal. Immediately after the marriage, the woman will stay in a special hut inside her own family's household group (*reer*

¹⁸ Source: WoHO, local estimates 2015.

¹⁹ Quantitative data collected from the Woreda Offices often present mistakes due to inaccurate calculations during and after the divisions between Dekasuftu and Filtu districts. The OR team reported the problem to the concerned experts, but decided not to correct them in this report in order to avoid distorting official data. In the following pages, inconsistent data (especially concerning the totals) will be therefore indicated in *Italic*.

²⁰ The noun *camels* will be used in the overall report to indicate dromedaries, to adequate it to local definition used both in informal conversation and in official documents.

²¹ Source: WLCRDO, *Budget of livestock for year 2008 Et.C. of Filtu Woreda (2015-2016)*.

in Somali language) to be visited only at night by her husband; this practice can last about 1-2 years, and is meant at testing male's ability within the wife's family and learning house and infant care practices. After this period, every married woman will join her husband's *reer*. A *reer* is composed of close relatives linked by father-brother relations, their wives and children (Islamic polygamy is the norm).



Fig. 13: A pastoralists' reer and a newly-married couple's hut.

Chapter 4: OR findings

The following information is based on primary data collected on the field through interviews, focus group and direct observations, and stems from the combination of pastoralists' knowledge, practices and perspectives and the analytical frame of the One Health OR. We choose to limit the analysis to the investigated area of Filtu woreda, due to its specificity and to the need to understand dynamics at grassroots level, in order to address concrete problems and individuate solutions locally feasible and sustainable²².

1. Socio-ecological system (SES) analysis

1.1 Nomadism and sedentarization

The social context in Filtu woreda shows some differences from what CCM observed among long-range pastoralists in Gode Zone, during the One Medicine research project (2004-2005). Here, short distances from highlands to Ganale and Dawa rivers provide pastoralists with a manageable territory: long-range nomadic transhumance is not common around Filtu, except in case of severe droughts. 90% of the population is considered "rural" by woreda officers, but the exact proportion of pastoralists vs. agro-pastoralists has not been ascertained yet. The

²² Information reported in Chapter 4, par. 1 concerning Filtu Socio-Ecological System, can be compared with the analysis of the wider context of Somali Region in Devereux (2006). For a recent rapid assessment on water & sanitation, health, disaster preparedness and response and household economy conducted in Liben Zone, see Islamic Relief, CCM, Cisp & Helpage (2014).

impression from the OR is that absolute nomadic pastoralism is rapidly decreasing. Sedentarization was assessed as a growing phenomenon, due to:

- the deterioration of nomadic living conditions related to climate change and decrease of rainfalls, grass and water availability, livestock numbers;
- the long-term consequences of local conflicts;
- the input of governmental strategies and nongovernmental projects aimed at providing basic services (education, water, health) to resettlement sites and permanent villages.

In all the visited localities – even the most far away from the road axis – there was some sort of agricultural activity going on, even without pressure or help from the Government.

The following feedback sequence is under way: climate change → progressive desertification → reduction of pastures → reduction of animals → more land used for agriculture → water subtracted to grass-plant growth → increased desertification → State policy → increased dependence on social services → trend to sedentarization. Other factors contribute to this process, including the consequences of local conflicts (impoverishment, livestock and family members' deaths, abandonment of contested lands etc.) and the role of NGOs in providing both services to settled people and incentives to agriculture/marketing.

Therefore, at the moment, the OR considers the “nomadic pastoralism” concept itself as being under stress in the area of study.

In the area, even the so-called “nomads” have some limits to long-range pastoralism, due to the physical structure of the district. If we start from the North-South orographic division of the woreda (although not considered a barrier by informants), all distances are relatively short towards the two main buffer zones for water: Ganale River and Dawa River can be reached in a maximum of 4 days of transhumance, following parallel corridors of pasture.

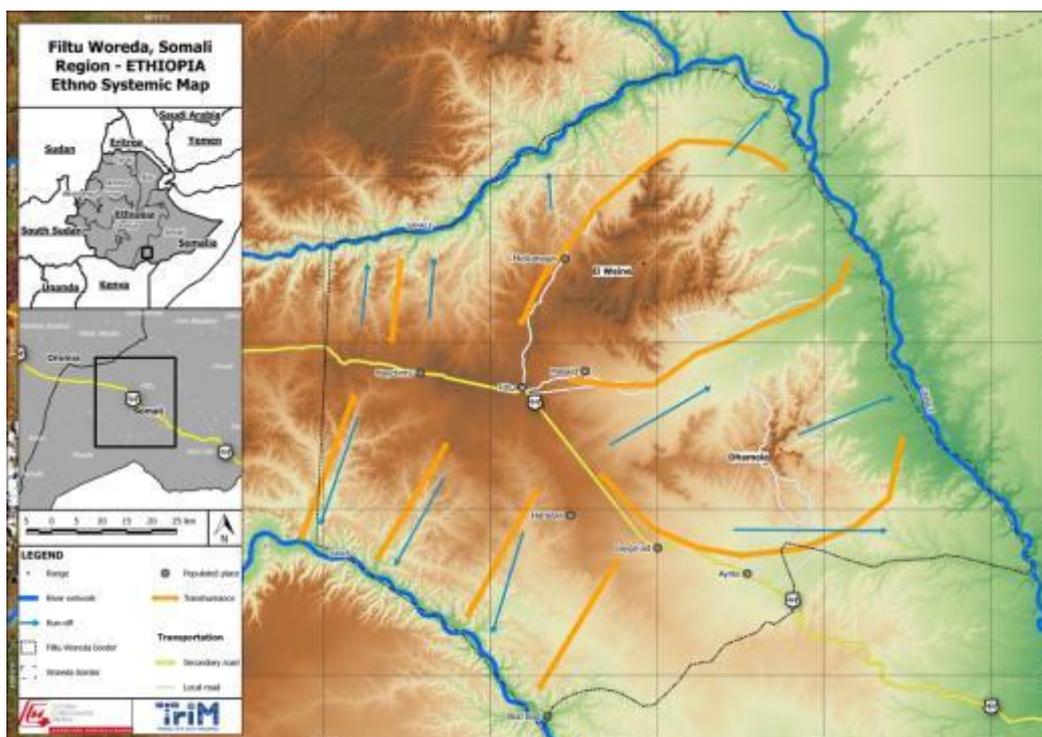


Fig. 14: Map of transhumance's paths in Filtu woreda

The productivity of the nomadic territory is usually very low. This must be compensated by the availability and spatial diffusion of a great quantity of low quality resources. Consequently, people are organized in mobile units, to respond quickly to climatic and ecological changes. If a large group is forced to stay in one place, it will consume all resources of grass and water in a fixed time. So the social system of nomads is organized in moments of fusion and movements of fission. Fusion means the aggregation of people and livestock in temporary settlements near water points and dry-season grazing areas. Fission means the separation of large groups and herds in small units of people and animals (households) in case of diffused resources (temporary water holes and rain triggered pastures).

We can represent the nomadic movements in Filtu woreda as linear and parallel, from dry season settlements to rainy season dispersed households, and vice versa. This to-and-fro' straight transhumance binds people to their best known localities and corridors, developing permanent relationships to determined environments and places. In fact, "nomadism" can be simply represented by very short movements. This allows pastoralists to access resources through opportunistic choices about timing, locations and units of community involved. Contrary to a standard long-range pastoralists' model, Filtu herders can reach dry season wells, ponds and rivers without being too far from their households and extended family camps.

The OR had the chance to analyse three different phases of the climatic year between September and January. The end of the dry season was characterized by prolonged drought, stressing people and livestock. Due to the lack of grass and water, the OR team met pastoralists around water points as hand-dug wells (i.e. in Melkahager) and major artificial ponds (like in Aynle). As the leaders and elders of Melkahager kebele explained us during a collective meeting,

the pastoralists' movements during the dry season depend on the ability of their livestock to move to far areas. The families use to split according to the need of the different animals: for example, if a man has two wives, one of them, together with the stronger children will move with the camels to look for forage, while the rest of family will stay near to the available watering point with shoats, cattle and some of lactating camel left for milking. If the man has only one wife, the strong men of the family with camels will move to far places, where they will prepare herds and sleep under the trees (they will move only for the few days needed for feeding them) and they will use one of the camels for bringing water with them. The rest of the family (mother and children) will stay in the main temporary settlement. In both cases, the families will finally gather together in wet season after having information on the place where there is enough rain²³.

As soon as the rains start, some members of the households reach elevated view points and look at the clouds direction and appearance (dark, heavy clouds indicate the presence of rain), to estimate where there will be enough rain and grass. Afterwards they send scouts (*sahan* in Somali language) skilled in the selection of the best grazing areas and those suitable for settling. When satisfied, they will come back and draw the all family with the animals. Different *sahans* and their households may gather together at a place where they expect good rain and they will bring also their livestock in the same settlements. On the way, pastoralists

²³ Collective meeting with kebele leaders and elders, Melkahager kebele, 29 Sept. 2015.

use to mark the territory with “signs” indicating their movements, intelligible only by people sharing the same knowledge and experiential background. From OR field notes:

We walk around 45 minutes to reach the pastoralists’ temporary settlement named Omar Kasay. Our guides from Melkahager, Omar and Ali, are worried: the day before the rain started and they heard that people were going to move soon to follow the rain. On the way, they find an indication of the recent displacement of the settlement. Omar and Ali start to move around, looking for human and animal footprints in order to follow their direction, and come back announcing that they found another sign indicating that some of the household members remained in Omar Kasay, while others left. We continue on the same direction and we meet an old man called Hussein Issack, that leads us to his *reer*²⁴.



Fig. 15: Shrub bent by pastoralists during households movement

The last phase of the fieldwork was implemented in December and January, after the *Deyr*. According to the elders in Melkahager, when rains stop pastoralists move to the river areas to supplement feeding for their animals: ‘For the health of our livestock is good to change environment, because they will find free, new grass and fresh water’²⁵. Children and women remain in the main settlement of the kebele, while men, boys and unmarried daughters bring the animals to the rivers for a period between 40 days and 2-3 months.

To emphasize the opportunistic and adaptive behaviours of pastoralists, we registered a different situation in Aynle:

During the dry season, we go to Boqolmayo [the nearest kebele of Dolo Ado woreda to Aynle] to water the camels. It takes 5 days to reach. We do not take goats, sheep and cattle with us to Boqolmayo because they drink in Aynle area [the pond of Aynle is interdicted to camels, in order to save water]. Dawa river is nearer than Boqolmayo, but the track to the river is not comfortable since the area is mountainous and unsuitable for camels.

Moreover, in Boqolmayo pastoralists can easily buy flour, rice and cereals sold in the black market around local refugee camps. These items represent an important dietary integration during dry seasons when the milk production is very low (see Chapter 4, par. 4.3).

The observed behaviours and the information gathered suggest a high variability and independence in the pastoralists’ movements. For instance, as recorded in Melka Libi, just after the end of the rainy season:

²⁴ Notes of 02 Oct. 2015, during the prolonged fieldwork in Melkahager kebele and sub-sites.

²⁵ Collective meeting with kebele leaders and elders, Melkahager kebele, 29 Sept. 2015.

Some of the people in the community move from Melkahager to Melka Libi, while some of the others stay here; depending on the availability of water and grass they move from place to place. We have been settling in this area for 8 years now. Recently there was water and pasture shortage and livestock moved to a place called Dinley to get them. There, the rain was little throughout the past years, while this year the rain was good: some families are still there. It is 6 walking hours from Jiqle to Dinley and they moved at the beginning of rainy season. Few members of the family move with the livestock: youth are responsible for the movement of animals, the elders may move or not and some women move with animals while others stay with cattle and shoats. Mostly the residents here don't move unless there is water shortage, if so they go to the permanent water points in Melkahager and Heel Weyne. We are expecting some families to come back soon. During the last days of rain they usually get back here as long as there is water and forage, so they stay and don't move²⁶.

Sedentarization appears to be the main governmental strategy in Filtu woreda. At the time of the OR, governmental authorities had established 12 resettlement programme locations in the woreda, where people were supposed to be incentivized by fodder and food, besides basic services like schools, human and animal health facilities, water points, shops:

S/no	Resettlement site	Number of the household members			Farm land
		Males	Females	Total	Hectares
1	Bandeer	507	223	730	760
2	Qurale	139	21	160	120
3	Abdikenan	308	25	333	33
4	Soogto	468	112	580	580
5	Golbo	237	113	350	300
6	Wilo	124	46	170	135
7	Melka Libi	241	109	350	322.5
8	Melkahager	352	118	470	427.5
9	Kalejeh	401	89	490	445
10	Bod Bod	171	79	250	200
11	Darqale	224	76	300	300
12	Lahaley (Baqqa)	105	15	120	120
12	Total	3,277	1,026	4,303	3,953

Table 2: Resettlement sites of Filtu district (Source: WLCRDO, 2015)

Resettlement implies a deep alteration of land use, generally taking out the best grazing lands from the pastoral system for agricultural purpose. This plan elicits ambiguous responses by local pastoralists about land use and population density. The combination of several factors, like internal migrations due to conflicts and droughts, construction of water points and services provided by government in strategic sites (resettlement), building of roads, human/animal density increasing, spontaneous establishment of villages and towns (as in the cases of Jayga-ad village, founded 12 years ago, and Aynle town, founded around 26-27 years

²⁶ FGD with adult men and elders in Jiqley, Melka Libi kebele, 8 Dec. 2015.

ago), is perceived as decreasing the availability of grass and harming the traditional pastoral way of life:

There have recently been recurrent droughts in the wider area. People are coming from Kenya, Afder zone, and Dollo woreda. (...) This area is rich in potential grazing lands: for that reason there are too many people here. (...) Livestock and human populations increased. So, grass decreased. Before, from here to the mountain you could find one family, now they are hundreds. This is due to the construction of water points, to the increase of human reproduction and to the fact that all places became settlements: new villages are established²⁷.

At the same time, the availability of services like water, education, health is perceived as a positive element achieved through the governmental intervention, both by people involved in the administration and agro-pastoralists:

If people can get water, they are willing to stay. They need education, health facilities, proper treatments. They need to settle²⁸.

People from this community have small plots of farmland in which they cultivate maize and sorghum – depending on the rain intensity expected in the season – that are used for food consumption or are sold to address other needs. We help each other if there is shortage in one family; the farm products also save the animals: they will not be sold. For the last 10 years we did not get enough farm products due to reoccurrence of drought. My father used to tell me that in older time people were suffering a lot because of water: there were no ponds, *birka* or hand-dug wells²⁹.

The evolution of the pastoral vs. settled life is still open, but the trend is against nomadism, to be considered today as an ideal behaviour, contrasted by actual behaviours that seek food security and social services. To summarize the OR findings, integrated with previous researches³⁰ locally conducted on the topic:

Pastoral life advantages:

Animals produce more milk and meat; in the bush there is more grass for animals, less pest insects and less diseases; furthermore, it is possible selling the surplus milk and livestock. Towns are dependent on pastoralists in terms of meat and milk supply; in any case, nomadic pastoralists are already growing maize or sorghum in bush farms.

Pastoral life disadvantages:

One is always thirsty for lack of water; or hungry, for lack of access to food. It is a hard life, always on the move. No education and no health service. Livestock diseases spread rapidly. There is no help for pregnancy and child birth. No communications and no sugar in your tea. The household is affected by droughts, floods and sometimes conflicts.

²⁷ Interview with the leader of Woman Association, Aynle kebele, 23 Nov. 2015.

²⁸ *Ibid.*

²⁹ Interview with an elder in Jim'ale temporary settlement, Jayga-ad kebele, 17 Oct. 2015.

³⁰ According to Vrålstad (2010), 9 respondents (among the ones that helped compiling the above list) meant that there was no advantages with the pastoral life anymore; 2 respondents claimed that everything was unfortunate with the pastoral life; while 3 respondents said there was no specific disadvantage, it depended on how many animals one had; one respondent about settlements said that there were no specific advantages yet, only that they had got access to water; another said that there were no negative sides of the settled life. The topic was already inquired also during by CCM the previous OM research in 2004-2005; findings have been compared with updated data at 10 years' distance from the current OR.

Settled life advantages:

Access to water and schools. Access to health services, for humans and livestock, but only in some places. One can rest more peacefully and be able to do more farming. One is closer to Filtu and therefore able to do some trading. No conflicts. Assistance from the Government and NGOs. People are registered and protected by the government. Sugar in your tea.

Settled life disadvantages

Less milk and meat from animals. Less grass for animals. More diseases, that spread more easily. In many settlements there are still no health services. People sell milk instead of sharing. Poorer nutrition. More pest insects. Dirty water in *birka*, with lack of hygiene. No transport or vehicle. Not enough water, because of too many users.

Considering the specific implementation of the resettlement programme in Filtu woreda, the OR assessed the lack of services provision in the recently established sites. The resettled site of Bod Bod appeared semi-abandoned due to the consequences of the last inter-clan conflict occurred around Dawa River (between the end of 2011 and the beginning of 2012), and to the remoteness of the area (130 km far from Filtu town, with a very difficult road especially during rainy seasons). Moreover, often the watering sites constructed by the government in other resettled sites, as in Melka Libi, Jayga-ad, Haydimtu kebele were found not functioning, due to mistakes during the construction or the lack of maintenance.

In most of the sites, the lack of services is aggravated by the recent flows of Internally Displaced People (IDPs), due to the consequences of the conflicts at the border with Dekasuftu woreda and on Dawa River. According to a group of women interviewed through a FGD in the permanent settlement of Koh, established in 2012 in the kebele of Haydimtu:

We needed everything, and we couldn't be pastoralist anymore, so we decided to settle here. We dug the well by ourselves and recently the government built water points; there is rain but the problem is there is no water storage since the earth dam is broken and our animals are facing different types of disease conditions, mainly ticks. We are almost finishing the small grain government gave us. For the first time government paid attention to us and provided this *birka* [rain harvesting construction, see Chapter 4, par. 2], but we still have problems because it is broken. There are not human and animal health facilities nearby; since we are new settlers in this area, we don't get medicines and other supplies and children get diarrhoea and vomiting: there is no help. We don't have regular schools, children only go to a religious school (*dugsi*) that's nearby and are taught by *ma'alins* [religious teacher] and some youth volunteers. The closest school is the one in Haydimtu, it is 3 hour walk from here. We don't have relatives there where children could stay: we prefer to keep them at home, so they will do some daily duties like looking after the herd, work in the house and learn Quran.³¹

People met in the different sites of Haydimtu kebele recently became agro-pastoralists due to the loss of livestock, and the encouragement of governmental authorities – through the clan and family networks – to settle. The community rapidly increased due to the flow of IDPs belonging to the same clans and escaping from conflict areas, hoping to receive assistance from Government and NGOs:

³¹ FGD with women in Koh, Haydimtu kebele, 1 Dec. 2015.

Our community is composed of people gathered from different sites that decided to settle because we were facing problems such as lack of water, food and health facilities. There are elders that don't have places to sleep, some of them don't even have utensils to eat with. It has been 4 years since we settled in this area: we moved here because of decreasing number of livestock due to continue droughts. People fled from the conflict in *Dire* and others came from the other side of the river: nobody would see them if they kept moving around in the bush. Now they are near the main road and can get help from the government and NGOs.³²

It takes us 2 days to walk to Ganale River and 2-day walk to the Dawa. The water collected in the pond can last maximum for 1 month [the man shows the depth of the pond indicating the length between his knee and foot]. It has been 3 years since the *birka* has been constructed, but we never used it because it immediately broke. (...) The youth go to school in Filtu and they stay with family members or relatives; there is a school here but there is no education going on, there are no teachers and the building is collapsing: our children wouldn't be safe. Some people have shops and few others have farms. Most people depend on the few heads of livestock they still have.³³

1.2 Livestock and cash economies

The economics of a pastoralist is based on the assumption: 'if livestock does not increase, it decreases'. This in an ideal environment. Livestock transforms indigestible grass in proteins consumable by humans (milk and meat). Besides being a survival mean, livestock gets social value: it is social money. Livestock can show status, win alliances, get wives (and children), repair conflicts ("blood money" with *Dia* groups), sustain ceremonies (funerals, weddings, circumcision, religious ceremonies and clan gatherings like *Quran Akris*³⁴), stimulate youth (raiding, competition, exploration). The system has been self sufficient for a long time.

The actual behaviour of Filtu pastoralists takes in account the spreading of commercial relationships and cash economy. Money is needed for purchasing special goods (as houseware, furniture, utensils, mobile phones, radio, batteries, charcoal, clothes etc.); education (school fees, uniforms, books etc.); transport (fuel, motorbike and car rental, buses); health services (drugs, fees, private consultancies etc.); integrative food (grains, flour, sugar, tea etc.); recreational activities (*khat*; tobacco etc.); taxes. Livestock had thus to be converted in money since a long time. Today, even camels, a very special social capital, are sold to get cash. Milk sales make up the other source of income.

According to flash data collected in 6 of the 8 selected kebele (Aynle, Jayga-ad, Haydimtu, Melkahager and Melka Libi), the average amount of money needed by one family for a year vary from 20,000 to 30,000 ETB. Based on these data, the minimum number of animals that one family needs to survive comprehend 10 camels, 30 to 40 shoats, 5 to 15 heads of cattle (according to the site), and 2 or 3 donkeys.

The OR did not assess the actual number of livestock owned by each household. Reliable primary and secondary data appeared in fact very difficult to obtain. Pastoralists tend to hide the amount of livestock owned, for two main reasons: the fear of envies and consequent

³² FGD with elders in Afgoye settlement, Haydimtu kebele, 2 Dec. 2015.

³³ FDGs with adult men and women in Ahad settlement, Haydimtu kebele, 2 Dec. 2015.

³⁴ Clan gatherings where 20-30 camels are slaughtered and *sheiks* read Quran.

sicknesses and misfortunes, and the government taxes on livestock property. The information related to the minimum number ideally perceived as necessary to survive indicates that human health appears directly linked to the economic determinant of livestock rearing.

Only in the kebele of Mesajid, where most of the population is agro-pastoralist and farming is well developed – being the main source of income – the average amount needed was reported to be 15,000 ETB and the minimum number of animals was: 1 bull or male camel, 15-20 shoats, 5 female camels and 5 female heads of cattle.

Consistently with the OR findings, according to WLCRDO ‘the income and expense of one household is between 1,772-1,783 birr [per month], Filtu woreda has the same income as the other woredas in the region’³⁵.

The only livestock market in the district is located in Filtu town and is open twice a week, on Monday and Tuesday. Livestock marketing is a male responsibility, but sometimes women are allowed to take goats to be sold, while camels and cattle are always brought by men, both because more valuable and more difficult to be kept at bay (in their words: ‘they need more strength’). The following table reports market data of livestock offered and sold in one year (2007 Ethiopian Calendar, 2014-2015), prices are in ETB³⁶:

Livestock species	Number of animals offered	Number of animals sold	Lower price in birr	Highest price in birr
Camels	2,880	2,680	5,000	20,000
Shoats	24,000	23,000	400	1,200
Cattle	960	900	3,000	7,000
Donkeys	480	460	2,500	4,500

Table 3: Livestock market data (source: WLCRDO, 2015)

The price of livestock varies depending on the season and conditions of the animals. Generally speaking, best prices are obtained at the end of both rainy seasons, when livestock is fat, “nice looking” and well nourished. During dry seasons market is reduced to a minimum, with shoats as the main source of income. When prices and demand are low in Filtu, pastoralists can decide to bring livestock to neighbouring bigger towns, as Negelle and Dolo Ado. According to woreda livestock officers being questioned on the issue, there is also an illegal livestock market through the borders with Somalia and Kenya. Castrated goats are exported to Kenya where they can be sold at a good price, whereas aged camels are sold to Somalia for slaughtering. Young camels and goats are sold mainly in the Ethiopian markets. The number of cattle offered to market is very small compared to other species.

There is a paradox at the beginning of the rainy season, due to a retard effect in the recovering of conditions in livestock: it rains, grass grows, animals eat wet grass (health risks) but still they have little milk, are very weak and disease-prone. In the words of an informant:

³⁵ Source: WLCRDO, *Budget of livestock for year 2008 Et.C. of Filtu Woreda (2015-2016)*.

³⁶ The average exchange rate in 2008 E.C. can be calculated as 1 ETB = 0,043 Euro.

After the first days of rain people are nonetheless suffering a lot. There was drought and animals have been suffering: they don't produce milk yet since they are weak. Therefore, they cannot be sold to the market. Besides, any form of cultivation is not ready yet, so agro-pastoralists are in the middle of nowhere³⁷.

1.3 Nutrition

Due to the increasing density of livestock (grazing areas reduced and reconverted), and the scarcity of grass during dry seasons, the milk net production of each animal is automatically reduced by competition on grass resources. Therefore, especially in dry seasons, pastoralists have to cope with adding nutrients coming from products alien to their environment. Data collected on nutrition habits in Aynle, Jayga-ad, Melkahager, Melka Libi, Haydimtu areas appear consistent.

Livestock eat "white grass" (dry vegetation) during dry seasons, and plants in the bush during rainy seasons. Local pastoralists do not use additional fodder to feed their animals, even in drought. People consume mainly milk during wet seasons, mainly from goats and camels, and cattle when available. Camel milk is privileged and is deeply loved by pastoralists, that consider it delicious at taste, rich of nutrients, and with therapeutic properties. Milk is consumed alone, uncooked, or added to boiled tea and sugar.

Additional foods are sorghum and maize, rice, tea, especially during dry seasons. Meat consumption for everyday nutrition is rare, while is common during special occasions (like the arrival of guests) and religious ceremonies (as already mentioned, livestock needs to be accumulated and not consumed, even in drought when the bad conditions of the animals also make their meat less attractive)³⁸.



Fig. 16 : Woman preparing flour in her household

After harvesting times, cereals can be purchased in shops located in permanent settlements and in kebele centres; when not available, they can be found in Filtu or Negelle towns markets.

³⁷ FGDs with leaders and elders in Aynle kebele, 23 Nov. 2015.

³⁸ Differences have been obviously found in Mesajid, where fodder is given to livestock and a bigger consumption of farm products was found due to the higher involvement of population in farming.

Prices of cereals vary significantly in the different seasons: according to the informants interviewed, at the time of the OR half kg of maize or sorghum could cost 2 to 6 ETB during the wet season and 3 to 12 ETB in the dry season (depending on the site and being more expensive in towns and markets than if bought directly from farmers).

The average consumption of cereals of one household (composed of 7 people) was estimated from 2-3 kg to 6 kg per day. It needs to be considered that these data were collected through interviews and FGDs and not through prolonged direct observations and measurement. Therefore, they could include emotional biases (shame, greed, need, expectations). Information on nutrition habits, anyway, can lead us to a better understanding of the economic and physiologic stresses affecting people and livestock in different periods of the year³⁹.

1.4 Social relationships

Food is much more than energy. In times of need, it creates and reinforces family binds, intra-family relations becoming a socially appropriate substitute for livestock loans or money⁴⁰. An example is the practice of the *irmansi*: lactating animals are loaned to poorer relatives that use them for a specific period of time, and then give them back. Sometimes baby camels can also be given as a gift, consolidating family or clan relationships.

For sound political reasons, CCM OR team decided not to interfere with the local clan system, avoiding to map the different sub-clans and sections living in the woreda. Even a simple mapping of the different sub-clans could be an issue in case of territory claims by various communities, like it recently happened on the Dawa River, provoking armed conflict and a flow of Internal Displaced Persons (IDPs) towards the settlements along the Negelle-Filtu road.

Structures and functioning of the clan system among Somali pastoralists and the local customs related to the creation of alliances and the management of conflicts will not be explored in this report. For its analysis, we refer to classical anthropological literature⁴¹. In this section we will only highlight some information necessary to understand some of the health management practices that will be explored in the further paragraphs.

The coping strategy of pastoralists is flexibility, thus even the social structure must be adaptive. For instance, in the kebele of Melkahager and Melka Libi, among the Alegumar clan, elders recently changed the bride wealth rules. According to Omar, the local guide-facilitator that accompanied us during our prolonged fieldwork in Melkahager:

³⁹ Wider information on food economy in Filtu woreda can be found in SC-UK, DPPB and Partners (2002). Data reported on the document would need to be updated, but the interest of the study is in the socio-cultural, environmental and economic variables taken into consideration for the analysis.

⁴⁰ According to information collected on the field, in case of need pastoralists do not use to borrow livestock from each other for sale, while can borrow money up to 10,000 ETB within their clan. Livestock need to be accumulated, while money easily circulate.

⁴¹ See the monograph of Lewis 1961, on Northern Somali of the Horn of Africa. Mechanisms and dynamics of the clan system functioning are similar throughout all Somali people, with variations related to different socio-environmental and historic-political contexts.

until 15 years ago, the situation was very calm and the only obligation was to slaughter 2 camels. But after people started to have a lot of expenses related to life changes, as the equipment of the *aqal* [house, in Somali language] with modern tools that the families started to use. Today, thanks to the new rules of the elders, the man has only to provide one mattress, the curtain, a wooden pot, a lamp, a bag for the clothes, some jerry cans and other basic utensils for the *aqal*. During the wedding ceremony, we don't have to slaughter camels anymore: when I married my first wife I had to slaughter a camel, after the rules changed and for my second and third wedding I only slaughtered two goats.⁴²

According to Omar, the reasons for this change are related to the will of maintaining a certain level of equality throughout the clan: 'not all its members have the same capacity to afford the wedding expenses, but they are all brothers and sisters'. Moreover, they needed to guarantee the "sustainability" of the new family; before, many problems occurred due to the excessive costs of the weddings: 'after working for a long time, people were obliged to spend all their money, so the families could face bankruptcy and these situations easily caused divorces'. According to the OR Cultural Mediator, the decrease in the wedding expenses could be related also to the will of facilitating endogamic marriages in order to enhance the clan ('number is power' is a Somali saying).

Despite the Ethiopian State is officially secular and bureaucratic, in the actual practice the Customary-Clan political system, religious leadership and justice-administration system intertwine in the socio-political dynamics. Marriages are usually arranged by the future bride and groom's families preferably within the same clan, from first grade cousins up to sub-clan relatives. Property is governed by a mixture of Quranic norms, Customary traditions and State laws. Quranic and customary norms are more relevant for non settled pastoralists; this means that property is inherited according to patrilineal bonds. Livestock and children belong to the man, and, once he dies, to his family and clan. In case of divorce, the woman will leave them in her husband's household, exception made for the babies that she is still breastfeeding. In case of death of the husband, after 6 months his relatives will select for her another groom within their family, preferably a brother or a near cousin of the dead man, in order to keep his properties within the clan:

'A woman can choose, but cannot refuse', as the Prophet said: she can reject the man they choose for her, but she cannot refuse the whole family.⁴³

From the pastoralists' perspective, the reasons of this bylaw are related to the will to ensure the safety and the wealth of the family unity: 'there could be children and livestock left, and they want someone with the same blood of the dead husband to take care of them, to protect them and look after them: another man who does not belong to the same family could be careless'⁴⁴.

The household head gives to each wife an amount of livestock necessary to provide for her and her children's daily nutrition and needs, and they are responsible to take care of them.

⁴² Informal conversation between OR team members and Omar during a wedding ceremony in Salah Megen temporary settlement, Melkahager kebele, 1 Oct. 2015.

⁴³ *Ibidem*.

⁴⁴ *Ibidem*.

Anyway, livestock remain entitled to the man, so he always has to be consulted in case of decisions concerning selling, slaughtering or cession. In the words of our informants:

Women don't have financial independency; they depend before marriage on their father and brothers, and after marriage on their husband.⁴⁵

When a girl is born, her father gives her 1 sheep or goat. If he is a boy, he will get 1 sheep, 1 goat, 1 cattle and 1 camel. When she gets married she doesn't have the right to move with the livestock that she received by her father: she leaves her parents' house empty-handed. When her father dies, she doesn't get inheritance from him.⁴⁶

After marriage, women maintain relationships with their family of origin: in case of need, they can always ask for their support:

Once she has left her father's house and has moved with her husband, after few years, if she is in need she can ask for help to her father and brothers. They will give her whatever they can afford starting from 1 shoat or 1 camel.⁴⁷

This is the customary rule of heredity and capital sharing. At the moment of the OR, the Sheikhs were trying to balance gender inequalities, emphasizing Quranic laws:

Women don't get inheritance from husbands or from fathers. But now the *Sheikhs* are teaching them about the women's inheritance rights in Islam, basing on what Quran says.⁴⁸

In recent years, governmental and nongovernmental interventions towards gender empowerment and women income generation have been implemented in some kebele, through the establishment of women associations. The local NGO Pastoralists Concern (PC) has been particularly active in this field, organizing group of women and giving them loans to open shops and buy items as incense, cereals, sugar to sell with some profit to the rest of the community. With the income, they bought livestock to rear and then to sell, goods as clothes, kitchen tools etc. for marketing. Aynile "Lend and Saving Cooperative" was found particularly active during the OR, thanks to the support of different NGOs:

PCAE⁴⁹ trained us and also lent us money to start small micro finance businesses. The cooperative has 17 members, 5 of them are leaders. We also have supportive members among local students, women, teachers, in the water, hygiene and sanitation committee and in the health committee. We have 2 donkey carts, some shops and cafeterias. In the previous time PCAE, CCM, COOPI and Islamic relief were helping us⁵⁰

This is also due to the strategic position on the road Filtu-Dollo and to the development of Aynle, that nowadays is a small town.

⁴⁵ FGD with women in Jayga-ad, 24 Dec. 2014.

⁴⁶ FGD with women in Aynle, 24 Dec. 2014.

⁴⁷ FGD with women in Melkahager, 25 Dec. 2015.

⁴⁸ FGD with women in Melka Libi, 25 Dec. 2015.

⁴⁹ Pastoralists Concern Association Ethiopia, the former name of PC.

⁵⁰ Interview with the leader of the Women Association in Aynle, 16 Sept. 2015.

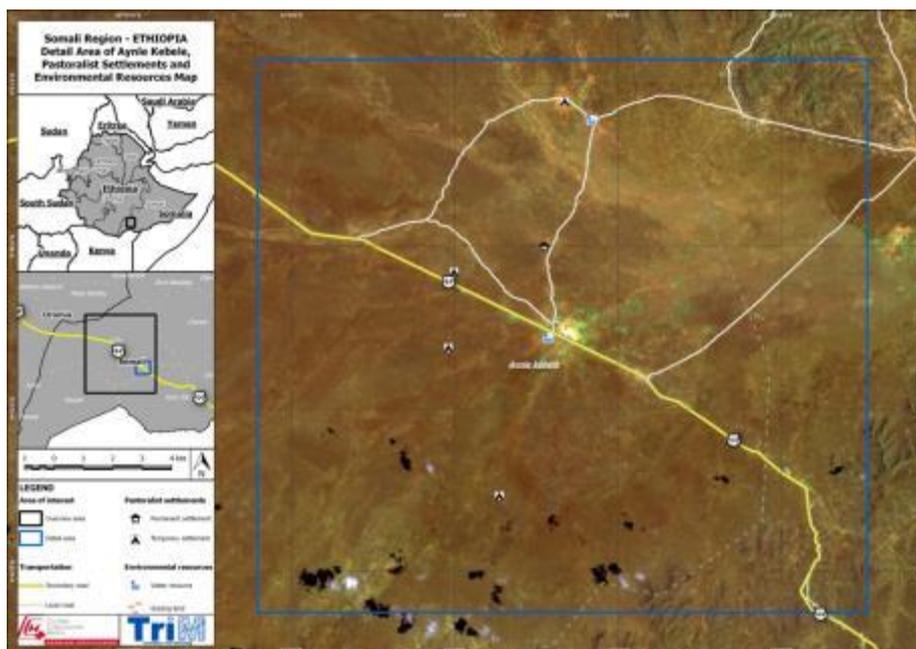


Fig 17: Map of Aynle kebele with visited sites

Pastoralist Community Development Programme (PCDP) was also mentioned in Jayga-ad as past implementer of mixed association of women and men. Women interviewed declared to prefer associations involving women alone:

We prefer to have special support through funds and loans for women only: if these kind of chances are given to men, they will chew the money, or will marry a second wife⁵¹. Women take a better care of children and household than men: we can use this opportunity better than them.⁵²

These programmes have been conducted mainly in permanent villages and kebele centres (Aynle, Jayga-ad, Haydimtu and Mesajid among those visited by OR team), involving women members of agro-pastoralist households. This is mainly due to the difficulty of establishing permanent relationships out of the *reer* linkages among nomadic pastoralists, since they constantly move from place to place.

2. Environment for health/disease

Besides subsistence, the Filtu environmental context is the natural feedback system for pastoralists seeking health for themselves and their livestock. This relationship is not peaceful, since it elicits defensive responses by the environment. This means that a “healthy environment” is not necessarily providing health to pastoral communities: a repulsive disease could be the unwelcome answer. After the abnormal rains of October 2015, during the OR environmental mission by CCM TA, it was noticed the excellent growth of the perennial shrub *Duosperma emophillum* around Melka Libi and Harabali. According to a study⁵³ carried out in

⁵¹ The expression indicates that men will spend all the money to buy *khat* (an amphetamine-rich plant chewed to get stimulating effects, that creates addiction, whose use is widespread in all Somali Region and Ethiopia), or for the bride wealth of a second wife.

⁵² Interview with two women in Jayga-ad, 24 Dec. 2015.

⁵³ By GTZ (German Cooperation) (1988).

Northern Kenya, the quantity (plants per ha and consequent biomass) and quality (growth of leaves and flowers) of this shrub determine the quantity of shoats and camels that can get pasture in a certain area. The shrub, although highly nutritious, is rather unpalatable (Somali herders told TA that this shrub is not usually eaten by livestock), but its multiple stemmed branches provide a thick soil cover from heat and sun (evapo-transpiration reduced), protecting grass growth. The overall impression is that the 2015 heavy *Dayr* rains occurred during OR implementation provided enough moisture for the good conditions of the vegetation in Filtu woreda.

Pastoral routes and main roads have been used as transects in the OR; field observation showed pastoralists offering information about plant classification, morphology and use; dangers for livestock and people; presence of pests and dangerous animals. This linear vision of territory is integrated in a knowledge network, as shown by the local toponymy. In Filtu woreda, pastoralists developed a “vegetal geography”. Most of the localities’ names derive from plants, as Melka Libi and Libirar (*Delonix elata*), Melkahager (*Acacia Senegal*), Jikley (*Acacia dreparalobium*), to mention some of the sites visited. Physical features can enter in this environmental geography; for instance, Jayga-ad is called after the white stone that is emerging from flat sandy land. This way, plants and features provide the herder a mental map to follow with patterns of land use: goats and camels must be driven to bushy areas since they are browsers; sheep and cows need grass, being grazers; both groups have to be taken to salt licks, a combination of minerals and water.

Water is obviously sought after by all determinants, human, animal and environmental, but it is not the top limiting factor of Somali pastoralists. Pastoralists need grass (for sheep and cattle) and leaves (for goats and camels), both derived from rains (vegetation is function of rainfall and soil). Most of the field narratives involve a strategy based on ‘We follow the rains, wherever they fall’. In Filtu woreda, rainfall is erratic in time and space. That is why mobility is an imperative for nomads: during climatic changes, they must lead their livestock to variable grazing areas and water points, according to probabilistic decisions influenced by an aspiration to health (good pasture) and an avoidance of disease (risky areas).

The Melka Libi elders explained that pasture in that area is seasonal, available only during rainy seasons:

The animals go to hills, mountains, rivers. They start to search for grazing places and water points during the dry season. When they go to the river [Ganale], the nearest place they reach is Gerbal (3-day walk). There are also places with wells that are very far; but we use donkeys to transport water from these hand-dug wells, that are both for animal and human consumption. Some of the waters taste salty while some taste fresh: among these we have the springs of Heel-Weyn, Dafo, Bahalele; Heel-Weyn and Bahalele are in the valley, the nearest to us is Heel-Weyn (7 hour walk), situated between Melka Libi and Melkahager and accessible by road. Dafo takes a 3-day walk and is near Nua-deriq, while Bahalele is near Amanis. When the season is dry we go to Kulon, where there are a pond (after rains) or hand-dug wells (during dry spells); it is a 3-hour walk from Melka Libi, but with animals it takes 5 hours to reach Kulon.⁵⁴

Water resources in Filtu woreda are nowadays widespread and of different kind:

⁵⁴ FGD with elders and adult men, Melka Libi kebele center, 9 Dec. 2015.



Fig. 18: Hand-dug wells in Weshako Denan nomadic pastoralists area (Melkahager kebele)



Fig. 19: Solar water pump in Mesajid kebele center and water pipe line (Haydimtu kebele centre)



Fig. 20: Water ponds in Aynle town and Koh permanent settlement (Haydimtu kebele)

The main stakeholders involved in their construction have been the Government (through private contractors) and the international NGO COOPI and Norwegian Lutheran Mission (NLM)⁵⁵. Data collected from Woreda Water Office report the following district supply:

	Deep well			Shallow well			Hand dug well			Pond			Birka		
	F	NF	Total	F	NF	Total	F	NF	Total	F	NF	Total	F	NF	Total
Filtu	1	1	2	2	2	4	30	11	41	32	5	37	79	10	89

Table 4 : Water supply in Filtu woreda (source: WWO, January 2016) [F: functional; NF: non functional]

⁵⁵ NLM is still active in the woreda. During the OR, the NGO was implementing projects to enhance the agriculture and was planning animal health interventions starting in 2016-2017.

infestation is overrun by vertical movements (to hills and mountains) because of the pests' temperature sensitivity. Further information was supplied by the Melkahager kebele chairman:

Camel owners settle dispersedly, apart from each other, because they fear disease transmission: camels are economically more important than other animal species. Mixing of animals is common in case of small ruminants, while for camel grazing and keeping, mixing is strongly inhibited.⁵⁸

We will describe further the herbal use in medicine, both for livestock and people (see Chapter 4, par. 3.3. and 4.4). Other environment-related elements are the climatic factors, obviously responsible for many diseases in people and livestock, with humidity and cold as important negative agents (heat is considered a burden, but the OR did not assess the local perception of heat as a threat to health).

In the late rainy season most of our livestock became sick due to seasonal change; currently around ten goats are sick and isolated from others goats due to fever and other sicknesses. Our livestock are suffering from thick borne diseases and mouth ulcer.⁵⁹

If livestock feeds on wet grass, it may need a cannula to empty inflated stomachs. New, "fresh" leaves are considered as vector of disease transmission. Cold can lead to *hergeb*, a collective noun for any sickness related to chest problems in human and animals, always mentioned by pastoralists interviewed and perceived as a big burden.

We ascertained the absence of the elsewhere diffused practice of environmental control by the burning of bushy areas at the end of dry seasons, in order to get fresh grass rebirth. When interrogated, pastoralists around Filtu would say: 'It's too dangerous: fire could spread to our huts, and we don't know any technique to control it'. The same applied to the useful burning of animal dung to prevent contagious disease in livestock, here considered not useful at all⁶⁰. That cinders have some power, was anyway shown by an episode in a peripheral household of Melka Libi. During the night, some hyenas came near the household. Being alone, the scared women drew a white line with cinders and pulled a coloured line made out with pieces of cloth: it worked and the hyenas stayed away. Accidents with hyenas appear to be very common and feared. Actually, the OR team has been asked to provide some efficient methods to keep wild animals away from people and livestock. In Melkahager, a CAWH and an elder reported:

We have traditional ways of preventing hyena attacks, like tying a big plastic sheet around the livestock pen or corral, so the hyena will be scared by the movement of the plastic in the wind. We may also tie a torch on the head of some animal, or use radio noise to prevent hyenas to come near. We keep the radio on with full loudspeakers all the night long; that way the hyenas are not going to come near: they think people are around and vigil.⁶¹

⁵⁸ *Ibid.*

⁵⁹ FGD with men and elder in *reer* Ma'alini Ahmend temporary settlement, Aynle kebele, 26 Nov. 2015.

⁶⁰ Interviews in *reer* Ahmed Sheikh temporary settlement, Melka Libi kebele, 9 Dec. 2015, confirmed in a FGD and in an interview in *reer* Abdi Hish, Harabali Kebele, 10-11 Dec. 2015.

⁶¹ FGD with men and elder in Melkahager kebele, 25 Dec. 2015.

We mechanically remove ticks from animals and protect our livestock from hyena and wild animals using long sticks and covering them with black clothes, so it will have the structure of a human being, and then we surround the area with ash.⁶²

There are old methods and new methods. The old method used to be practiced 30 years ago like this: bring a tall stick, pierce it and hang it on a tree branch with rope on the other side; hang bones on the other side of the tree; when the vermin comes to get the bones it will put its head under the branch, hanging itself up. The new method is this: we dig a hole, then put a tin with bones in it, and when the vermin comes smelling for bones, it will put its head in the tin and comes out with the face covered of it.⁶³

Accidents due to difficult accessibility of pasture in the mountainous areas affect both people and livestock. Most feared, anyway, is the potential suffering induced by two environmental catastrophes: drought and flood. In a ranking exercise around Harabali, two women, in different households, responded to a ranking exercise with the same priorities about disasters:

Disasters to be avoided? First is drought; second, flood; after that comes sickness; last is conflict.⁶⁴

This means that, in the micro-local perception, climate change ideally poses major threats to the lives of pastoralists than any other dramatic event. The two households have recently experienced flood, so the vividness of the event might have been eliciting priorities; in a conflict zone we might receive a different answer. This is a bias along the whole OR, being concentrated in time and space. In any case, the arch-disaster seems remaining the drought. In the words of one elder,

In this settlement we have only camels, shoats and donkeys, we do not have cattle. Cattle are all dead because of drought: I inherited many cattle from my father and every year they died. At the time of my father there was more grass, the rain was regularly falling, keeping its season, there were less droughts, no farm expansion, no urbanizations. Now, since cattle cannot go far for searching water and grass, pastoralists are divided into those who finished their cattle, and those who still have them and settle around the river to get closer to watering resources.⁶⁵

When climate change combines with conflicts, farming land expansion, new diseases occurrence and other threats, the multi-dimensionality of disasters pose actual threats to pastoralists' survival:

There are many malaria cases because of climate change. In previous times the river was known as malaria area, and far from river as tick area, but now it is vice versa. Previously, when rain came fast, the river had a lot of water floods, it washed out dung and ticks. Nowadays there are a lot of animals, there is overgrazing. There are a lot of migrants from the other side of the river, coming from Mubarak, Libin, Dire because of the conflict and droughts. They came to this area for grazing, we did not try to prevent this because they are our people [from the same clan].⁶⁶

⁶² FGD with women in Haydimtu kebele, 26 Dec. 2015.

⁶³ FGD with men and elders in Mesajid kebele, 6 Jan. 2016

⁶⁴ Interviews in *reer* Mohammed Isaak and *reer* Mohammed Dugaw, Harabali kebele, 10-11 Dec. 2015.

⁶⁵ Interview with Haji Mohamed Hassen, agro-pastoralists' settlement of Jim'ale, Jayga-ad kebele, 16 Oct. 2015.

⁶⁶ Collective meeting with kebele leaders and elders in Bod Bod, 14 Oct. 2015.

Pastoralists depend on grazing land; but now the areas are changing to farms and they can't be grazed anymore. The remaining land is mountainous and the animals can't go up there. People living in this community had farms since 50 years around the river [Dawa], then they fled because of the war. Livestock number is decreasing because of the continuous drought. We have few ponds that were dug near the new settlement area, but they are full of soil. We use the Ganale River but it is not enough. The river is 40 km from here, to move with livestock it takes 2 nights on the track.⁶⁷



Fig. 22: View of Dawa River from Bod Bod kebele. Grazing areas behind the mountain cannot be accessed by anybody, due to the risk of raising new conflicts.

3. Livestock for health/disease

3.1 Health management

The maintenance of livestock's health entails a wide number of everyday practices that need to be implemented by the herders and involve most of their efforts and time: from the regulation of reproduction, the care of newborns, to the nourishment and management of the herd:

Shoats conceive any time and give birth after 6 months, while camels conceive in the first month of the rainy season and give birth after 12 months. In the dry season we prevent the male camel from mating because the females are weak and may be injured. Shoats, instead, are free.⁶⁸

Livestock owners and keepers are responsible for assisting deliveries: women for the shoats, while men for the camels since 'camels need more power'. The OR assessed the presence of traditional birth attendants, especially for camels:

During delivery, camels have high chances of developing complications compared to other livestock. There are renowned skilled people that help the animal to deliver safely, repositioning the foetus with hands or "surgery". They learned this techniques from their ancestors.⁶⁹

Lambkins and goat kids are particularly delicate and need special attention and more care than camels:

⁶⁷ FGD in Afgoye, Haydimtu kebele, 2 Dec. 2015.

⁶⁸ FGD with household members in Weshako Denan temporary settlement, Melkahager kebele, 30 Sept. 2015.

⁶⁹ FGDs with elders and women in Jayga-ad and Aynle, 24 Dec. 2015; FGD with women in Haydimtu, 26 Dec. 2015; FGD with men in Mesajid, 6 Jan. 2016.

For the neonatal care we prepare special “houses” for the newborns. In case of shoats, we keep them there in the day and we release them to their mothers in the evening to suckle, and we move back them to the house when they finish. After one month we start to feed them with forage: we bring them to the herd with the other shoats and we keep them there. Newborn camels are stronger and need to spend only one week in a “special place” covered with soft soil; after that they start to follow their mothers⁷⁰.



Fig. 23: Traditional cage to protect goat kids

During transhumance, pregnant shoats and camels will move together with the household, as well as newborns:

We build temporary houses with protections and we put them on the back of the camel to transport them. Most of the kids will die anyway. Newborn camels which are less than one week should be carried building temporary tents made up of hides on the back of adult camels⁷¹.

Shoats and camels’ milk is essential for the nourishment of both newborn animals and people. Especially camel milk is particularly nourishing and appreciated, therefore in case of dead of the newborns, different practices are implemented to keep the animals lactating:

If a calf dies, we will give to its mother another calf “in adoption”. If there is not another calf available, we will try to stimulate the milk production through massages and manipulations⁷².

3.2 Animal diseases and local conceptions

In Filtu woreda, animal diseases are a huge burden. Different and serious diseases affect every livestock species and pastoralists have to enact creative and adaptive strategies to cope with them, in a context strongly characterised by shortage of veterinary resources.

At the moment of the OR, the most updated data available referred to 2013. The following table reports the top ten diseases in the woreda and the kind and number of treatments provided from the Woreda Livestock, Crop and Rural Development Office

⁷⁰ *Ibid.*

⁷¹ *Ibid.*

⁷² *Ibid.*

	Shoats	Cattle	Camels
1.	Peste des Petits Ruminants (PPR)	Trypanosomiasis	Pasteurellosis
2.	Contagious Caprine Pleuropneumonia (CCPP)	Botulism	Brucellosis
3.	Shoat Pox	Pasteurellosis	Trypanosomiasis
4.	Pasteurellosis	Heart water	Skin tumours
5.	Brucellosis	Black leg	Camel pox
6.	Contagious ecthyma	Brucellosis	Pneumonia
7.	Heartwater	Footh-and-Mouth Disease (FMD)	Wry neck syndrome
8.	Anthrax	Mastitis	Eye worm
9.	Arthritis	Mange	Heart water
10.	3 days sickness	Babesiosis	Anthrax

Table 5: Top 10 diseases in Filtu woreda in 2006 E.C (source: WLCRDO, 2015)

No.	Type of treatment	Camels	Cattle	Shoats	Donkeys	Total
1.	Endoparasite	50,184	24,075	82,325	761	157,345
2.	Ectoparasite	23,354	13,672	43,386	0	80,412
3.	Trypanosomiasis	8,900	3,500	0	0	12,400
4.	Other diseases	17,474	9,634	28,827	1,223	57,158
5.	Wound treatment	5,850	2,141	8,786	4,53	19,451
6.	Castration	0	2,308	17,697	407	20,412
	Total	105,762	19,579	181,021	1,274	347,178
	Type of vaccination	Camels	Cattle	Shoats	Donkey	Total
1.	Bovine Pasteurellosis	0	24,500	0	0	24,500
2.	Ovine Pasteurellosis	0	0	2,300	0	2,300
3.	Black Leg	0	5,600	0	0	5,600
4.	Shoat Pox	0	0	99,600	0	99,600
5.	Anthrax	8,000	0	2,000	2,000	12,000
6.	PPR	0	0	159,700	0	159,700
	Total	8,000	30,100	284,300	2,000	324,000

Table 6: Livestock treatments and vaccinations from July to December 2006 E.C (source: WLCRDO 2015)

Tuberculosis highly affects both livestock and human populations (especially Bovine Tuberculosis, that spreads through air and can easily be transmitted from animals to people), but official data are not available on this sickness, due to lack of diagnostic and treatment services. According to Mesfin, a PhD research (not yet published) has been recently conducted in Filtu town and TB tests were done on cattle and people: an impressively high prevalence of this disease has been found among livestock owners⁷³. High prevalence of TB among Filtu Hospital patients was confirmed during an interview with Filtu Hospital Medical Director, Dr Abdikadir⁷⁴, even if he did not mention the possible role of livestock in spreading the disease. Epidemiological researches to support the woreda in data collection and planning future interventions and awareness campaigns that are based on the evidence are strongly recommended.

Diversely, the OR purpose was to focus on the “pastoralists’ point of view”, perceptions and behaviours. Part of the survey focused on the collection of local knowledge about animal sicknesses, local interpretations of causes, descriptions of symptoms, risk and burden perceptions, treatments applied locally and care seeking behaviours. The most important purpose of this kind of exercise is to assess:

- existing gaps between veterinary and local conceptions, in order to plan appropriate and specific interventions and awareness and education campaigns;
- potential overlapping between the two conceptions, in order to identify good strategies of communication and integrations of the two systems;
- local best practices and knowledge to valorise and extend to contiguous socio-ecological systems.

Significant examples are related to widespread zoonoses, as for example anthrax (*kud* in Somali language), botulism (locally indicated as *godabgoye* or *dhabargoye*) and pasteurellosis (named *hergeb*⁷⁵ in camels; *gu* in cattle; *riin weyne* in shoats, with differences in the nomenclature depending on specific areas and communities interviewed).

Despite several education and mobilization campaigns implemented by woreda authorities and animal health workers, in most of the visited sites the OR remarked the persistence of harmful practices related to the use of infected livestock meat and milk for nutrition and the use of leather (preserving and drying the skin for mats, transporting babies and covering the hut roof). From OR field notes:

They state that they don’t know any disease transmitted from animals to humans. Dr Mesfin asks them: ‘if, when an animal is sick of *kud* (anthrax), you slaughter it and you eat its meat, what does it happen?’ They answer: ‘Nothing!’.⁷⁶

As another example, botulism was one of the diseases always mentioned in the visited sites as one of the major threats for livestock, that in many cases had been decimated by it. Local and

⁷³ Interview with Mesfin, Head of the Livestock Health Department of WLCRDO, 7 Sept. 2015.

⁷⁴ Interview held on 8 Sept. 2015.

⁷⁵ The Somali word *hergeb* generally is related to a wide spectrum of respiratory diseases, but in some area can indicate also pasteurellosis.

⁷⁶ FGD with household members in Weshako Denan temporary settlement, Melkahager kebele, 30 Sept. 2015.

veterinary conceptions on the disease causes and symptoms appeared quite consistent, with some minor differences:

Dhabargoye is a fatal disease, common in flat grazing lands, when animals cannot find water and pasture and eat the carcasses of tortoises. They develop this disease and suddenly collapse, often dying before sunset. Symptoms are: falling down, paralysis, excess of urination. It is very harmful: if it spreads, from 100 cattle they will become only 10.⁷⁷

We used to live near the Dawa River, but now we moved here and we cultivate some crops. We don't move anymore: we don't have camels and cattle to use for transportation. We used to move because we had more livestock. Most of our cattle are dying for a sickness called *Godabgoye*. Our neighbour owned 6 cattle, but 3 died due to this disease and 3 are sick. These cattle were the only livestock he had. (...) *Godabgoye* is caused by tortoise and ticks. If a tortoise dies and parts of its body, including the bones, remain on the ground, the animals that touch it will get sick; also if there is a carcass of a dead cattle left on the land and the grass grows, it will infect the cattle that will graze it. Livestock will experience fever, will suddenly stop walking, as if it had a heart attack, and get excessive urination⁷⁸.

According to the veterinary conception botulism is caused by bacteria and transmitted to grazing ruminants through soil, sediments of sea and rivers, fragments of carcasses found in pastures. To avoid contamination, pastoralists interviewed affirmed that traditionally they burn the bones and the gastrointestinal organs of the animal, and that they avoid to get in contact with its blood. In other cases, they dig a hole in the ground and bury all these body parts. Sometimes they burn the carcasses of tortoises that find on the way. Anyway, if they manage to catch the animal before it dies they slaughter it and eat the meat, stating that it is not harmful for human health. The prolonged cooking methods probably prevent the development of the disease. Veterinary treatments or vaccinations for botulism, even if existing, are not available in Filtu woreda.

In other cases, pastoralists affirmed to eat the meat or drink the milk of livestock affected by a disease even if aware of the potential bad consequences of this behaviour:

The two major causes of *kud* are ticks or hyena faeces (if eaten by animals). There isn't any way to prevent camels to eat hyena faeces: when you see it, the camel has already eaten them. Regarding ticks, we shift our settlement time to time. It can be transmitted between animals through smelling [inhalation]. If people eat the meat of the dead animal, they can develop lesions, but we eat it anyway. We burn the stomach, the blood and the bones, but we prepare the *Otka* [traditional food made of dry meat] and we drink the soup. If lesions appear on our body, we pull the pus out and then we treat them. We use the hide for building ropes⁷⁹.

In the above mentioned case, Mesfin directly asked if they received any awareness mobilization on the fact that the meat of animals affected by *kud* has not to be eaten. People participating to the FGD answered that they never did, and even if that was the case, they would not stop: 'how could we burn the meat? Allah has our treatment and he will give us'.

Other examples related to different diseases can be mentioned:

⁷⁷ FGD with household members in Omar Kasay temporary settlement, Melkahager kebele, 2 Oct. 2015.

⁷⁸ Interview with an elder in Afgoye permanent settlement, Haydimtu kebele, 2 Dec. 2015.

⁷⁹ FGD with household members in Omar Kasay temporary settlement, Melkahager kebele, 2 Oct. 2015.

This year so many camels are getting abortion. (...) We don't know the cause of this problem. People drink the milk from the camel that aborted. The joints of the person who drinks this milk will start to hurt and he will feel pain: we will treat him doing burnings on the joints and this will give him a temporary relief. Children fed with that milk will feel sick, and keep feeling the pain even when grown: they will be called "the children of the camel".⁸⁰

We consume the milk from sick animals but it gives us pain in the joints and ankles. Some of the people can get paralyzed, others will get partial paralysis, some will recover and some will not.⁸¹

Pastoralists and health workers complained of the presence of widespread diseases affecting camels, that appear as not yet scientifically identified due to the lack of researches. The main example is *madax-tag*, a disease that in December 2015, at the end of the rainy season, affected a wide number of camels. Among other symptoms, *madax-tag* led to many cases of abortion. Participatory epidemiological researches would be strongly recommended for such cases⁸².

3.3 Treatments and healing practices

When sicknesses occur to their livestock, pastoralists can rely on a variety of treatment methods pertaining to different medical practices, such as traditional medicine (use of herbs, manipulation etc.), religious treatments (prayers, amulets etc.) and veterinary medicine (drugs and techniques).

The OR assessed that pastoralists widely accept and recognise the major efficacy of veterinary treatments compared to other forms of healing. Pastoralists always demanded for medicines and complained for the lack of proper veterinary treatment and for the difficulties in accessing drugs, mainly due to the high costs and shortage of supply in outreach sites. Filtu woreda's animal health service delivery system appears totally inadequate to respond to the existing needs and requests. The most diffused way of livestock treatment among pastoralists is therefore self-care. In every community visited by the OR, pastoralists interviewed used to state: 'We administer by ourselves the medicines to the livestock. Nobody taught us how to do it: problems teach us'.

Information on household treatment methods obtained in all sites visited during the OR appear consistent. Generally speaking, any household member is able to administer common treatments (injections, tablets) to his/her livestock. However, in each *reer* there are individuals more skilled than others, that are often in charge of administering animal treatments. These people have developed these skills in different ways: it could be someone who has developed this skill spontaneously, by his own, through practice and experience; or someone that has been taught by other people. They usually treat only the animals of their household's group and do not receive any form of payment for their service. Sometimes the animal health workers appointed in the kebele area can teach people how to treat, especially how to make injections; often pastoralists affirmed to have learned by themselves, watching

⁸⁰ FGD with elders and men, Melka Libi kebele center, 9 Dec. 2015.

⁸¹ Lady intervention during a FGD in Jayaga-ad main village with kebele leaders and elders, held to support the WLCRDO in the assessment of a suspected outbreak of an epidemics of camel abortion, 07 Dec. 2015.

⁸² An interesting example on this kind of approach is the HALI project in Tanzania: see Mazet et al. (2009).

the animal health workers during vaccination campaigns and repeating the same gestures at home.

Veterinary drugs can be bought in private drug shops available in Filtu town and other major centres like Aynle; in Animal Health Posts available at kebele level (see Chapter 4, par. 3.4.1); in normal shops where they are sold together with sugar, tea, and other everyday items. Drugs can also be purchased directly from mobile professionals or common people who sell them in their home or, on request, can deliver them to the households.

Most of the drugs sold and locally used are purchased on the black market and are provided through contraband channels. Contraband drugs arrive to Liben Zone through the borders with Kenya and Somalia. According to governmental authorities and animal health professional interviewed, the main issues with contraband drugs refer to the lack of control on their composition, expiration date and conservation: often they are left idle for days, even months, and exposed to weather conditions, before being transported through the borders. Major risks of this practice relate to their minor efficacy.

Use of less-effective contraband drugs and incorrect administration of veterinary medicines due to self-care, can cause different problems like:

1. adverse effects on the animal, as immediate reactions or long-term resistances;
2. harmful effects on humans, when milk and meat are consumed.

On the field, we often observed the consequences of the incorrect administration of drugs on livestock (i.e. abscesses, inflammations).



Fig. 24: WLCRDO focal expert and ORVTM visiting cattle that presents a reaction to an injection

Moreover, in local perception injections are considered more effective than tablets to swallow. As an example, some pastoralists explained us:

we dilute some capsules in water and we inject them. We learned this method by ourselves: the injection is more effective than swallowing because it enters in contact with the blood and arrives immediately.⁸³

In the mentioned case, according to Mesfin, the correct treatment would have been oral administration of antibiotics.

⁸³ Interview with household members in Sabad Ade temporary settlement, Melkahager kebele, 30 Sept. 2015.

From the pastoralists' point of view, the advantages of contraband drugs are related mainly to their wider availability and minor costs. Moreover, mutual help practices between relatives and neighbours, through drug circulation, are common:

We go either to Haydimtu or Filtu to get medicines, but we buy them at a cheaper price in the black market. The shops are nearby and sell the drugs directly in syringes, from 10 cc to 20 cc. Government tells to the animal health workers to sell medicines to people with discount, but they never do it: they make business on us. Sometimes we take goat's medicines from neighbours. If my neighbour's goat gets sick and he gets drugs, and the next day mine gets sick, I will ask him to inject my goat with the same drug he used for his own with no payment: it is a favour. If he gets his turn and needs help, I will do the same for him.⁸⁴

Prices of drugs vary according to the moment and the location, with legal drugs often costing about double than the illegal ones:

Woreda representatives tell us that the Oxy [Oxytetracycline] that comes from Kenya and Somalia by contraband is cheaper and less effective. But we use it because it is less expensive: it costs 20 ETB, while the legal one costs 40 ETB.⁸⁵

5% Oxytetracycline costs 18 birr, while 20% Oxytetracycline costs 30 birr. The first one is illegal and less effective, but pastoralists buy the cheaper one since they don't know about any difference between the effectiveness of drugs.⁸⁶

Choices not only depend on prices, but also on availability and accessibility:

Animal drugs in Melkal Libi are very expensive, more than in Filtu town. Sometimes we go to Filtu to buy the drugs, but if the animal is very sick, we prefer to treat it immediately and we have to buy medicines from Melkal Libi.⁸⁷

Woreda and Zonal authorities are recently increasing their efforts against the flow of illegal drugs. The lack of valid alternatives due to the shortage of governmental supply, though, is a serious challenge for them. As Mesfin significantly stated: 'I know where these drugs are sold, and I could easily pursue them, but if I do it, will pastoralists get enough drugs? No, they won't. So, how can I stop them?'⁸⁸



Fig. 25: A "skilled" young household member injecting contraband antibiotic on a goat

⁸⁴ FGD with women in Koh permanent settlement, Haydimtu kebele, 1 Dec. 2015.

⁸⁵ Interview with household members in reer Ali Abdi temporary settlement, Aynle kebele, 24 Nov. 2015.

⁸⁶ Interview with Community Animal Health Worker, Harabali kebele center, 5 Jan. 2016.

⁸⁷ FGD with household members in Weshako Danan temporary settlement, Melkahager kebele, 30 Sept. 2015.

⁸⁸ Informal conversation, 5 Jan. 2016.

Other common ways of treatment for animal diseases are traditional medicine and religious healing, i.e. the administration of herbal mixtures, bone-setting, manipulations (massaging or burning affected parts), recitation of Quran verses. These kind of interventions can be applied by livestock owners (mainly men, but sometimes women too), or specialists purposively called when needed (traditional healers acknowledged in the households group or in the wider community; Islamic Sheikhs):

Among traditional healers, it is possible to find people who treat both humans and animals, as I do, and others who don't know how to treat both of them. Someone else can be specialized only in some kind of treatment, like fractures. I don't know how to treat fractures, I only know herbal treatments and some kind of manipulation, like the removing of the camel's placenta when it doesn't come out by itself. Women are not much experienced in herbal medicine, but there are some women who know how to manage goats' fractures.⁸⁹

We use traditional treatments like burnings and herbs. In case of *shimbir* [neck paralysis], *hargeb* [respiratory diseases] and insect bites we make burnings on the animal skin. We use *habeg hager* [a solidified vegetal latex extracted from the *hager* tree] to treat tick infestations, massaging the affected part. We also use it to treat abdominal pain: we dissolve it in a solution and we give it to the camel to drink. Everybody knows this kind of herbal treatment and can administer it. Most of the time it is a men's duty, while sometimes women can do it too. Burnings are done by skilled healers called *sanhoole*, that learned these techniques by their ancestors. There are 3 *sanhoole* in this settlement. They also know how to do surgical operations, like castration⁹⁰. Sometimes they are called by people living in other settlements in order to treat their animals: they don't receive money, but they will be rewarded with tea, milk or coffee or other form of gift.⁹¹

Examples of traditional treatments observed in the *reer* at the end of the dry season⁹²:

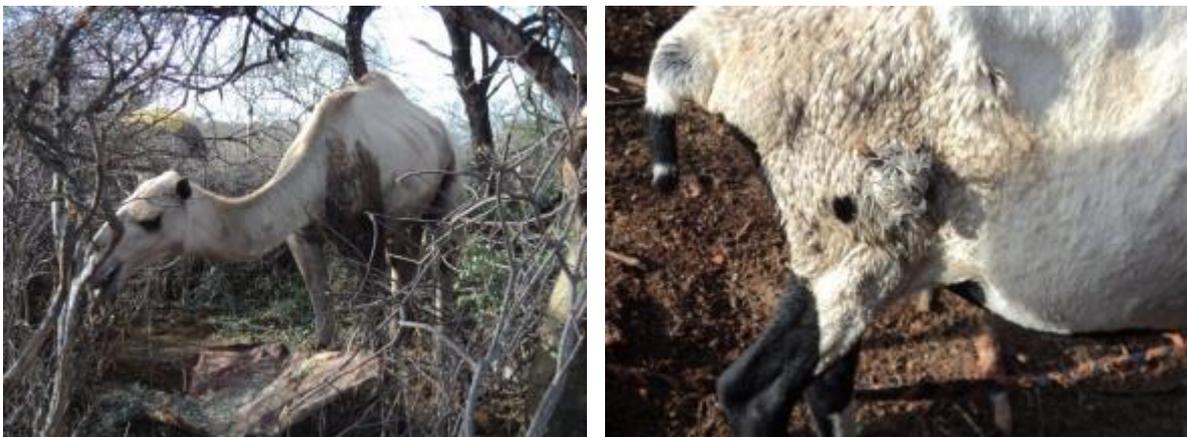


Fig. 26: Camel broken leg treated spreading habeg hager solution on the affected part (the dark stain in the picture) and sheep's leg fracture treated through bone-setting (skin is tight with a stick to keep the broken bones together)

⁸⁹ Interview with a traditional healer in Washako Danan temporary settlement, Melkahager kebele, 1 Oct. 2015.

⁹⁰ They hold the spermatic cord with tongs and hit it until they break it.

⁹¹ FGD with household members in Weshako Danan temporary settlement, Melkahager kebele, 30 Sept. 2015.

⁹² Participant observation in Sabad Ade temporary settlement, Melkahager kebele, 30 Sept. 2015.

3.4 Animal health care system

At the moment of the OR, CCM was the only NGO working on animal health in Filtu woreda, despite focusing only on a research project. The international NGO COOPI, usually involved in this sector, interrupted its activities 2 years before.

3.4.1 Facilities and human resources

As in the rest of the Country, the animal health care delivery system is regulated by the Animal Health Services Department, within the Woreda Livestock, Crop and Rural Development Office. In regards to Filtu woreda, at the moment of the OR Mesfin (Animal Health Assistant seconded to CCM OR team) was the Head of the Department. The following table summarizes the human resources available in the Department:

Title	N.	Active	Inactive	Duty location	Remarks ⁹³
DVM	0	0	0	-	DVM = Doctor of veterinary medicine
AHA	2	2	0	Woreda office	AHA = Animal Health Assistant
AHT	6	6	0	Animal Health Posts (AHPs)	AHT = Animal Health Technician
CAHWs	70	50	20	In the communities (mobile) + AHPs	CAHW = Community Animal Health Worker
Total	77	57	20	-	-

Table 7: Human Resources in Animal Health Department (source: WLCRDO, Sept. 2015)

Only 15 kebele (out of the total 28 kebele composing Filtu woreda) have animal health posts (AHP). AHP are the lower-level facilities; no Animal Health Clinic or Animal Health Centre is available.

s/no	Kebele	Human resource	Constructed by	Year of construction	Distance from Filtu (Km)
1	Aynle	AHT	Region	2000	70
2	Melka Libi	CAHW	COOPI	2001	21
3	Mesajid	CAHW	COOPI	2001	17
4	Qurale	AHT	COOPI	2001	60
5	Kulay	CAHW	COOPI	2001	90
6	Usubey	AHT	COOPI	2001	25
7	Harabali	CAHW	PSNP	2007	35
8	Bandeer	CAHW	Woreda	2007	126
9	Filtu	AHT	VOCA	2007	0
10	Nusteric	AHT	Woreda	2008	105

⁹³ Refer below for more details regarding AHT and CAHWs. AHA are Diploma holders with 3-year education background; DVM are Degree holders with 6 years University education background.

11	Ahmedo-amin	CAHW	Woreda	2008	35
12	Raydeb	CAHW	Woreda	2010	75
13	Bod Bod	CAHW	Woreda	2010	103
14	Banhigli	CAHW	PSNP	2011	60
15	Golbo	CAHW	Woreda	2012	85

Table 8: Animal health facilities available in Filtu district (Source: WLCRDO, 2015)

AHP are few in number, often in bad structural conditions (due to lack of proper maintenance); some of them miss fences and toilets. No fridges are available, with evident problems in ensuring the vaccine cold-chain, and generally there is shortage of drugs and equipment. During the OR, the AHPs visited in Aynle, Mesajid and Bod Bod were found totally inactive; while in other kebele services were delivered in private houses appositely rented by CAHWs (Jayga-ad) or AHT (Haydimtu) since no AHP was available. Melka Libi and Harabali AHP were found active, even if service delivery was discontinuous; while Filtu town AHP is located in the market area and is open twice a week on market days (Monday and Thursday).

According to the national policy, AHP should be run by Animal Health Technician: certificate holders with a 6 months training regularly employed by the Government. Due to the shortage of manpower, at the moment of the OR in Filtu woreda only 5 AHTs were permanently assigned to AHPs (1 in Filtu town, 1 in Aynle, 1 in Usubey, 1 in Qurale, 1 in Nusteric) and 1 AHT was temporarily assigned as mobile worker in Haydimtu (due to the high livestock population in the kebele). The remaining AHPs were run by CAHWs⁹⁴.

CAHWs are private workers, selected by the communities at kebele level on the basis of their age (between 25 and 45 years), “their behaviour” and the trust from the community. The OR assessed that often the selection is related to clan and family linkages and the relation with the kebele authorities; often they are member of the Kebele Council and their role overlaps with the one of the Kebele Agricultural Expert. They are trained for 3 months by the WLCRDO, in collaboration with local and international NGOs partners; they usually receive training on vaccination, treatment, prevention and control methods and they are deployed in the community where they come from. Each CAHW is supposed to provide mobile services in an area of 10 km² around his residence.

CAHWs do not receive any salary or other benefit from government, except per diem during vaccination campaigns and trainings provided by NGOs or the woreda. Their main source of income is the payment for treatment services, directly provided by the livestock owners, and the little drugs surcharge they sell on site (few birr on top of each dosage). They thus often have other parallel and complementary jobs, such as livestock rearing, farming or marketing, subtracting energies and time to their animal health activities. The governmental authorities reported that the lack of benefits as one of the main causes of inactivity of trained CHAWS, and the workers themselves have constantly complained about it. The ideal system should work as follows:

Livestock owner detects the sickness of his animal and calls the CAHWs, who walks to the household to diagnose the disease and deliver treatment. In case of use of transportation means,

⁹⁴ For a general overview of the role of CAHWs in the Horn of Africa, see Leynald et al. (2014).

fees are paid by the animal owner (motorbike rent, fuel), as well as the cost of the treatment applied (drugs, syringes etc.). When CAHWs are not able to treat the animal, they should report the case to the AHT of the nearest AHP: the AHT diagnoses the case and reports it to the district. If the AHT is unable to handle the case, he will let the district experts detect the disease and they will report to the region and the federal authorities by compiling a disease reporting format⁹⁵.

The reality witnessed during the OR is different. CAHWs are used simply as drug sellers: pastoralists buy medicines from them in AHP or rented shops – sometimes asking for the specific kind of drug needed, sometimes describing symptoms and asking for a consultation – and they will then apply the treatment by themselves on their livestock.

CAHWs are supposed to report to WLCRDO on the type of diseases they treat and meet within the pastoralist communities, but no format to facilitate this process was found during the OR. Among the CAHWs met on the field, only one was actually using a self-made recording system, based on a training received from COOPI. No data were available from CAHWs in the remaining selected kebele.



Fig. 27: Jayga-ad CAHW's logbook of livestock treatments

3.4.2 Outbreaks reporting system

In case of animal disease outbreaks, the Livestock Health Department receives information directly from CAHWs, kebele leaders or any community member. Once a suspected emergency is communicated to the WLCRDO, its experts move to the site to assess the situation and, if confirmed, report it to Regional and Federal authorities. According to Mesfin,

There isn't any budget specifically allocated from the woreda in case of outbreaks and emergencies. Sometimes we receive responses from Region and Federal authorities, but it doesn't happen often: the problem is that we don't have a direct access to the service and the responses are not fast enough⁹⁶.

During the OR, CCM was asked to support the WLCRDO to verify two suspected animal disease outbreaks in two different occasions, one in Bod Bod (14-15 October 2015) and the other in Jayga-ad and Aynle (7 December 2015). In both cases, the OR team identified a gap in

⁹⁵ Interview with Mesfin, AHA and Head of Animal Health Service Department of WLCRDO, 7 Sept. 2015.

⁹⁶ *Ibid.*

the bottom-up communication system: data reported from the community representatives on animal death were inaccurate, and information received from the woreda offices were found to be incorrect. The declaration of a disease outbreak and the exaggeration of information appeared to be a strategy often used by pastoralists to attract authorities' attention and receive services. An exemplar case happened on 13 October 2015 in Bod Bod, when Woreda Revenue officials visited this remote site for tax collection. In this occasion, local representatives and CAHW reported the outbreak of a disease causing cows' deaths after delivery. The shared information caused the intervention of the WLCRDO that asked CCM to support the evaluation of cases on site. Once on the field, we found out that the information was false and no cow actually died. Due to the remoteness of the area and the long-lasting consequences of the conflict on Dawa river, the site appeared semi-abandoned, facilities were derelict and local CAHW and HEW complained for a total lack of drug supply. The outbreak declaration, despite exaggerated, led to the intervention of the Livestock Department and CCM (Mesfin was carrying some boxes of Oxytetracycline and other medicaments), attracting the attention on their marginalized area. This kind of dynamics, anyway, produces negative effects on the information and response system.



Fig. 28: OR team supporting WLCRDO in the assessment of a suspected cattle outbreak epidemics

3.4.3 Drug and vaccines supply

The inadequacy of the drug supply system appears as one of the major problems in the animal health delivery system. CAHWs need to personally go to Filtu town to purchase drugs and equipment in the WLCRDO, self-sustaining the costs of transport and items.

Drugs and vaccines are supplied to the WLCRDO by the Regional Bureau twice a year. Occasionally some partner NGOs may provide additional drugs, as previously done by COOPI. At the moment of the OR, the FAO was providing vaccinations through the Regional Bureau, covering the cost of vaccines, per diem and fuel. Livestock vaccines campaigns in the outreach areas are implemented by district staff and CAHWs.

Due to the shortage of drugs and manpower, there are big inequalities in the geographical distribution of vaccines in the different kebele of the woreda, as well as in the kind of diseases and animals immunized.

A large cold chain room was built in 2013 in the WLCRDO, with the support of the Federal Government, to serve the whole Zone. However, due to the lack of electricity sources, it is still not functional and vaccines are kept in refrigerators within the office.

In all the sites visited by the OR, pastoralists always complained for the discontinuity and lack of proper vaccination campaigns. As an informant explained, for example:

We didn't get vaccination recently, neither for shoats or camels, since 7 years. Every year the government sends the vaccines, but their amount is too little when compared to the need. We heard that recently there was a vaccination campaign in the area, but we couldn't access it since we got the information after the campaign was already held.⁹⁷

The shortage of drugs delivered through the governmental system is somehow compensated by the availability and diffusion of contraband drugs, previously discussed, and the presence of private veterinary pharmacies and drug shops in Filtu town. Private services get medicines directly from pharmacies located in Negelle, Dolo Ado and sometimes Addis Ababa, or from Kenya and Somalia, and sell them with a small added percentage to cover costs of transport and get income. According to the AHT working in the AHP of Filtu town – who is also the owner of a well-known private pharmacy in Filtu:

private pharmacies cover 40% of the veterinary drug supply, the 30% is covered by black market, and the remaining 30% by governmental supply. The drugs we get from Somalia are cheaper, with lower effectiveness than those from Addis Ababa, even though most of the drugs are made in China. Previously we were getting medicines made in UK and Belgium, but their prices are higher compared to those coming from China: that's why now Chinese drugs are widespread. With those from UK and Belgium the animal will get better after being injected 3 times with the same bottle, while when the animal is injected with the medicines from China it will not show any changes even if you inject 2 full bottles on it.⁹⁸

3.4.4 Other gaps

- Due to the lack of equipment and human resources, lab analyses are not done either in Filtu woreda or Liben Zone and samples need to be sent to the Regional Laboratory in Jijiga or to the National Animal Health and Disease Investigation Centre (NAHDIC).
- No slaughtering house was available in Filtu woreda at the moment of the OR: requests to build one were repeatedly submitted to higher authorities by the WLCRDO's Livestock Health Department, with no effect until now.
- At kebele and sub-kebele level, collaboration between CAHWs and "human" health workers was found as totally absent, despite it emerged to be highly desired by animal health workers:

Collaboration would be good, but every time I try to communicate [with the local health workers] they refuse to get involved. I think that during times like vaccination and

⁹⁷ FGD in Weshako Denan sub-site, Melkahager kebele, 30 Sept. 2015

⁹⁸ Interview with the AHT of Filtu AHP, 19 Dec. 2015.

awareness mobilization it would be good to work together since only one person works in each health posts and there is a lot of demand⁹⁹.

In general, animal health workers were found to be quite knowledgeable and interested in human health issues. Some of them received specific short-term trainings on human health and zoonotic diseases, and in the interviews they declared to conduct surveillance of epidemics, education on disease transmission and risk prevention at household level¹⁰⁰. Differently, health workers interviewed at different level seemed to underestimate the importance of animal health and the risks related to zoonotic diseases, consequently undervaluing the role of animal health workers in protecting human health as well.

4. People in health/disease

4.1. Reproductive and maternal health

Reproduction and infant care are conceived as natural events. According to the combination of local and medical anthropological perspectives, a sickness is a disorder, an imbalance affecting at the same time the individual and the social bodies¹⁰¹. Being ordinary events – parts of daily life – sexuality, pregnancy, delivery and infant care are perceived as ambits that do not require biomedical interventions, unless complications or sicknesses (= disorders) emerge.

Among pastoralists, women usually get married between 15 and 20 years old:

Women don't stay single after 20, unless she has some health problem, such as physical or mental disabilities.¹⁰²

If she has physical disability or mental problem she will not find a man who is willing to marry her. We have a saying for women: 'she must either be in the husband's house or in grave'¹⁰³.

Concerning sexuality, the OR did not identify any traditional mechanism and norm related to the control of births: sexuality is not allowed only during menstruations and in the first period after delivery. According to the women interviewed,

The groom comes and stays in the *hori* with his new wife. They start to have sexual intercours from the night they get married; there are no restrictions unless the woman has her monthly period. After delivery she waits for 40 days, and then can start having sexual intercourse again: this period is like "a second wedding".¹⁰⁴

⁹⁹ Interview with the CAHW in Harabali AHP, 5 Jan. 2016.

¹⁰⁰ Interviews with the CAHW in Aynle town, 25 Nov. 2015; and with the CAHW of Melka Libi AHP, 18 Jan. 2016.

¹⁰¹ See Augé (1983). In medical anthropology the term "sickness" is commonly used. It refers to the classic triad "illness", "disease", "sickness", where the term "illness" refers to the individual and subjective experience of the event; the term "disease" indicates the body's dysfunctionality or pathology from an organic/biological point of view; the term "sickness" denotes the social dimension of the problem, i.e. the way each society conceptualizes, manages and gives meanings to it. The triad shows the multidimensionality of the phenomena, often underestimated by biomedicine, that considers only the "disease".

¹⁰² Interview with two women in Jayga-ad kebele, 24 Dec. 2015

¹⁰³ FGD with women in Haydimtu kebele, 26 Dec. 2015

¹⁰⁴ FGD with women in Melkahager kebele, 25 Dec. 2015; and Mesajd, 6 Jan. 2015.

Among women questioned, the age difference among children of the same mother was averagely from 1 to 3 years¹⁰⁵. Family planning through biomedical techniques was totally absent and, where known, was mentioned with irony and/or unbelief: 'I heard that white people like you have a way to have sex with their husband without having children... is it true? Why they don't want children?'. This statement was addressed to the Pc in the settlement of Selah Megen, during a wedding ceremony: in Somali culture, children have a fundamental social, symbolic, emotional and economic value. More children mean a greater power of the patrilineal clan, a wider number of resources for the care of the household properties (children are sent to look after the livestock since they are 9 years old), a higher social status and value, and ensure the support during the old age:

Once children will grow, the females will get married; among the males, one will follow the camels, one will die, another will go to live abroad... at least one will stay and will take care of us.¹⁰⁶

In this perspective, family planning does not make any sense, and therefore is unacceptable: it responds to a logic that is totally opposite to the local one (less children = more wellbeing).

As in other areas of the country, 'a normal delivery takes place at home'¹⁰⁷. Women usually attend labour inside the hut, assisted by the other women of the household: men are interdicted on the "delivery scene". In Filtu woreda, deliveries are often assisted by a *umalissa*: an experienced traditional birth attendant whose skills, learned by ancestors and others women of the community, are acknowledged within the social group. Traditionally, women suffering from labour pains cling to the pole at the centre of the *hori*, until they deliver in a standing position. The *umalissa*, kneeling, receives the baby under the woman legs while the other women help her in holding him/her and cleaning the blood that copiously falls on the floor. After that, the family members immediately slaughter and boil a goat and feed the woman with its soup to help her recovering. They also give livestock milk to both her and the baby, while the rest of the family eats the meat and celebrates the birth. Since the onset of labour, a *ma'alin* (Quranic teacher) is called and waits just outside the hut, ready to intervene in case of death of the mother or the child. The perception of risk during delivery is very high: birth is a liminal event, that questions life and death, and is surrounded by ritual practices:

We don't go to the health facilities. Nobody told us to go there. Anyway, why should we go? There is nothing there: the *ma'alin*, the goat... everything is here. We prefer God than hospital.¹⁰⁸

Religiosity is an essential component of everyday life, and therefore indivisible from social and biological events. The underestimation of the importance of this dimension by biomedical

¹⁰⁵ FGDs with women in Jayga-ad, 24 Dec. 2015; Melkahager, 25 Dec. 2015; Melka Libi, 25 Dec. 2015; Haydimtu, 26 Dec. 2015, Mesajid, 6 Jan. 2016.

¹⁰⁶ Informal conversation with a group of women in Selah Megen temporary settlement, Melkahager kebele area, 01 Oct. 2015.

¹⁰⁷ Bedford et al. (2012). On home delivery in other area of Ethiopia, see also Gebrehiwot et al. (2014); Warren (2010).

¹⁰⁸ FGD with household women and TBAs in a temporary settlement in Jayga'ad kebele, 17 Oct. 2015.

actors is one of the factors affecting the access and utilization of health care services in Filtu as elsewhere¹⁰⁹.

The OR confirmed the presence of TBA trained by local and international NGOs, as PC and CCM, both in Filtu town and outreach areas. They have the duty to refer the delivering women to the health facilities, and often help them at home if the labour 'is too fast':

I was trained by PCA for one month on safe delivery: now I am one of the best TBA by referring women to hospital. As TBAs we are many, and we divide the kebele between us. In my sub-kebele we are 3, but one is old and the other has little experience. One day, 3 ladies called us because they were in labour. One deliver was very fast, while we referred the other 2 [women] to the hospital. When I help them at home, we use to be 2-3 persons: 2 are the woman's relatives, who assist the delivery preparing everything for the child and preparing things to drink for the mother. I also know how to remove the placenta if it is tied around the neck of the baby, and I massage the abdomen of the mother, pushing back and helping her to expel it. If after some time it doesn't come out, we refer her to the hospital.¹¹⁰

After delivery, a special status is acknowledged to the woman: the household members will help her taking care of the livestock, the housework and the other children. The woman and the newborn will stay in the protected environment of the hut, without going out for a maximum of 40 days, due to the high perceived risks for their health. However, this period – as well as the pregnancy – does not prevent the pastoralists' imperative of movement; and the "special time" will be shortened in case of need:

A pregnant woman will move with the animals unless she is ready to deliver. If in the place where she delivers there isn't enough pasture, 15 days after delivery she will go, since during the first 15 days of birth the baby is very small and weak and can't be carried. Women are simple: they recover very easily.¹¹¹

According to the information collected during the FGD carried out in 6 kebele, breastfeeding lasts usually from 12 months to 2 years. Most of the time, breast milk is alternated with livestock milk, water and tea (sometimes with sugar). As in other parts of the country, colostrum often is not given to the newborn: breastfeeding starts when proper milk appears¹¹². During this period, babies are fed with livestock's milk (preferably camel). In one of the household visited, an *umalissa* interviewed declared to have recently stopped these

¹⁰⁹ As remarked by the medical anthropologist Jean Benoist, 'Suscitée les une et les autres par la douleur et par la mort, les conduites de soin et celles de prière sont d'une si intime parenté qu'il est tout à fait illégitime, et profondément ethnocentrique, de les dissocier comme on le fait trop. La cécité de la médecine de l'Occident à ce propos est sans doute à l'origine de bien des refus, voire de bien des hostilités, qui l'affectent même au cœur de son empire. (...) Autour du médecin, certain de la fidélité de ceux qu'il soigne se construit un univers de recours et de pratiques. L'infidélité essentielle de ses malades s'ancre dans l'incomplétude de la prise en charge, qui d'un certain façon fait écho à l'affaiblissement des rapports avec le religieux.' (1996, p. 13).

¹¹⁰ Interview with a trained TBA in Filtu town, 11 Oct. 2015.

¹¹¹ FDG with household men in Sabad Ade temporary settlement, Melkahager kebele, 30 Sept. 2015.

¹¹² See for example Rogers et al. (2011); Legesse et al. (2015); Rajkumar et al. (2012, p. 74-75); Tsedeke Wolde et al. (2014); http://www.unicef.org/media/media_50700.html. According to these studies, in the area where they conducted researches a high percentage of women declared to have recently started feeding their babies with colostrum, thanks to the mobilization and education efforts of Health Workers.

practices, due to the intervention of a Sheikh that taught them that Quran prevents to use other milk than the mother's one, considered holy¹¹³. Trained TBA also stopped this practice:

Previously, right after delivery we gave fresh camel milk to the baby, and tea and milk to the mother. We fed the baby in this way for seven days, but now we attach him immediately to the breast, which is good for both the child and the mother: for child is an immunization, and for mother it helps to produce more milk.¹¹⁴

The study and valorisation of the Quranic good health practices, the involvement of religious Sheiks and leaders in awareness and mobilization campaigns, the training of TBAs and their involvement in maternal health interventions are strongly recommended for future strategies.

At the same time, the involvement of religious leaders in health awareness campaigns can pose some challenges, that need to be timely and properly negotiated, as in the case of the sexual transmitted diseases (STD). Among the STD, women always mentioned HIV and *Chebto*, a Somali word usually translated by health professionally as Gonorrhoea; *Chebto* actually indicates every sickness of the genital area. In the local perception, both diseases are transmitted if a woman undertakes forbidden (*haram*) sexual intercourses out of marriage. This message is shared and delivered by health extension workers during education campaigns, due to different reasons. First of all, the association of faithfulness with risk prevention allow obtaining the religious leaders' compliance in health promotion, while the diffusion of other messages (i.e. the use of condoms) would arouse their blame. Due to the respect that the community acknowledges to Islamic Sheiks, this would cause them inner and social difficulties. Moreover, governmental health workers share the same cultural background of other local people, acknowledging the authority of religious leaders and often pursuing the respect of religious and moral prescriptions in their daily practices. On one side, the involvement of religious leaders and concept in health education campaigns can facilitate the transmission of messages (when biomedical and Quranic prescriptions coincide); on the other, legitimating their role in the health field risks to strengthen these positions. Health education messages, and actions, would thus always need to be deeply discussed and individually negotiated with the actors involved in the campaigns, to avoid potential misunderstandings and "conflicts of interest".

In some permanent agro-pastoralists settlements visited, women showed a deeper knowledge of the risks connected to STD transmission, mentioning also needles, sharp blades used by infected people, pregnancy and breastfeeding among the vectors and stating to have received this information by the health workers¹¹⁵. This confirms a wider effort on health education among settled population. Pastoral and agro-pastoral groups of women interviewed acknowledge the importance of getting biomedical treatments in case of STD. Practically, the recourse to biomedical facilities appears difficult mainly because of a number of barriers that will be further explored, and the fear of social stigma.

¹¹³ FGD with household women and TBAs in a temporary settlement in Jayga'ad kebele, 17 Oct. 2015.

¹¹⁴ Interview with a trained TBA in Filtu town, 11 Oct. 2015.

¹¹⁵ FGDs in Haydimtu, 26 Dec. 2015 and Mesajid, 06 Jan. 2015.

4.2 Hygiene and prevention

The general impression of the OR team was that, despite the conditions of extreme water shortage and constant promiscuity with livestock, the cleanliness and organization of the *hori* is maintained with attention. This is probably linked to the Islamic strict prescriptions regarding purity and hygiene, starting from the individual body to the shared utensils and spaces. As in the case of breastfeeding, a thorough analysis of the Quran is strongly recommended to valorise the overlapping between the Islamic and biomedical prescriptions and take advantage of the benefits that the firsts may have on the latter.

Food preservation and related hygiene practices were also rapidly inquired during the OR, but their observation would need to be widened. We already mentioned the use of milk and meat of sick animals and the consequent risks of zoonosis transmission (see Chapter 4, par. 3.2); anyway, meat is always boiled for long time minimizing health risks (consumption of raw meat in this area is avoided, while widespread in other parts of the country), or dried and preserved in oil or butter (*otka*).



Fig. 29: A group of women preparing *otka* for the newly married couple during a wedding ceremony

Milk production is usually low and insufficient for conservation, except in some cases:

We clean the utensils which are made of wood, we wash them with ash, then with water and finally we steam them with smoke from different wood; then we store the milk in them. This keeps the milk fresh for two days: it turns into a yogurt which is tasty.¹¹⁶

In case of diseases considered contagious (i.e. *hergeb*, measles), sick family members are kept isolated from the rest of the household: they eat separately (while the others eat in a common plate) and use different utensils. Additional researches to better identify the types of disease locally considered contagious are recommendable, to take advantage of these good practices across different risks for which the lack of awareness is still widespread.

Generally speaking, health and wellbeing deeply intertwine with salvation and are therefore embedded in Islamic conceptions. Prevention practices are mainly related to prayers, recitation of holy books and rituals: blessing and honouring God allow receiving his protection and benevolence, avoiding sickness and misfortune. As already mentioned on delivery, even if the Ethiopian State is ideally based on Secularism principles, health and health care cannot be separated from the religious spheres in everyday practices.

¹¹⁶ FGD with women in Haydimtu kebele, 26 Dec. 2015.

4.3 Human diseases and local conceptions

According to Woreda Health Office, the top ten diseases detected in 2007 E.C. (2014-2015) are:

s/n	Disease	Percentage
1.	Respiratory Tract Infections (RTI)	28%
2.	Sexually Transmitted Diseases (STD)	22%
3.	Malaria	14%
4.	Diarrhoea	13%
5.	Intestinal parasites	6%
6.	Gastritis	6%
7.	Skin infections	5%
8.	Anaemia	Remaining 6%
9.	Malnutrition	
10.	Injuries	

Table 9: top ten diseases in 15 of 26 health facilities offering curative services (source: WoHO, September 2015)

At the end of the OR study period, health data from 2008 E.C. (2015-2016 G.C.) were not yet available; data from 2007 E.C. (2014-2015 G.C.) were thus taken as reference. It has to be noticed that data reported from the WoHO refer only to 15 out of a total of 26 governmental facilities offering curative services in Filtu woreda. Proper participatory epidemiological researches are strongly recommended, also through the involvement of private professionals and clinics, to confirm the diseases distribution and prevalence in the whole woreda, including those populations that do not access the existing public health services.

The comparison of local and biomedical conceptions of diseases described in Chapter 4, par. 4.2. in relation to animal health, was similarly conducted on human health. The purpose of the exercise, already mentioned in the above paragraph, is to assess:

- existing gaps between biomedical and local conceptions, in order to plan appropriate and specific interventions and awareness and education campaigns;
- potential overlapping between the two conceptions, in order to identify good strategies of communication and integrations of the two systems;
- local best practices and knowledge to valorise and extend to contiguous socio-ecological systems.

As significant examples, we will mention three cases resulted from the fieldwork:

Case 1: TB

According to local conception, TB is caused by physical heavy works, as lifting heavy loads: the sickness is related to the “fatigues of poverty”¹¹⁷. Local and biomedical conceptions overlap on the ways of transmissions: coughing, sneezing, spreading of respiratory droplets and body fluids. Sharing drinking materials is therefore avoided by pastoralists as a traditional prevention method. “Human” health workers interviewed underestimate the zoonotic causes of the disease and do not consider animal health interventions as a mean to reduce its incidence among people. Specific awareness campaigns directed to both pastoralists and health workers are reckoned as a priority.

Case 2: Malaria

Local and biomedical conceptions related to malaria overlap on most of the disease features, showing the success of health education and interventions conducted on the issue: all communities interviewed were aware of the role of mosquitoes in transmitting malaria and biomedical drugs are considered the best treatment, even if not always accessible. As shown in Chapter 4, par. 1.1. climate and environmental changes challenge the traditional ways used to prevent the disease, transforming its seasonality and geographical patterns. Awareness campaigns and health interventions, therefore, need to be constantly revised in relation to the emergence of new threats for people and livestock.

Case 3: Diarrhoea

Diarrhoea is considered both a disease and a treatment. In some of the visited sites, pastoralists reported that when it spontaneously happens, patients are traditionally administered a mixture of water, sugar and salt. It appears a best practice comparable to the biomedical use of the Oral Rehydration Solution (ORS). At the same time, diarrhoea is also often induced to purify the body in case of different illnesses, constipation and minor ailments, and during ‘the time of prosperity (wet season) to keep the body clean’¹¹⁸, both in adults and “mature” children. Diarrhoea is usually induced through the ingestion of laxative leaves and/or camel milk. Again, the relation between health, religious ideas of purity and sin, and “body techniques” (i.e. the ways in which people, in each society, use and shape the body in relation to cultural values and practices¹¹⁹) needs to be taken into consideration.

4.4 Treatments and healing practices

According to medical anthropology, health seeking behaviours involve the parallel or subsequent use of different treatments, the factors influencing the choices of the resources to apply and the decision making processes. The “medical system”¹²⁰ of Filtu woreda is intrinsically plural. It comprehends different health and therapeutic resources, related to different medical traditions, knowledge and practices:

¹¹⁷ The vicious cycle between disease and poverty (poverty creates sickness, while sickness entails poverty) is well known and widely discussed also in scientific literature (see, for example, Zhou 2012, p. 2-3).

¹¹⁸ FGD with elders in Omar Kasay temporary settlement, 2 Oct. 2015.

¹¹⁹ See Mauss (1934).

¹²⁰ For an anthropological definition of “medical system” and its application in Ethiopia, see Schirripa (2010).

- Traditional “professional” healers and practitioners acknowledged by the community (Islamic Sheiks; herbalists; bone-setters; traditional surgeons);
- Domestic treatments applied within the household by patients themselves or by “skilled” family members (use of herbs and manipulations; self-administration of biomedical drugs);
- Biomedical resources, public and private (health care facilities, mobile professionals, drug shops);
- Environmental resources (water sources, grazing lands, vegetation) and their role in pastoralist’s movements in search of health and cure for diseases.

Sickness is not only an individual, organic happening: it is a social event that affects the entire social group; *in primis* the household. A person needs to be socially considered sick to be treated; decisions concerning the treatment to apply are taken within the group. Household’s heads and elders have a special role in this process; other members, including women, can interfere with suggestions and recommendations: decisions are always the result of negotiations. When a woman gets sick, her husband and/or his relatives will be the main decision makers; if there is a life risk, her father’s family has the right to impose decisions¹²¹.

When someone gets sick, the first action is: reading Quran (*Diin*), slaughtering a goat or camel (depending on the degree of seriousness), and feed the patient with the soup and the meat. ‘Health is from Allah, that’s why we do these things’ was a common statement. This can be repeated several times, in case of any disease:

If a person gets sick, too many animals will be lost: some will be sold; other will be slaughtered to pray for him¹²².

Children are too small to drink the soup or eat the meat, in their case the action is replaced by a symbolic ritual: slaughtering a goat, covering the child with its skin and bathing him with its blood.

Diin can be practiced by family members or Sheikhs, sometimes appositely called from neighbouring areas. Some people interviewed reported improvements after applying these practices; the effectiveness of these practices relies on their symbolic value:

I was critically sick for three months: I was not able to move. Now I got improvement after a Sheikh read Quran on me. I called a Sheikh, I slaughtered a camel, I drunk the soup of the camel’s meat and ate the meat. I did it three times when I was sick; I gave to the sheikh what I had, it is not specified what we give to a Sheikh after he reads Quran¹²³.

¹²¹ See Chapter 4, par. 1.4: once married, women belong to the husband’s household for everyday issues, while “blood issues” pertain to the family and clan of origin

¹²² FGD in Sabad Ade temporary settlement, Melkahager kebele, 30 Sept. 2015.

¹²³ Individual interview to a pastoralist in *reer* Ali Abdi temporary settlement, Aynle kebele, 24 Nov. 2015. Basing on the symptoms described, the diagnosis suggested by the OR Nurse team member was arthritis.

I slaughter a cow, I ate the meat and I drunk the soup. I didn't get any improvement, so I slaughtered another cow, ate the meat and drunk the soup. After the second cow I got some improvements¹²⁴.

Herbal treatments are also widespread and practiced both by “skilled” household members, at domestic level, and traditional healers. Leaves, roots or herbs are boiled and ingested, added to food, tea or water, or applied topically and spread on affected body parts. Sometimes herbs can be hung around the neck for protecting/healing the person. Camel milk is considered a treatment for most diseases, due to both its high nutritional and laxative properties. Some people reported the use of camel urine too, drunk to cure different problems as common cold, malaria and tooth pain.

In case of strong pains, pastoralists use to make burnings on affected body parts, in order to get relief¹²⁵. This can be practiced by “skilled” household members, at domestic level, or by traditional practitioners called *Sancoole* in Somali language.



Fig. 30: Burnings on an elder's leg

As for the animal health, the OR confirmed a high domestic usage of contraband drugs to treat “human” diseases. Tablets are usually bought in common shops or private pharmacies and self-administered, while injections are provided by professionals, called privately to the household, or within the health facilities (health centre, hospitals or pharmacies). In the pastoralists' perception, private pharmacies in Aynle and Filtu towns are considered as “clinics”: they have a better drug supply than outreach governmental facilities; guarantee a better privacy than Filtu Hospital (among Somali, information spreads very rapidly; stigma related to STD and other diseases is a burden, especially for women), and avoid admission. Moreover, they prevent costs related to hospital admission and examination fees.

¹²⁴ Individual interview to a pastoralist in *reer* Mahalin Issak temporary settlement, Aynle kebele, 24 Nov. 2015. Basing on the symptoms described, the diagnosis suggested by the OR Nurse team member was gonorrhoea.

¹²⁵ According to Maier (1986), induced pain inhibits natural drives, provoking neurochemical stimulation of the Autonomic Nervous System (ANS) and increased activity in the Sympathetic NS. Endogenous opioids are elicited in the serotonergic system: endorphins, enkephalins, dynorphins interact with the dopamine system, provoking a “placebo effect” (reduction of a symptom by factors related to the patient's perception of the therapeutic intervention) and a stress-induced analgesia.

4.5 “Human” Health Care System

As per the Federal guidelines, the health system in Filtu woreda is composed of a Hospital located in Filtu town, and a Primary Health Care system (PHC) composed of Health Posts and Health Centres located in rural and outreach areas. Health Posts (HP) are primary level facilities, delivering mainly health education and prevention services including ante-natal care (ANC), delivery and post-natal care (PNC). They are run by Health Extension Workers, selected within the community and trained for 9 months mainly on preventive and promotive services, disease detection and maternal-child health care. Health Centres (HC) are primary level facilities delivering a wider number of curative and preventive services and involving professionals with higher health education and work experience (i.e., health officers, clinical nurses and midwives).

According to the Federal MOH standards, the PHC unit should be composed of 1 HC and 5 satellite HP referring to it: the health system in Filtu woreda is far from the recommended target, being composed of 23 HP and only 3 HC. However, the OR could not ascertain the exact number of fully active facilities and further investigations may be needed in this regard.

Governmental health facilities in Filtu woreda

Health posts	Health centres	Hospital	Total
23	3	1	27

Governmental health staff available in Filtu woreda

Nurse	BSC Nurse	Laboratory technician	Pharmacist	HEW ¹²⁶	PHC	HO	MW	Total
27	2	2	2	37	1	3	3	77

Table 10: Number of health care facilities available in Filtu woreda and number of staff employed at primary care level (source: WoHO, January 2016)

Gaps in the public health system are only partially compensated by the presence of private facilities:

Private clinic	Pharmacy	Drug shop	Total
2	9	3	14

Table 11: Number of private facilities available in Filtu town

Only 2 pharmacies in Filtu are regularly licenced as private clinics. The others are managed by health professionals with a nursing background that provide diagnosis and treatments often without any official prescription. Some of these professionals work at Filtu hospital; at official

¹²⁶ Health Extension Workers (HEW) are the service providers within the Ethiopian community-based primary care system. They receive one year of didactic and practical training on Health education and communication, Hygiene and environmental sanitation, Disease prevention and control, and Family Health. Their primary charge is to promote health, including education, screening, prevention, and selective clinical interventions.

level, not any form of referral system between private facilities and public sector is in place and the first do not play any role in disease surveillance and data gathering.

4.6 Health facilities hindrances

The Ethiopian health care system is incomparably better established than the veterinary one. This is due to significant differences between the financial resources, the efforts and the actors involved in the two sectors at local, National and International level. This sections will focus on the hindrances and barriers that prevent the access to the available facilities, and the services inefficiencies as per the users and workers' point of view.

4.6.1 Costs of services and decision-making dynamics

Costs of services, as transport (fuel and rental of the motorcycle, fuel and per diem of driver and health staff of the ambulance¹²⁷), admission fees, laboratory investigations, treatments and drugs, recovery expenses (bed, food, etc.), medical supplies (suture thread, gloves, etc.) are all charged to patients. Credit is not allowed. Cost represents the main barrier to health for the pastoralists: once sick, they need to wait the market days to sell the animals in order to get cash, without any guarantee of success,

We sell our animals in the livestock market in Filtu to buy food and drugs. In the last five months, due to the dry season, we sold around 20 goats: 4 or 5 only in the last month. The father of the family is responsible to decide when and if the animals have to be sold: only men own animals; women have nothing.¹²⁸

Livestock belong to the family head (see Chapter 4, par. 1.4): in case of women and children, the decision to sell an animal has to be negotiated with the husband/father. In his absence, his relatives (brothers or elders) can intervene. All these factors prevent an immediate and easy access to the health services, that is necessarily delayed:

My son is sick with *hergeb* (respiratory disease). He is 1 year and 9 or 10 months. We didn't take him to the health facility because he got sick only from two days; if he becomes critically ill we will take him to the health centre. We were planning to make *Diin*. We didn't do anything yet because his father is away: he is in Aynle town since yesterday and he didn't come yet. We are waiting for him; the father of the baby should know everything is done for the baby health, and he is the one who is responsible to facilitate the *Diin*¹²⁹.

4.6.2 Distances and nomadic life-style

Distance from curative health facilities strongly influences therapeutic paths, as well as the choice of the resource to apply. The following maps show the distribution of health resources in two kebele: Melkahager and Aynle.

¹²⁷ At the time of OR, cost of ambulance transport varied from 500 up to 2000 ETB, depending on distances. Fuel, driver and health staff's per diem are always negotiated and charged to patients, even in case of labouring women. According to National policy, maternal health in governmental health facilities should be free of charge, even in emergency cases.

¹²⁸ FGD with household members in Sabad Ade temporary settlement, Melkahager kebele, 30 Sept. 2015.

¹²⁹ Individual interview to a pastoralist woman in *reer* Ma'alini Ali temporary settlement, 26 Nov. 2015. The diagnosis suggested by the OR Nurse team member after visiting the child was pneumonia.

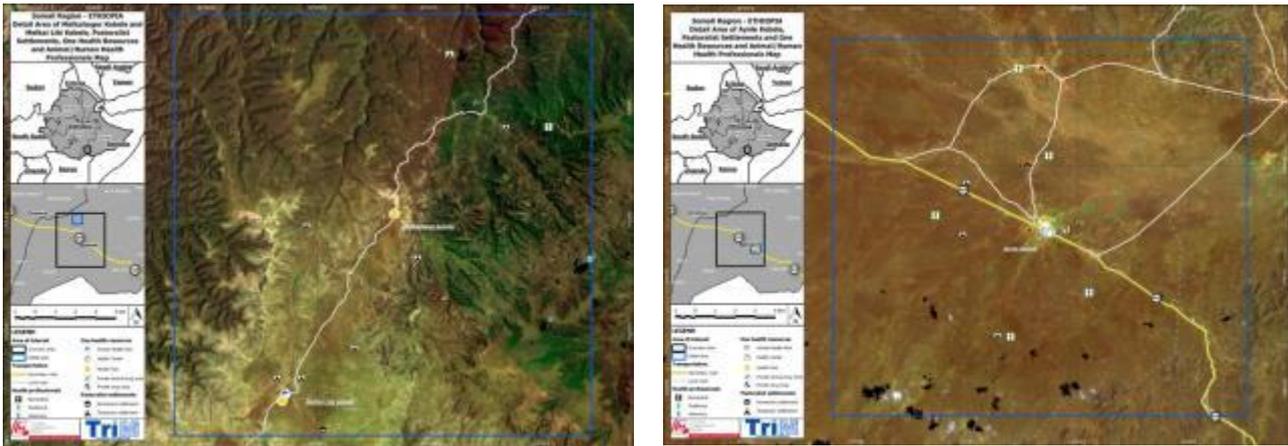


Fig. 31: Maps of health resources distribution in Melkahager and Aynle kebele

In all the visited settlements (shown on the maps) pastoralists interviewed stated to make a small use the existing health facilities (Health Post in the case of Melkahager and Health Centre in Aynle). Mobile professionals working privately – traditional healers in the case of Melkahager and the neighbouring Melka Libi, and biomedical health workers in the case of Aynle and the neighbouring Jayga-ad – were reported as the main source of health care. Household members used to call them also from far distances: their mobility, social acknowledgement and family linkages with the community were among the main reasons of their success.

Biomedical mobile health workers need a special attention. Two of them, met in Aynle, were previously trained as Health Extension Workers, and after releasing from governmental jobs started providing services privately (especially injections). A third one, met in Jayga-ad, had been trained in Kenya as Community Health Worker and now worked privately purchasing drugs directly from Negelle, Filtu or Kenya, and re-selling them to the population. Moreover, through practical experience he learned how to perform minor surgical operations. Kebele administrators and governmental health staff tried to involve him in public health services as HEW, but he always refused because of the better benefits and independence he could get working privately. He only used to support the HEW in vaccination campaigns, receiving a *per diem* from the woreda. These kind of dynamics between public and private sectors would need to be taken in serious consideration in relation to the training and employment of additional human resources.



Fig. 32: Training certificate of the private mobile professional in Jayga-ad

Even if distances across Filtu woreda are easily manageable (see Chapter 4, par. 3.1), the main problem for pastoralists is the need of leaving the livestock to access the facilities (and, in case of women, also leaving the young children and the housework).

Older children are in Filtu, Negelle, Jayga-ad village... When they are in school age, they move away. We are busy looking after animals to protect them from hyena all the time. If we get sick we cannot find treatments around, we do not have even food and animals in this period [end of the dry season] do not have milk and flash: we cannot sell them.¹³⁰

The lost of animals and the problems related to children health and house properties are perceived as risks higher than the complications of the disease itself. Therefore, people leave the household and access to the healthcare facilities only when the illness becomes so hard to stop them carrying out their daily duties, as livestock rearing and family-household care.

4.6.3 Quality and perception of health care services

The quality of the health system in outreach areas, both at health post and health centre level, is perceived as totally inadequate to respond to pastoral and agro-pastoral families' needs.

The OR visited 7 Health Posts (in Jayga-ad, Mesajid, Harabali, Haydimtu, Bod Bod, Melka Libi and Melkahager kebele) and 1 Health Centre (in Aynle kebele). Facilities located in area far from Filtu town (Melkahager, Melka Libi and Bod Bod) present major gaps in equipment and drug supplies, due to the difficulties of HEWs to regularly reach the Woreda offices and collect the needed items (shortage of transport means and related costs, hard road conditions during rainy seasons, small budget available). Moreover, most of the facilities visited were in bad structural conditions, especially due to the infestations of bats, snakes and insects.

¹³⁰ FGD with women in Jidday temporary settlement, 16 Oct. 2015.



Fig. 33: Snakes found in Bod Bod and Jayga-ad health posts

At Health Post level, pastoralists interviewed reported low trust in the HEW knowledge and skills, especially in regards to maternal-child care. Aynle Health Centre was perceived differently, due to the higher level of curative services provided. In this case, the main obstacles reported by both the health workers and potential users referred to the shortage of drugs and to the lack of laboratory services, due to the absence of trained staff. The presence of a private drug shop in town was reported by Aynle health workers as the only way to ensure treatments to the population¹³¹.



Fig. 34: Private drug shop in Aynle town

Lack of health workers' commitment and supervision, both at Health Post and Health Centre level, was remarked by many pastoralists interviewed: facilities are found often close during working time, and HEW – supposed to move across the whole kebele area – tend to stay within their facility.

Moreover, pastoralists interviewed often complained about discrimination attitudes and behaviours based on clan belonging and social status. As assessed during the OR, biomedical professionals are often very critical towards traditional knowledge and practices: pastoralists are usually considered as back-warded, and often criticized for the persistent use of harmful “traditional” practices. Similar prejudices and behaviours affect their health seeking

¹³¹ FGD with Aynle Health Center staff, 23 Nov. 2015.

behaviours, underestimating the importance of the provider-patient relation and preventing the compliance to care.

Mothers and children vaccinations are usually provided at facility level, attracting mainly exclusively the population living around the kebele centres. During Polio campaigns, health workers and community volunteers are deployed across the whole woreda and rewarded through *per diem*. However, distance and distribution of temporary settlements still represent significant hindrances to care:

Last time, children were getting vaccination for Polio, but when it started to rain the health workers stopped and run away. They didn't come back to vaccinate the remaining children.¹³²

There are people affected by Polio that live nearby and also children that are affected and unable to move. We don't get polio vaccinations, we treat the sick people religiously and if the person gets seriously sick we take him to Filtu Hospital.¹³³

Apart from the private services and drug shops, therefore, the biomedical facilities that are usually accessed are the hospitals located in Filtu and Negelle, or even Hawassa. However, due to the economic costs of transport, admission and treatments – combined with the social costs related to leaving the household for long time –, these facilities are accessed only when the situation becomes very critical.

Conclusions

1. OR strengths, constrains and limitations

The main strengths of the innovative approach of the research relate to the multidisciplinary team and the adoption of an anthropological “glance” and methodology that allowed the dialogue and integration of the different knowledge, expertise and perspectives of the OR experts, the governmental and nongovernmental representatives and the local community involved. Moreover, the prolonged immersion in the local context, the open and transparent sharing of the OR aims and findings, and the continuous negotiation of the methods and hypothesis across all involved stake-holders, allowed gaining their trust and active participation in all the research phases. The result is the wider and deeper knowledge of the local context and the identification of future intervention axes that may enhance the health of pastoralists and their livestock within the local SES.

Initial delays, due to bureaucratic procedures related to the signature of agreements and the organisations of logistics (procurement and staff recruitment), allowed starting the fieldwork at the beginning of September 2015.

Between the end of October and the end of November, the unusual heavy rains caused by the consequences of El Niño in the Southern Somali Region prevented easy movements on the

¹³² FGD with women in Ahad permanent settlement, Haydimtu kebele, 2 Dec. 2015.

¹³³ FGD with household members in Galosha *reer* Wober temporary settlement, Melka Libi kebele, 8 Dec. 2015.

field. The difficulties created by the critical weather conditions were addressed through two different strategies. On one side, a two-month extension of the OR was requested to the donor in order to ensure completing the collection and analysis of data. On the other, the support of TriM Applied Geography Experts was requested throughout the rainy season. This allowed to safely plan the team fieldwork avoiding any potential risks of flooding and, consequently, the exposure to dangerous situations. Considering the precarious conditions of the local roads network, 7-day accumulated precipitation maps (elaborated using TRMM and GPM satellite imageries) and 1-week forecasted precipitation (elaborated using GFS models) were used to monitor and predict heavy precipitation over the area of interest, postponing planned activities when necessary. This approach resulted in a significant increase of efficiency in planning the working activities.

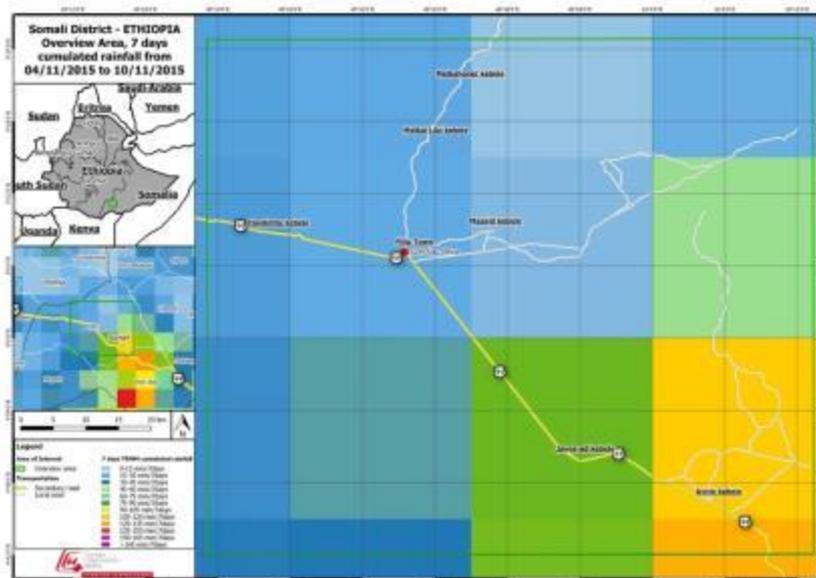


Fig. 35: Ex. of accumulated precipitation map between November 4th and 11th, 2015

The whole research implementation required a high degree of flexibility mainly in regards to the OR purposes and methodology, both by the OR team, the Donor and the Partners. The integration of different knowledge and tools was achieved through a constant negotiations of scientific perspectives, under the umbrella of qualitative applied research.

A frequent turnover in the positions of the Nurse and Veterinary Team Members represented a challenge to the efficiency of the OR team, mainly caused by the shortage of well trained and experienced professionals in the Region (especially concerning research techniques). At the same time, these changes constituted an enrichment of individual perspectives for the discussion and analysis of data that revealed an important added value at the end of the study. The main constrain of the OR referred to the limitation of data collection in a specific period of the year (September-January): additional surveys in other seasons are strongly recommended in order to reach a more complete understanding of pastoralists needs and behaviours.

2. Intervention axes

In order to design a complex re-ordering of the Socio-Ecological System connected to health in humans and their livestock, we should consider the divergence of nomadic vs. agro- pastoral

communities. Through specific assistance and training programmes, combined to small probing projects, we should go towards the final objective of an enhanced efficiency: “super agro-pastoralists” become complementary to “super nomad herders”, both dealt with according to modern methods and tools (to be specifically designed). The idea is to enhance decision making at household level: some would redirect their lives towards settlements where they would find efficient social services (drinking water, schools and health facilities renovated and strengthened) and economic assistance to agriculture (housing, seeds, water, electricity, marketing etc.); others would rather remain nomadic, receiving thus full assistance with mobile services and innovative strategies (long-distance marketing, credit, mobile services – in the case of health, elaborated by a specific OH Project). Sedentarization trends cannot be stopped or deviated. A certain degree of guarantee must be retained about the paramount aspect of mobility of herds and people through shared resources, according to the law of State and the customary rights of access, thus preventing any misuse of the ecosystem and every form of land grabbing.

This axis is far fetched and needs complex planning, through both multi-partnerships with locally active stakeholders and advocacy actions to governmental concerned authorities. It is out of CCM’s health-providing and supporting scopes, but should be considered as the background for wider future investments and developments. All kind of pastoralists, more or less mobile and involved in agriculture, need a specific manageable and malleable territory (land and related human management), where opportunistic behaviours could be easily redirected and priorities inverted when facing good opportunities and innovative solutions (to be considered transient because of the inherent variable dynamics of pastoralists’ SES).

In the following section, we are going to highlight some general proposals for a possible One Health intervention in the area. Through the analysis of the OR data, a scheme of guidelines emerges in the form of intervention axes. During the final workshop held in Filtu on January 20, 2016, these intervention axes have been discussed and summed up together with pastoralist community members, kebele leaders, Woreda officers and Regional representatives. Feedbacks, integrative comments and suggestions collected during the workshop have been integrated in the present document. The enhancement of the responsibility, ownership and accountability of all the concerned bodies, involved in specific area of interventions, has been acknowledged as a priority to guarantee the efficacy and sustainability of any future action: CCM was identified as one of the playing partner, and not as the main actor of the process. CCM received the acknowledgment for the OR findings and the authorization to submit them to funding agencies. The innovative interventions proposed should be tested on the ground through probing project, to monitor their effects and easily redirect actions when needed.

Proposed intervention axes:

- Integration of the human and animal healthcare delivery systems;
- Enhancement of the animal health services;
- Enhancement of the human health services;
- Human resources training and capacity building;

- Awareness and demand creation;
- Information and communication;
- Economic interventions;
- Research promotion.

2.1 Integration of the human and animal healthcare delivery systems

As resulted in the OR, pastoralists' health is strictly dependent from livestock's health, but animal and human health services and professionals available are currently working separately, without any relation. Moreover, pastoral communities in Filtu are composed of both agro-pastoralist and pure pastoralist families, with different needs and different access to care. This requires to act on two parallel systems, focusing on:

1. Ameliorated and more diffused *permanent facilities* (AHPs and HC/HPs), with upgraded and trained human and animal health staff (AHTs and Nurses), referring to Filtu Hospital, WoHO and WLCRDO. At kebele level, existing facilities/services (HPs and AHSs), should be integrated into **One Health Units (OHU)**, referring to higher facilities and providing complementary services to the local human and livestock populations. Where possible, new animal and human health facilities should be constructed/provided in the same compound, to provide synchronic care for pastoralists and their livestock;
2. *Mobile teams* (composed by trained human and animal health staff, using the same transport mean), working as satellite of the OH Units and referring to them, while providing integrated services to dispersed settlements (i.e. animal/human disease detection, treatment, vaccinations);
3. *Household agents*, selected among already acknowledged "skilled" household members (especially on animal/human health education, epidemic diseases and zoonosis prevention and monitoring, safe basic self-care, like the correct way to inject animals); trained by mobile team members and OHU; and working as satellite within their *reer*¹³⁴.

2.2 Enhancement of the Animal Health Services

The OR identified major gaps of Filtu Woreda Animal Health System and service delivery. The main recommended interventions include the following and should be implemented through Governmental institutions by means of a wider resource allocation and proper planning, with the support of International Donors and NGOs:

¹³⁴ A best practice to replicate in the field of health has been identified in the ABE (Alternative Basic Education) programme already implemented in Liben Zone. According to the program, teachers are selected within the households and move together with pastoralists. School timing and seasonality is adjusted in relation to pastoralists daily life and livestock rearing needs. The Italian NGO CISP, currently local partner of CCM, has been supporting the programme in Liben Zone, in the past, and is now directing actions on the issue in Oromia Region.

1. Building, renewal and maintenance of infrastructures (experimenting more sustainable constructions, not alien to local environment);
2. Employment and retention of AHT at AHP level;
3. Increase of transportation means (ways to ensure fuel purchase for CAHWs and AHTs);
4. Increase and upgrading of drugs and vaccines supply (wider offer at minor cost to compete with contraband drugs);
5. Procurement of basic equipment at facility level (fridges, cold chain, laboratory and diagnostic tools);
6. Improvement of the recording, monitoring and outbreak reporting system among CAHWs¹³⁵.

2.3 Enhancement of the human health services

As discussed in the findings, quality of care at local level is perceived as totally inadequate to respond to family needs. As priorities, we recommend:

1. Transport means increment and costs reduction, in order to facilitate the referral system of patients and the support of HW mainly in terms of drugs supply and service delivery supervision. This should be done also by testing different sustainable ways of transport¹³⁶;
2. Renewal of local health structures (to avoid infestation by bats, insects and snakes, and testing more sustainable constructions, not alien to local environment);
3. Enhancement of the drugs and equipment supply chain;
4. Upgrading of Health Posts in outreach areas with curative skills and tools, in accordance with regional and federal guidelines.

2.4 Human resources training and capacity building

Human resources training represents a major intervention, to be accomplished through the guidance of the government institutions (or local authorities) and the support of local and international NGOs:

1. Enhancement of human health professionals' knowledge on animal health and vice versa, through integrated trainings held at all levels of care and within local facilities;
2. Definition of common institutional manuals for animal and "human" health workers, with shared lessons to train veterinary and health care professionals;

¹³⁵ Best practices implemented in the past in Filtu woreda, were identified with the Italian NGO COOPI.

¹³⁶ For example, through camels, or donkey carts, as experienced by Save the Children in other fields, as education, and in other areas of Somali Region.

3. Capacity building of Mobile One Health Teams;
4. Training of One Health Household Agents;
5. Training, refreshment and recruitment of CAHWs, AHTs, CVs, HEWs and Nurses to be absorbed at woreda level¹³⁷;
6. Re-establishment of revolving funds for CAHW to start-up their services and cover transport costs;
7. Upgrade of HEWs with curative and disease monitoring skills and incentives to work at HP level, in accordance with regional and federal guidelines;
8. Sensibilization and education of health professionals on local knowledge about health and diseases (to be integrated in the health workers' curricula), the role of religious conceptions and practices and the importance of the provider-patient relation in terms of trust and compliance.

2.5 Community awareness and demand creation

The OR identified the need of increasing the awareness of the community members, including pastoralists, local leaders, governmental and private “human” and “animal” health workers, mainly in regards to:

1. Risks and complications of self-treatment for animals and people, correct use and dosage of medicines, side-effect of contraband drugs;
2. Risks and impact of diseases transmission from animals to humans (zoonosis);
3. Diseases and environmental risks prevention methods (related to diseases contagion/transmission; pest infestations; floods, droughts etc.);
4. Risks related to delivery complications and benefits of breastfeeding.

Community awareness should be constantly updated in relation to climate changes (new health threats by evolution of environment) and social transformations (i.e. sedentarization). Mobilization activities should be conducted at different level:

- a. *reer-to-reer* (and household-by-household), through training of mobile household health agents, One Health teams, CVs, CAHWs, kebele leaders and elders, TBAs;
- b. in gathering sites (towns and market sites, mosques, food aid and distribution sites, *Quran Akris* - clan gatherings), through cooperation with Sheikhs and clans elders;
- c. in schools (attended by pastoralists children), through the involvement of teachers educating scholars on human and animal health, prevention, diagnostic and safe self-care methods;

¹³⁷ Following best practices already implemented in Filtu woreda by local and international NGOs as CCM; PC; COOPI (in the past); Vétérinaires Sans Frontières and others (in neighbouring areas).

- d. in learning centres concerning climate change threats and preventions methods¹³⁸. Learning centres would also allow the participatory collection of meteorological data, with mobile extensions among pastoralists.

2.6 Information and communication

Somali pastoralists traditionally have a strong network of information and communication, with happenings and innovations transmitted orally and rapidly, and covering huge distances. Health education messages can easily be spread through this network, that could be enhanced by the locally diffused and existing technologies, for a more effective and faster communication and information sharing between peripheral communities and central (*kebele* and *woreda*) levels. This may eventually enhance also the epidemiological surveillance system:

1. Rehabilitation of satellite phones diffused at *kebele* level – when not functional – and promotion of their use for emergencies and referral system strengthening;
2. Promotion of mobile technology among pastoralists (Filtu network is rapidly upgrading through the efforts of Ethiopian Telecommunication Office). Specific application for the OH should be technically developed and diffused, mainly focusing on disease outbreak surveillance and response via simple forms of telemedicine generated by the pastoralists' perception and sharing of concern and knowledge;
3. Development of participatory maps related to healthcare services distributions and easiest paths to access, environmental resources and risks, features and functioning of the referral system. The map layout should be adapted to the needs of all stakeholders involved on the ground, and the symbols used should be immediately understandable by local people, as per the model of the experience started by CCM during the OR through the support of TriM.

2.7 Economic interventions

Cost of services resulted as the main barrier of health facility access, from transport, to consultation to treatment and hospitalization. New solutions need to be explored, in order to:

1. Enhance forms of wider market linkage to guarantee a better and easier access to cash;
2. Introduce livestock banks/pawnshops and forms of vouchers, for nomadic pastoralists and their livestock, to delay the need of cash and fasten the access to the nearest health services;
3. Introduce health insurances and community-shared funds to sustain health services costs for both people and livestock of permanent settlers¹³⁹;

¹³⁸ Established following the experiences locally promoted by the NGO PC.

4. Test special forms of Income Generating Projects (IGP), especially for women¹⁴⁰.

2.8 Research promotion

Research studies should be constantly implemented and updated, to allow responding effectively and efficiently to changes of population's needs and behaviours. They should be implemented both through participatory methodologies and involving local researchers and scholars, and focusing on:

1. Specific OH sectors and local behaviours;
2. Impact and effects of the implementation of specific OH interventions;
3. Epidemiology of specific diseases and zoonosis.

2.9 Issues to be further explored

The following topics were reckoned as important needs, and would need further elaboration after preliminary testing on the ground:

1. Cooperation with the private (animal and human) health sector and professionals; training of private health professionals and enhancement of the connections with the public sector (i.e. disease surveillance, monitoring and referral system);
2. Exploration of more effective transport and communication means, to ease the connection between the households and the animal and human health facilities;
3. Establishment of consortia and partnerships of different local and international NGOs, specialized in specific OH sectors, to maximize the synergies and multiply the project impact;
4. Possibility to establish an international animal-drug-producing firm, sponsoring an experiment on equalizing its prices to the Ethiopian local market.

3. Recommendations to Governmental authorities

The enhancement of cooperation among government, services providers and service receivers was recommended by all the stakeholders, present during the OR final workshop, as one of the main instruments to improve the current human-animal health situation in the area. Moreover, an effective cooperation among human and animal health departments, and water, education, agricultural offices appears indispensable to implement suggested interventions and probing projects.

As per our suggestion, human and animal health governmental institutions should direct wider efforts and commitment in:

¹³⁹ For example, governmental community-based insurances already implemented in other areas of the country, as Tigray; creation of community-shared funds involving faith-based and traditional associations, as in the case of *Iddir* in the highland areas of the Country; involvement of commercial associations.

¹⁴⁰ As in the case of women associations promoted by PC.

1. Promoting better and more effective communication and collaboration between animal and human health sectors (at Regional, woreda, kebele and facility level);
2. Decreasing the financial and structural barriers to access to care (costs of transport, drugs and hospitalization; and geographical distribution of the facilities);
3. Ensuring an uninterrupted availability of drugs and equipment supply;
4. Training, distribution and retention of human resources for both human and animal health to remote areas;
5. Enhancement of monitoring and supervision activities at kebele level.

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