Ethiopian Development Research Institute

and

EU – Ethiopia

Situation Analysis of the Eight Geographical Clusters under the EU Resilience Building Program in Ethiopia (RESET)

Main Report

(Volume II)

Final Report

Alebel B. Weldesilassie, Getnet Alemu, Tibebu Sado and Habtemariam Kasa

Addis Ababa

December, 2016

Table of Contents

List of Tables

List of Figures

1. Introduction

1.1. Background

Ethiopia has achieved significant economic development during the past ten years including a steady increase of production in the agriculture sector. During the past ten years, the annual GDP growth has registered a steady increase of annual average 10% with poverty rate reduced from 40% to 29% and significant increase of access to basic services (health, potable water supply, education, etc). However, the vulnerability of Ethiopia's rural population to drought induced crisis situations still prevails, affecting around 12 million resource poor food insecure small holder farmers, agro-pastoralists and pastoralists. Key interventions have been implemented to overcome the vulnerability of Ethiopia's rural population since the past 10 years. For instance, the humanitarian needs are often well covered through the annual emergency relief food aid appeal mechanism, which covered on average 3.5 million people per year for one decade. Another intervention is the Productive Safety Net Programme, which has provided an important safety net for around 7 million chronically food insecure rural households. However, poverty, malnutrition and vulnerability to crises still remain high in the country. Though poverty has decreased, 29% of the total population are still absolute poor, with an estimated 46% of the rural population are still vulnerable to absolute poverty, of these, nearly half still live in areas not covered by transfers from the PSNP. Besides, though malnutrition has decreased, it still remains high, with 44.4% of children stunted, 28.7% of children underweight and 9.7% of children wasted; and 27% of women underweight. This shows that in Ethiopia, the main concern is to build the resilience of the most vulnerable people and communities to the impacts of shocks, in particular drought.

The implication is that not only that dealing with the vulnerabilities and root causes of crises has become the priority rather than dealing only with their consequences but also that achieving long-term food security in Ethiopia is still a huge and complex task. This task requires coordinated approaches to tackle the whole range of risks and stress factors that induce crises, and address the structural causes of vulnerability with effective packages of short and long-term interventions. Supporting resilience building is a long-term undertaking that requires strategies and programmes designed to jointly address a set of multi-sectoral causes in order to generate multiple benefits.

Towards this, efforts have been made by different concerned stakeholders including regional (IGAD), National (GoE) and donors (EU). At regional levels, IGAD put in place the Drought

Disaster Resilience and Sustainability Initiative (IDDRSI) as a framework to provide a roadmap for ending drought emergencies in the IGAD region. At national level, the GoE under its Growth and Transformation Plan is committed to achieve national food sufficiency by doubling agricultural production through intensified small holder production system. The recently issued GoE - Disaster Risk Management Strategic Program and Investment Framework (DRM-SPIF) envisions a future where, disaster risk is prevented, mitigated and forecast to enable effective response. Besides, based on the IGAD Drought Resilience and Sustainability Initiative (IDDRSI) framework, the GoE has developed a Country Program Paper (CPP) as strategy and framework for resilience actions in Ethiopia in 2012.

From EU side, its resilience approach aims at enhancing the effectiveness of EU external assistance to simultaneously tackle the whole range of key risks and stress factors that induce crises, and address the structural causes of vulnerability. Within this concept, it has launched initiatives such as "Supporting Horn of Africa Resilience – SHARE" (Euro 275 million) to advance food security, sustainable agriculture and resilience in the Horn of Africa and address drought resilience through a combined humanitarian and development approach. It is to be noted that DG ECHO was already implementing this cluster-based resilience building approach since 2012 in the same eight clusters. The strategic objective of the EC SHARE program is to contribute its part towards averting the underlying causes of food insecurity through integrated actions and strengthening LRRD "Linking Relief to Rehabilitation and Development" to bring sustainable livelihood for the vulnerable rural population in low land agro-pastoral areas. To implement these initiatives, during the year 2012 to 2014, the EU has provided funding at the level of €100 million for resilience building projects in Ethiopia through the ECHO – Humanitarian Implementation Plan, the EC Instrument for Stability and the SHARE Ethiopia program. Further EU funding is foreseen under EU EDF 11th NIP 2014-2020 – Ethiopia, for enhancing resilience and long-term nutrition, including through LRRD and safety net/social protection. It is also anticipated that ECHO will continue its support in the middle term in addition to the EDF 11 funding with a specific focus on the humanitarian aspects of the resilience building.

1.1. The EU Resilience Building Program in Ethiopia (RESET)

1.1.1. Basic description of RESET

The RESET is an innovative initiative that brings together at operational level ECHO and the EU Delegation in Ethiopia in a tangible LRRD process. The RESET approach is based

on the premise that chronic humanitarian and longer term needs and recurrent food insecurity, mainly - but not only - caused by drought can be more efficiently addressed via a longer term resilience approach, with better synergies and complementarities between the two EC financing instruments, the EC ECHO humanitarian rapid responses and the EC DEVCO recovery and long-term resilience building interventions.

The general objective of the EU RESET program is to build the resilience and expand the coping capacities of the most vulnerable population.

1.1.2. Pillars of RESET

The concept of RESET is based on 4 cornerstones for building resilience:

- Improving the provision of basic services (health, WASH, nutrition, etc.)
- Support to livelihoods (agricultural and off-farm)
- Safety nets
- Disaster risk reduction

These pillars are complemented by other areas of support such as: natural resource management, sustainable land management, climate change adaptation and social protection. For each cluster, ECHO and DEVCO embark on a joint analysis and needs assessment, a joint strategy and a joint action framework. In order to ensure consistence with the long-term dimension of the chronic needs in the clusters, the strategy and response of ECHO and DEVCO is based on a mid-long-term perspective. RESET seeks strong coordination, integration and complementarities with other initiatives being implemented in the clusters mainly with the on-going major resilience program, the Productive Safety Net Program, specifically the livelihoods component.

1.1.3. RESET approach

The EU RESET programme is following a geographically focused approach whereby currently eight clusters of woredas (woredas) are selected in highly food insecure and drought prone areas. The eight clusters cover 34 woredas and more than 2.5 million people spread across 5 regions (Somali, Oromia, Afar, Amhara and SNNPR). The clusters are composed of a minimum of two and a maximum of six woredas. The clusters represent some 10 to 15% of the overall population who are in need of resilience building in the country.

The main criterion for the selection of the geographic clusters is the level of vulnerability of the population living in the area. The demarcation of the specific geographical clusters is

defined by the coherence and homogeneity in terms of: food and nutrition security levels; livelihood and agro-ecological diversity; vulnerability to specific risks.

The size of the program takes into account the availability of EU financial resources but guarantees a sufficient impact from the interventions on progressive resilience building. The assumption is that further expansion of the resilience building programmes will be enhanced using the same model by other donors in the drought prone areas of the country.

The main focus of the on-going EU funded resilience projects in Ethiopia is to enhance the social and economic stability and building of the long-term resilience capacity of those poor vulnerable smallholder farmers, pastoral and agro-pastoral communities in selected geographical clusters located in the southern and eastern parts of Ethiopia. The projects are being implemented by a consortium of NGOs and UN Agencies (FAO and UNICEF) jointly with relevant local government offices at regional, zonal and woreda levels, offering an integrated approach across sectors and benefiting from the different expertise.

1.2. Study Objective

The overall objective of the assignment is to develop relevant and feasible strategy for future EU resilience-building actions in Ethiopia based on assessment and analysis of existing situations in the target eight geographical cluster areas. Specifically, the study will assess the baseline situation of the eight EU RESET cluster areas in terms of their livelihood, health and nutrition as well as natural resource and risk management profile. Second, based on the findings of the situation analyses, it will identify an intervention strategy that will build the resilience of the vulnerable communities in these eight EU RESET cluster areas.

1.3. Organization of the Report

This report contains the result of the situation analyses part of the study. It is organized in nine sections including the introduction section. The next section describes the conceptual framework that briefly explains the link between resilience building, on the one hand, and livelihood, health & nutrition and natural resource and disaster risk management, on the other hand. Section three describes the methodology used to assess the baseline situation of the EU RESET II clusters areas. The results and findings of the situation analyses are presented from section four to section eight. The basic context of the clusters is presented in section four, followed by the livelihood assessment. Section six and seven presents the health, nutrition and WASH aspects of the cluster areas and the natural resource and disaster risk management profile of the clusters, respectively. Section eight presents the review o policy, strategy and

programs related to resilience building in Ethiopia. Section nine presents the challenges and opportunities for resilience building in the EU cluster areas for each thematic area.

2. Conceptual Framework of the Situation Analyses

2.1. Concept of Resilience

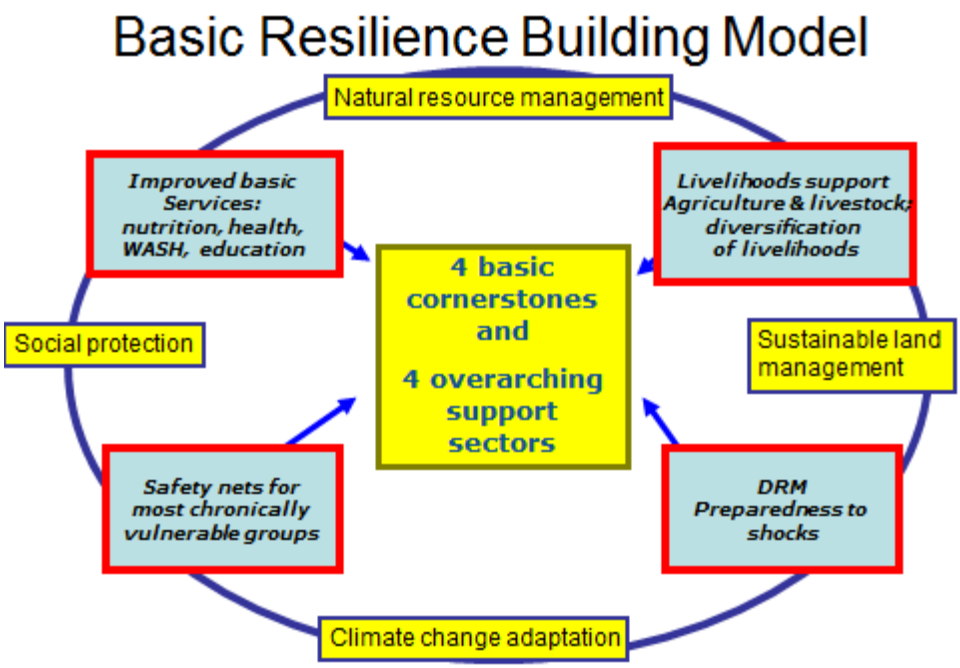
While many definitions for the concept of resilience have been proposed, there is still a wide interpretation of what resilience building actually means in concrete and operational terms. All emphasize that resilience is an ability to respond to transitory adverse events (shocks) or more persistent adverse trends (stressors). Drawing on these commonalities, Constas, Frankenberger, and Hoddinott (2014) offered the following definition: "Resilience is the capacity that ensures adverse stressors and shocks do not have long-lasting adverse development consequences". their definition includes the broader environment in which a household (or individual or some other unit of observation) resides; the resources available to that household; how that household uses those resources; how the economic returns on those uses are affected by shocks that household experiences; and how the outcomes of those uses lead to consumption of food and other goods and services, savings, health and nutrition status, and other such outcomes. This concept integrates humanitarian and development efforts rather than a separate issue. Such definition of Resilience focuses attention on the idea that short-term shocks are harmful not just because of their immediate effects but also because of their adverse long-term consequences.

In line with this definition, which looks resilience in the lens of development, the EU RESET program is based on the fundamental premises that resilience building involves multilevel and multi-sector interventions that are different from the sum of "classic" development/humanitarian interventions.

For the EU in Ethiopia, the four main cornerstones of a more global resilience building framework encompass disaster risk management, livelihood building, strengthening basic social services and increasing access to safety nets (see Figure 2.1). The main concern is to build the resilience of the most vulnerable people and communities to the impacts of shocks, in particular drought and food price spikes. Key outcomes or characteristics of resilient communities include food, nutrition and environmental security. Resilience not only focuses on building the capacity of individuals or households, it can also be seen in terms of institutions, governments, informal social protection mechanisms, or more generally, systems. This implies that building resilience requires not only thinking holistically about development interventions, but also gives special importance to human capital formation (health, schooling, nutrition) as a means of building resilience; it creates a virtuous circle of development. Reducing the

prevalence of under-nutrition (chronic and acute) and diminishing its seasonal variation and flattening of its peaks is the overall goal of all multi-sector, integrated actions. The program follow a multi-sector approach using nutrition and food insecurity as entry point. The main target group is the most vulnerable part of the population living in areas that are prone to repetitive periods of drought (or other natural disasters).

Figure 2.1. Basic resilience building model for EU RESET program



Accordingly, the analyses of the baseline situations of the eight EU RESET cluster areas is conducted with the objective of enabling decision-makers exploit the links in policies and programs for building resilience. This requires the use of a conceptual framework that looks at the link among livelihood strategy, health and nutrition and their potential to convey more benefits to build the resilience of vulnerable communities. Thus, the following section briefly outlines the link among these thematic areas with the perspective of building resilience in the eight EU RESET cluster areas.

2.2. Resilience, Livelihood, Resource, Health and Nutrition: the Linkage

We adopted the conceptual framework developed by Hoddinott (2012) to clarify the links among agriculture, nutrition, and health in the perspective of building the resilience of vulnerable society. This framework includes the physical, social, legal, governance, and economic settings in which people live and work; the resources—time and capital—at their disposal; and the processes associated with agricultural production and determinants of health

and nutritional status. These elements of the framework suggest pathways through which agricultural production and markets can affect health and nutrition, including changes in incomes, crop varieties, production methods, and allocation of resources within households. A clear framework that shows the relationships among agriculture, nutrition, and health can help decision-makers exploit the links in policies and programs/interventions for building resilience. The livelihood strategy of agricultural production is an important means for most people to get the food and essential nutrients they need. Agriculture is the primary source of calories and essential nutrients and is a major source of income for the world's poor, while agriculture-related health losses are massive. And in many poor countries, where agriculture is highly labour intensive, productive agriculture requires the labour of healthy, well-nourished people. The resilience of vulnerable individuals, households or communities essentially depends on the contextual settings, resources and process that determine the livelihood strategy as well as the health and nutrition status.

Settings include the physical, social, policy and institutional (legal), governance, and economic settings in which individuals live and work influences their actions. The *physical setting* refers to phenomena that affect agricultural production, such as the level and variability of rainfall, soil fertility, distances to markets, and quality of infrastructure. The physical environment also incorporates phenomena that directly affect human health—access to safe water and the presence of communicable human and zoonotic diseases being primary examples. The *social setting* captures such factors as the existence of trust, reciprocity, social cohesion, and strife. Norms of gender roles, "correct" behaviours, and folk wisdom—for example, what type of foods mothers "should" feed their children—are also part of the social setting. The policy and institutional setting can be thought of as the rules that govern economic exchange. It affects livelihood strategy (agriculture) through the restrictions it imposes on and the opportunities it creates for the production and sale of different foods, generating income, and through the regulation of labour and capital markets. The policy and institutional setting also affects health in terms of regulations applicable to the health sector in addition to those that govern food processing and safety. The *governance setting* captures how rules are developed, implemented, and enforced. It includes the political processes that create rules—for example, centralized or decentralized decision-making, dictatorial or democratic governance, and so on—and the implementation of these rules through bureaucracies, parastatals, and third-party organizations.

Finally, the economic setting captures policies that affect the level, returns, and variability of returns on assets and, as such, influence choices regarding productive activities undertaken by individuals, firms, and households. The resources the vulnerable individual, households or community acquires are fundamental components that determine their resilience to any shocks. In this regard, resources include not only their physical labour but also assets such as land, tools, livestock, social capital, financial resources, and human capital in the form of schooling and knowledge. It also includes human capital in the form of health and nutrition status. Some resources, such as health and schooling, are always held by individuals, while others, such as land, may be individually or collectively owned. These resources are allocated to different productive activities, including food production, cash-crop production, livestock raising, and non-agricultural income-generating activities, such as wage labour, handicrafts, and services.

In the EU cluster areas, the two major livelihood strategies are pastoral and non/semi pastoral systems. While the relative importance of the agriculture production varies in terms of the fact that in pastoral areas, livestock holding dominates where as in the non-pastoral areas, crop production and mixed use farming, in both cases agriculture production is the main economic activities. This livelihood strategy is affected by the settings within which the household resides, with the physical and economic settings being especially important. Both the natural physical setting – rainfall, temperature, soil quality, elevation, and so forth – and the man-made physical setting – roads, bridges, and other forms of infrastructure – influence what livestock can be raised, what crops can be grown and when, and the places where these products can be marketed. The economic setting – particularly the markets encountered by farmers – provides signals as to what activities are profitable and the types of inputs that can be profitably employed.

Within these settings, the household allocates its resources, capital, knowledge, and time. In some cases, allocations of all resources may be a collective decision. In other cases, individual men and women within the household may choose how to allocate the resources under their own control, independent of what other household members choose to do. In still other cases, some activities will be undertaken collectively or perhaps under the direction of one household member, while others are done individually. In making these allocations, household members are also making choices about the technologies used in the generation of income. The health and nutrition status of individual members will affect the choice of

activities, the timing of these activities, and the intensity with which productive activities will be undertaken, and finally affect their productivity.

The resource allocation behaviour of households/individuals also determines the resilience capacity. For instance, acquired income can be saved or consumed. Hoddinot (2012) emphasized that savings create a feedback loop within this framework. Consumption decisions, in terms of the quantity and quality of goods consumed and the timing of this consumption, are affected by prices and timing of disaster as well as the saving and consumption behaviour of households, which, in turn, affects the nutrition and health status of the individual.

The setting within which households and individuals live affects health. The physical setting – climate, access to water, the prevalence of communicable diseases, and health infrastructure – plays a major role in health status. So too does the social setting. Norms regarding what constitutes good health, the circumstances under which individuals should seek healthcare from modern or traditional sources, and how illnesses should be treated will all affect health status. Health is also affected by the allocation of individual and household resources. Assets in the form of the quality of housing and physical goods associated with water, sewerage, and waste disposal will affect health status. Knowledge of how health should be maintained, how illnesses can be identified, and how those illnesses can be treated will affect health. The allocation of time plays an important role in maintaining or improving health. Health status is also affected by the consumption of goods that directly improve or worsen health. Nutritional status affects health – for example, severe vitamin-A deficiencies lead to blindness.

The links between health status and agriculture are bidirectional. Choices made in agricultural production affect health through three channels. Nutritional status results from the combination of time, physical assets, and knowledge of good nutritional practices, together with health status and the consumption of food. Food consumption, in terms of quantity, quality, and diversity, plays a major role in determining nutritional status and, as such, provides the most direct link between agriculture and nutrition The nutritional status of very young children will be affected by the frequency of feeding – this is an example of how allocation of time (here, time devoted to childcare) affects individuals' nutritional status. Social norms regarding foods and who "should" consume them, and knowledge of what are the right foods to consume and in what quantities also affect nutritional status. Because nutritional status depends on the capacity of the body to absorb nutrients, it is affected by other dimensions of an individual's health status, such as the presence of healthy intestinal mucosa. Finally, the

nutritional status of an individual within a household depends on how the amount of food and other inputs into nutrition are allocated across members.

In sum, our conceptual framework, which looks into resilience building in the lens of development and the link with livelihood strategy, health and nutrition as well as natural resource and risk management, has important implications in terms of formulating strategies for EU–Ethiopia interventions to build resilience in the eight cluster areas. One important implication is that a development approach is embedded in the notion of resilience building in which due emphasise should be given to systematic approach rather than in isolation. It implies thinking holistically about development interventions in an effort to build resilience. This holistic approach is important in measuring resilience in terms of livelihood asset at individual and household levels but also the policy, institutions, and governance systems. Therefore, this study will look at the situation analyses of the EU – RESET cluster areas within the lens of such holistic approach as discussed in the following subsection.

3. Study Approach

3.1. Data

The study collected and utilized a number of primary and secondary data sources. The different sources of data is used in terms of generating a wide range of data and will also be instrumental in allowing triangulation of data. We will also collect information to get crucial insights into the trends and dynamics of the socio-economic situations including the existing capacity and resource gaps and potentials as well as other factors positively and negatively influencing the food and nutrition security and long-term resilience capacity of the respective vulnerable communities.

Accordingly, both quantitative and qualitative primary information was collected for the cluster areas. These include woreda and kebele characteristics; community livelihoods and wealth profile and perception of inequality analyses; cultural and gender dimensions of rural Livelihoods; institutional and organizational characteristics; natural resource management aspects of the woredas and kebeles as well as health and nutrition profile of the eight cluster areas.

Though the study did not collect detail household or individual level information using quantitative surveys, we used nationally representative data collected by Central Statistical Authority (CSA) to supplement our analyses. These include DHS, welfare monitoring survey, agricultural sample survey, land use, rural facility surveys. This is particularly true in analyzing the agricultural profile of the cluster areas, access to basic facilities, land use change, health outcomes, etc.

We have also used other sources of secondary information including relevant documentations and databases containing nationally representative information and/or focus on the study cluster areas. We also reviewed relevant materials including reports, documents, databases, and policy and strategy documents. These include the EC Ethiopia such as RESET concept note, the EC communication on resilience approach, the EC SHARE Ethiopia –ARCE financing decision and proposal documents for each component, the ECHO strategic documents and HIP's and project documents.

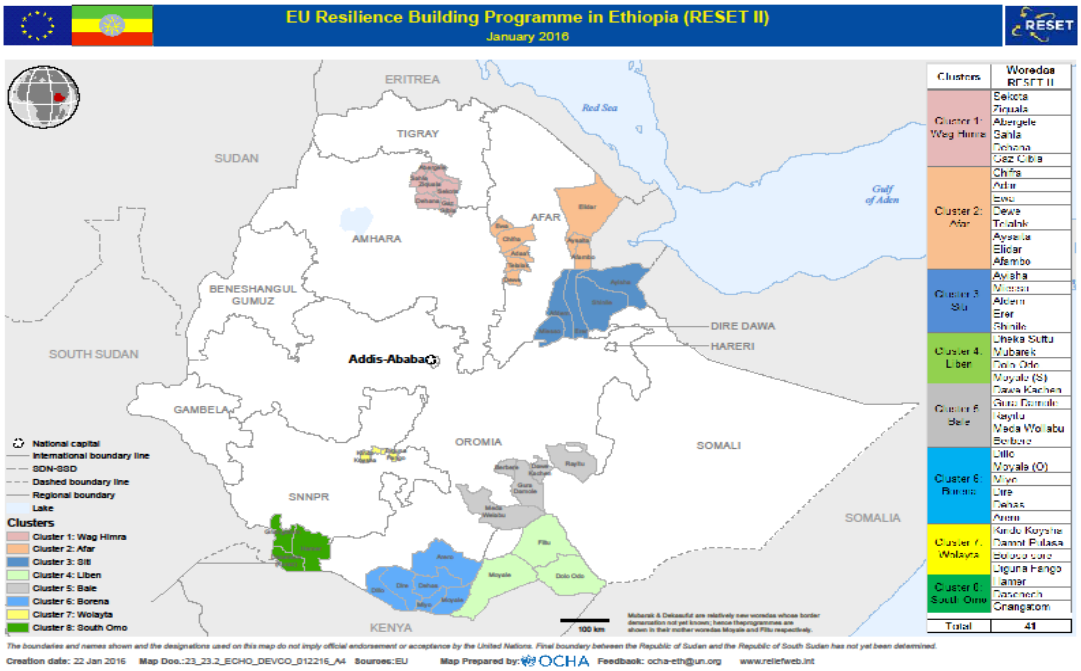
Besides, review of relevant key government policy and strategy documents such as the DRM – SPIF; the Productive Safety Net (PSNP IV); the Social Protection Policy, National Nutrition Program (NNP) I and II, Country Program Paper for Resilience Building in Ethiopia - developed under the IGAD resilience initiative to end drought emergencies in the Horn of

Africa; the Growth and Transformation plan (2010/11-2014/15), and GTP II (2015 to 20120), the CRGE, are also made. The review also helped us to substantiate by triangulating between the key informants, community discussion groups, and a variety of different participatory methods that bring different perspectives to bear on circumstances in rural communities.

3.2. Selection of Sample Woredas and Kebeles

The RESET clusters and woredas encompassed a diverse array of agro-ecological, cultural and religious diversity. It covers eight clusters. See their distribution in figure 3.1. We covered all the clusters in the field work. The study covered at least 50% of the woredas in each cluster. Thus, we consider different criteria to select sample woredas from each cluster. The criteria are identified in such a way that the sample woreda will sufficiently represent the other woredas with in the same cluster. We used population size, diversity in agro-ecology and livelihood characteristics of the woredas within a cluster to select sample woredas. See Table 3.1 for the sample woredas selected for the field level activities.

Figure 3.1. EU RESET II geographical distributions of clusters



We covered one (plus one) kebele from the selected woreda for the field activities for focus group and community discussions. As we select the woreda, the same procedure was used to select the kebele(s) for the FGDs and key informant interviews at kebele level. We consulted the woreda administrative office to provide us detail profile of each kebele in the woreda in terms of population size, distance and logistics-related issues. Maximum effort has

been exerted to select kebele which are representative of the woreda in terms of livelihood, health and nutrition and natural resource.

Table 3.1. Sample woredas in the eight RESET II cluster areas

Cluster	Region	Zone	Woredas		
			Total	Sample	Sample woredas
Cluster 1	Amhara	Waghimira	6	3	Sekota, Ziquala, Dehana
Cluster 2	Afar	Zone 1, 2, 3	8	3	Chifra, Aysaita, Dewe
Cluster 3	Somali	Siti	5	2	Miesso, Erer
Cluster 4	Oromiya	Borena	6	3	Filtu , Moyale, Dolo Odo
Cluster 5	Oromiya	Bale	5	2	Dawe Kachen, Gura Damole
Cluster 6	Somali	Liben	6	3	Dehas, Dire , Arero
Cluster 7	SNNP	Welayita	4	2	Kindo Koysha, Boloso sore, Diguna Fango
Cluster 8	SNNP	South Omo	3	1	Hamer
Total			43	19	

3.3. Survey Instruments

We conducted key informant interviews and focus group discussions in each sample woredas and kebeles with representatives of the woreda and communities. In total, we conducted 46 focus group discussions, in which 372 community members, of which 166 and 206 are women and men, participated. The total number of key informants is 176 (see Table 3.2). The key informants are mainly representative of local government, non-government and civil societies working in the cluster areas.

Table 3.2. Number of focus group discussions and key informant interviews conducted

Cluster	Number of FGD	Total number of participants FGD			Number of key informants
		Female	Male	Total	
Cluster 1	3	27	18	45	44
Cluster 2	6	18	18	36	46
Cluster 3	8	19	24	43	24
Cluster 4	4	36	72	108	14
Cluster 5	4	15	6	21	46
Cluster 6	3	36	20	56	30
Cluster 7	12	10	33	43	34
Cluster 8	6	5	15	20	10
Total	46	166	206	372	248

Source: field survey

For the field level activities, we developed detailed survey instruments including checklists for each of the four thematic areas. We also developed a manual containing survey protocols, detailed checklists, and outline of the field-level reports.

We deployed four field level experts, one for each of the four thematic areas. The field experts are provided training on the details of the manual before they are deployed to the field. In addition to the field level activities, we had a consultation and debriefing workshop with stakeholders which are mainly non-governmental organizations working in the eight cluster areas as well as obtaining fund from EU. In addition to the debriefing workshop, we have conducted office level discussions with some of the NGOs.

3.4. Situation Analysis Method

The output of the situation assessment part of the study is a baseline report that contains the current situation of the eight cluster areas that indicates the food and nutrition security, basic social service coverage, sustainable livelihood and disaster risk management aspects. Accordingly, based on the above conceptual framework and the linkage between resilience, on the one hand, and livelihood strategy, health and nutrition, on the other hand, the analyses on the baseline situation of the eight cluster areas include the following core issues:

- Context analysis: this part of the analyses includes the basic socioeconomic, and cultural analysis of the clusters, as well as their trends and dynamics. It also included analyses on the economic potential, existing resources and capacities, etc of the cluster areas.
- Livelihood analysis: issues considered for analyses include agricultural/crop producers (smallholder farmers); livestock based (pastoral and agro-pastoral) off-farm activities, and wealth profiling analysis.
- Health and nutrition: key issues included under this thematic areas include, but not limited to, availability and access to basic social services; health, WASH, Education and other basic infrastructures, etc; as well as nutrition situation; food access, utilization and care practices.
- Natural resources and risk management analysis: key issues analysed include exposure to shocks and adaptive capacity, factors related to natural resources and sustainable land management, climate change adaptation, underlying existing and potential conflict issues, and overall vulnerability trends during last five years, factors negatively or positively influencing food and nutrition security.

- Gender analysis: the gender perspective is considered throughout the analysis is made, highlighting the differentiated situation of men and women in all assessed areas.
- Policy and institutional analyses: we have analysed relevant government policy and strategic frameworks as well as the relevance and effectiveness of the different resilience building approaches and strategies including the EU RESET. Besides, we have analysed the coordination structures and mechanisms for resilience-related programs/projects at the regional, zonal and woreda levels as well as the within the EU eight cluster groups consortium approach. We also conducted mapping of on-going and planned interventions, their synergies, integration, complementarities; alignment and harmonization;
- Gaps and opportunities: the findings from the above analyses provided input to analyse the gaps and opportunities for interventions to build resilience in the EU RESET cluster areas.

Various considerations are taken to analyze the above key issues. First, since we have used different sources of information, consideration is taken to triangulate the different sources of information. In addition, whenever it is possible to get quantitative data at cluster level, we give more emphasize to depend on this data. Third, when data at cluster is not available, we used regional or national level sources of data. Fourth, key informant interviews, community level information and physical observation are also used to update and enrich the analyses. Fifth, reviews of previous studies which are made with scientific methods are also considered in order to enrich the theoretical and empirical work of the analyses. We used GIS and remote sensing data to make quantitative assessments of basic facilities and land use land cover changes over time of one sample woreda from each of the eight clusters. The next sections discuss the results of the situation analyses.

Various discussion points have been raised during the focus group discussions with local communities. These include, but not limited to livelihood related issues such as food security status, wealth profile and perception of inequality and livelihood trajectory; health and Nutrition related issues; natural resource and disaster risk management as well as gender dimensions. With the key informant interviews, discussions include priority /area of focus; implementation strategy; development gaps/challenges as well as opportunities and priority needs for the clusters. accordingly, we conducted different analyses including livelihood trajectory, food water security calendar, wealth ranking, institutional ranking, etc. we also produced a GIS maps of the functional rural facilities as well as land use cover.

4. Context Analyses

This section describes the basic characteristics of the baseline situation of the eight cluster areas of the EU RESET program. It has three subsections, which discuss the demographic characteristic, the baseline situation in access to basic social services and infrastructure, respectively.

4.1. Demographic Characteristics

Table 4.1 below shows the population in the clusters area based on the CSA projection for 2016. As can be seen from the table, the largest population is found in Cluster 4, followed by Cluster 7. The population in these clusters is 640,940 and 638,400, respectively. While the proportion of female is highest in Cluster 7, it is lowest in Cluster 4. The smallest population is in Cluster 8. The table also shows the proportion of females in the cluster areas. The proportion ranges from 0.45 in Cluster 2 to 0.51 in Cluster 7.

Table 4.1. Population by sex

Cluster	Number of woredas	2016 projection (CSA)			Percent female
		Male	Female	Total	
Cluster 1	6	234,536	234,829	469,365	0.50
Cluster 2	8	254,343	208,575	462,918	0.45
Cluster 3	5	246,121	229,484	468,392	0.49
Cluster 4	5	341,803	299,137	640,940	0.47
Cluster 5	5	179,387	174,607	353,994	0.49
Cluster 6	6	160,173	158,193	318,365	0.49
Cluster 7	4	310,974	327,426	638,400	0.51
Cluster 8	3	80,571	78,910	159,481	0.49
Total	**42**	**1,807,908**	**1,711,161**	**3,511,855**	**0.49**

Source: Projected population for 2016 (CSA 2013)

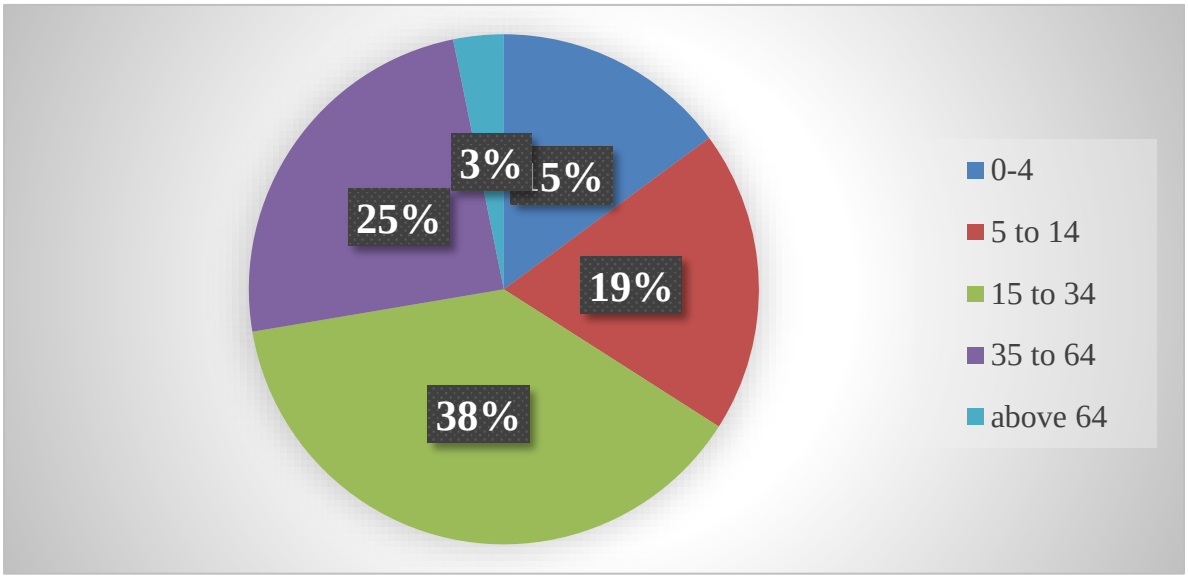
Table 4.2. Population by age group

Cluster	Population	0-4 years	5-14 years	15-34 years	35-64 years	> 64 years
Cluster 1	469,365	65,711	83,787	167,970	108,165	14,534
Cluster 2	462,918	64,808	82,636	165,663	106,680	14,334
Cluster 3	468,392	65,574	83,613	167,622	107,941	14,503
Cluster 4	640,940	89,731	114,415	229,372	147,705	19,847
Cluster 5	353,994	49,559	63,192	126,683	81,578	10,961
Cluster 6	318,365	44,571	56,832	113,932	73,367	98,583
Cluster 7	638,400	89,376	113,962	228,463	147,120	19,768
Cluster 8	159,481	22,327	28,469	57,073	36,752	49,384

Source: Own calculation based on CSA population projection for 2015

Table A2 in the annex shows the detail ratio of female to total population in each woreda within a cluster. We used the national level population projection for 2015 from CSA to investigate the proportions of population in the cluster areas (Table 4.2). Based on the CSA projection, 14%, 18% and 36% of the population are under age five, between 5 and 14 and 15 and 34.

Figure 4.1.Share of population by age group



4.2. Access to Basic Social Services

Access to basic social services including school, health and water supply facilities is essential for building resilience. In this regard, this study assessed the existing situations in these basic services in the cluster areas. This section describes the baseline situation of access to education, health and water supply measured using two indicators: number of population served per facility and distance of villages where rural people live to the get service from the rural facilities. A survey was conducted on availability of rural facilities in rural areas of all regional states in Ethiopia by the CSA in 2014, and all woredas in all cluster areas were covered by the survey. While most of the figures from the field survey and the CSA survey coincide, the following discussion is made based on the CSA survey. The detailed information collected from the field survey is shown in Annex Table A3.

4.2.1. Access to rural facilities measured by population served

Access to education facilities

As we do not have recent data for the number of school-aged children in the cluster areas, it is difficult to discuss the coverage of education in terms of number of school-aged children enrolled in primary and secondary education. Table 4.3 shows the number of school facilities by type of school. As can be seen from the table, while in Cluster 3 one primary school serves 11,424 people, it serves only 2,098 people in Cluster 8. Cluster 6 has the highest number of primary school facilities though it has the second lowest population. Even if Cluster 7 has the second highest number of primary schools, one primary school serves 4,593 people, which is fourth compared to the other clusters in terms of population per primary school facility. It has also poor access to satellite school services. While four of the cluster areas (Cluster 3, 4, 7 and 8) have no or one satellite school, the rest four clusters have access to such services.

Access to secondary schools is generally very poor in all clusters. Only three clusters (Clusters 1, 6 & 7) and one cluster (Cluster 6) have access to first cycle and second cycle of secondary school, respectively. This situation affects not only those children without access to such services but also the performance of children enrolled in primary education as they lack the motivation or hope to proceed to higher levels (Tassew and Alebel 2016). This leads to a vicious cycle of poverty, which finally make the community vulnerable to shocks.

Overall, access to education is generally poor though primary school is relatively better in all clusters except cluster three. Access to school is very poor in Cluster 3, 4 and 5, and is relatively better in Cluster 1 and Cluster 7.

Table 4.3. Access to school facilities in the EU RESET II cluster areas

Cluster	Population	Primary school		Satellite school	
		Number	Ratio	Number	Ratio
Cluster 1	469,365	256	1,833.5	200	2,346.83
Cluster 2	462,918	153	3,025.6	13	35,609.08
Cluster 3	468,392	41	11,424.2	0	0.00
Cluster 4	640,940	109	4,746.2	0	0.00
Cluster 5	353,994	823	430.1	15	23,599.60
Cluster 6	318,365	149	2,136.7	33	9,647.42
Cluster 7	638,400	159	4,015.1	1	638,400.00
Cluster 8	159,481	76	2,098.4	1	159,481.00

Source: CSA (2014)

Access to health facilities

The health status of members of household or community crucially determines the capability to lead a decent life as it affects productivity and creativity to utilize their environment to meet their livelihood objectives. The details on the health outcomes is discussed in section five. The following discussion focuses on access to health facilities based on the CSA facility survey conducted in 2014. Table A3 in the annex discusses access to health in sample woreda and/or zone based on the field survey. Table 4.4 below shows the number and type of health facilities that were functional at the time of the survey. In this report, coverage is defined in terms of the number of population to be served in one health facility.

Table 4.4 shows the number of health facilities in each cluster area. In Cluster 1, there are 24 health centers, 89 health posts, one primary hospital and two clinics. There is no pharmacy in the rural areas of the cluster. The corresponding figures for Cluster 7 are 17, 116, 1 and 11. There are also three pharmacies in the cluster. The table also shows service coverage in each cluster, calculated by dividing the population by the number of health facilities. Based on the Ethiopian healthcare tier system, a specialized hospital is expected to serve from 3.5 to 5 million people; primary hospital serves from 60,000 to 100,000 people; health centre serves 40,000 people living in urban areas and 15,000 – 25,000 people living in rural areas. One health post serves 3,000 to 5,000 people in rural areas of the country.

Table 4.4. Health facility coverage in rural areas

Cluster	Population	Health Centre		Health Post		Hospital	
		Number	Coverage*	Number	Coverage	Number	Coverage
Cluster 1	469,365	31	15,141	125	3,755	3	156,455
Cluster 2	462,918	22	21,042	75	6,172	1	462,918
Cluster 3	468,392	11	42,581	51	9,184		..
Cluster 4	640,940	19	33,734	124	5,169		..
Cluster 5	353,994	19	18,631	90	3,933	1	353,994
Cluster 6	318,365	27	11,791	89	3,577		..
Cluster 7	638,400	22	29,018	128	4,988		..
Cluster 8	159,481	6	26,580	59	2,703		..

* Coverage refers to population served per facility.
Source: Own calculation based on population and CSA facility survey (CSA, 2014)

In sum, availability of primary hospitals does not meet the Ethiopian health tier system standard (1:60,000-100,000) in all clusters. Availability of health centers in Clusters 3, 4 and 7 does not meet the Ethiopian health tier system standard of 1:15,000-25,000, and availability

of health posts in Cluster 2,3 and 4 does not meet the healthcare tier system standard of 1:3000-5000.

Based on this standard, four clusters – Cluster 1, 5, 6 and 7 – have full coverage. With regard to access to health post, three of the clusters (Cluster 5, 6 and 8) meet the standards whereas the other clusters are very far from the standard. Access to such health facility in Cluster 3 and Cluster 4 is very poor. As it can be seen from the table, one health post serves 117,098 and 106,823 people in Cluster 3 and Cluster 4, respectively. In these clusters, one health center serves 468,392 and 640,940, respectively. Overall, though there is variation among the clusters, it can be said that all cluster areas have poor access to health services.

Access to water supply

In terms of access to potable water supply, the EU RESET cluster areas have poor access to safe potable water by any standards. Tables 4.5 and 4.6 show the number of water supply schemes and coverage in each cluster area. In all cluster areas, bono, ponds, unprotected springs and deep wells are the most common water sources. Protected water supply schemes, including bono, deep well, water pump and wind mill are better in Cluster 7, followed by Cluster 6.

Access to protected water supply schemes is very poor in Cluster 3 and Cluster 4 (Table 6). In terms of population with access to protected water supply schemes, on average 1313 and 769 people obtain services from one protected water supply scheme in Cluster 7 and 6, respectively. On the other hand, one protected water supply scheme serves 16,024 and 11,710 people in Cluster 4 and 3, respectively.

Table 4.5. Number of water supply schemes (functional at the time of survey)

Cluster	Bono	Pond	Spring	Tanker	Well	Water Pump	Windmill	Hot Springs	Other
Cluster 1	98	9	310	50	84	2			7
Cluster 2	73	16	4	65	36	84	1	1	17
Cluster 3	34	1		6					
Cluster 4	10	8		4	23	3			
Cluster 5	41	92	39	17	6	32			7
Cluster 6	98	126	3	48	172	92	1		21
Cluster 7	233	56	86	16	33	117	1	2	
Cluster 8	7	17	1	14	47	29	10		

Source: CSA (2014)

Table 4.6. Access to protected water supply (functional at the time of survey)

Cluster	Population	Protected water supply schemes (number)	Protected water supply schemes (coverage*)	Unprotected water supply schemes (number)
Cluster 1	469,365	544	862.80	16
Cluster 2	462,918	263	1760.14	33
Cluster 3	468,392	40	11709.80	1
Cluster 4	640,940	40	16023.50	8
Cluster 5	353,994	135	2622.18	99
Cluster 6	318,365	414	769.00	147
Cluster 7	638,400	486	1313.58	56
Cluster 8	159,481	108	1476.68	17

* Coverage is defined as population served per water supply scheme.
Source: CSA (2014)

4.2.2. Access to basic facilities measured using distance to the facilities

The previous subsection presented access to basic social services. Accessibility is measured based on service coverage, defined as the ratio of number of people to number of facilities. However, this may not give the full picture in terms of use. This is mainly because people far from a facility may not use it simply because it requires them to travel long distance or they may use it very rarely. Distance is one of the factors that determine utilization of facilities. To address this, we also measured access in terms of the proportions of villages within a certain distance to a facility. We used three categories of distance. These are villages which have access to rural facilities within 5 kilometres, above six but less than 10 kilometres, and those that travel above 10 kilometres to get access to the facilities. Table 4.7 shows the number of villages by distance to a facility.

As it can be seen in the table, of the villages that exist in Cluster 1 and Cluster 7, at least 95% and all have access to a school facility within five kilometres, respectively. It is only 24% and 33% of the villages in Cluster 4 and Cluster 5 that have access to school facilities within five kilometres, respectively. Less than half of the villages in Cluster 3, 4 and 5 have access to any kind of school facility within five kilometres. That is, more than fifty percent of the villages in these three clusters have to travel at least six kilometres to get access to at least satellite or primary school. On the other hand, all villages in Cluster 7 have access to a school within five kilometres. Communities who live in at least 47% and 40% of the villages in Cluster 4 and 5 should travel at least 10 kilometres to get any kind of school within the clusters.

Similarity, when we look into access to health facilities in the cluster areas, communities who live in very small proportions of the villages in Cluster 3 (18%) and about one-fifth of

villages in Cluster 4 and less than half of the villages in Cluster 6 have access to any kind of health facilities within five kilometres. It appears that the vast majority of people in Cluster 3 have to travel more than 10 kilometres to get any kind of health service. People who live in at least 73% of the villages of the cluster have to travel more than 10 kilometres to get health service. Communities who live in at least 73% of the villages in Cluster 3 and 59% of the villages in Cluster 4 should travel at least 10 kilometres to get access to any kind of health services. Overall, access to health facilities is relatively better in Cluster 7 and Cluster 1 compared to other clusters. Members of communities in almost all villages in Cluster 7 and 85% of the villages in Cluster 1 have access to at least one kind of health facility within five kilometres. On the other hand, it is extremely difficult to members of communities to get such services in Cluster 3 and 4. In these clusters, people who live in 82% and 78% of the villages in Cluster 3 and Cluster 4 travel at least 6 kilometres to get the minimum health service.

With regard to access to potable water, one gets the worst case scenario in Cluster 3 and 4. Members of communities who live in 72% of the villages in Cluster 3 and 84% of the villages in Cluster 4 should travel at least six kilometres to get access to water of any kind for domestic or livestock use. People who live in about 39% and 61% of the villages of these clusters should travel at least 10 kilometres to get water for drinking and other domestic use including livestock drinking, respectively. This also holds true for at least 18%, 16% and 14% of villages in Clusters 8, 2 and 6, respectively. In terms of access to potable water, Cluster 1 and Cluster 7 are in a better position. About 88% and 89% of the villages in Cluster 1 and Cluster 7 have access to water supply within five kilometres, respectively. About 58% of the villages in Cluster 5 have access to water within five kilometres. See the GIS maps for the spatial distributions and access to rural facilities in the eight cluster areas.

Table 4.7. Access to basic rural facilities (number and percent of villages by distance to facilities)

Distance	Cluster 1		Cluster 2		Cluster 3		Cluster 4		Cluster 5		Cluster 6		Cluster 7		Cluster 8	
(kilometer)	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Access to school facility																
0 - 5	1601	95.00	368	63.00	92	40.00	203	24.00	206	33.00	478	58.00	856	100.00	143	61.00
6 - 10	76	5.00	124	21.00	65	29.00	236	28.00	168	27.00	235	29.00			61	26.00
Above 10	1	0.00	96	16.00	71	31.00	391	47.00	254	40.00	109	13.00			29	12.00
Total	1678	100.00	588	100.00	228	100.00	830	100.00	628	100.00	822	100.00	856	100.00	233	100.00
Access to health facility																
1 - 5	1428	85.00	393	67.00	40	18.00	187	22.53	461	73.41	348	42.00	852	99.53	160	69.00
6 - 10	241	14.00	99	17.00	21	9.00	153	18.43	133	21.18	271	33.00	4	0.47	43	18.00
Above 10	9	1.00	96	16.00	167	73.00	490	59.04	34	5.41	203	25.00			30	13.00
Total	1678	100.00	588	100.00	228	100.00	830	100.00	628	100.00	822	100.00	856	100.00	233	100.00
Access to water facility																
1 - 5	1482	88.00	311	53.00	64	28.00	137	16.51	367	58.00	409	50.00	766	89.5	110	47.00
6 - 10	124	7.00	181	31.00	74	32.00	183	22.05	212	34.00	294	36.00	90	10.5	82	35.00
Above 10	72	4.00	96	16.00	90	39.00	510	61.45	49	8.00	119	14.00			41	18.00
Total	1678	100.00	588	100.00	228	100.00	830	100.00	628	100.00	822	100.00	856	100.00	233	100.00

Source: own calculation based on CSA facility survey (CSA, 2014).

4.3. Access to Basic Infrastructure

Access to basic infrastructure is an important factor in building the resilience of vulnerable communities. Infrastructure facilitates the capability of individuals to access available opportunities and thereby improve their productivity and build their resilience to shocks. The study assessed availability of infrastructure such as agricultural services, commercial services, public services, roads, telecommunication and electricity in the study areas. As we mentioned above, we collected information from field survey using focus group discussions, key informant interviews and physical observation. We supplemented this qualitative information with the quantitative information from the facility survey conducted by CSA in 2014. Availability of these services in the eight cluster areas are shown in Table 4.8 and Table 4.9. Table A4 in the annex shows the details of the information collected from the field survey in the cluster areas.

4.3.1. Access to public services

Table 4.8 shows access to agricultural services, which include those public services that are deemed to have substantial contribution directly or indirectly in the livelihood strategy such as crop and livestock production. These services include availability of cooperatives, development agent offices, farmers training centre, irrigation schemes and others. It looks that farmers training centres and development agents' office, which are very important in improving agricultural production and productivity, are relatively better available compared to other service inputs. But their availability varies from cluster to cluster. As it can be seen from the table, access to such services are better in Cluster 1 and Cluster 7 compared to others. While Cluster 1 has 82 FTCs and 46 DA offices, Cluster 7 has 67 and 22, respectively. Cooperative services are also better in these two clusters.

On the other hand, Cluster 3 and Cluster 4 have no such access. These services are also poor in Cluster 8. Microfinance institutions, which are plays crucial role in providing credit for rural communities, are also available though in small quantity and differs from cluster to cluster. Cluster 7, 1 and 2 have relatively better access to microfinance compared to others. There are no such services in Cluster 3 and 4. Nursery place are important for natural resource management. Such services are also available in all but Cluster 3 and 4. Small-scale irrigation schemes, which are essential for resilience building as farmers can have access to food by producing three times a year, are also available in half of the clusters. Overall, agriculture

related services are relatively better in Cluster 1 and 7, and is poorest in Cluster 3 and Cluster 4.

Commercial services include those non-farm enterprises services that facilitate livelihood strategy, productivity or health and nutrition improvements through saving time, access to jobs, etc. These include access to flour mills, hotels, enterprises (factory or quarry) and market places. Such services are generally poor in all clusters though it is better in Cluster 7, followed by Cluster 6. Table 4.9 shows the distributions of such services by cluster. The dominant small enterprises available in all clusters are flour mills. Quarry also is another sources of income for people particularly in Clusters 6 and 7.

Table 4.10 shows access to public services such as administrative and security services as well as infrastructure such as telecommunication, metrology, power station, youth center, and tourism center. Generally, while administration offices and telecommunications services are available in all clusters except cluster four, access to other public and infrastructure services is not only poor but also vary from cluster to cluster.

Table 4.8. Access to agricultural services

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8
Animal husbandry	3	2			8		1	1
Cooperative service	35	4			6	34	35	4
DA office	46	14	1		23	9	22	
Farmer training center	82	13			47	28	67	5
Irrigation project	28	8			1		8	
Nursery	27	6			4	3	50	7
Market place	34		4		24	3	37	2
Microfinance	6	5			1	3	21	3

Source: CSA facility survey (CSA, 2014)

Table 4.9. Number of non-farm enterprises

Cluster	Flourmill	Hotel	Sawmill	Quarry	Factory	Coffee washer and mill
Cluster 1	232	1	9			
Cluster 2	16					
Cluster 3	15					
Cluster 4	9					
Cluster 5	101	1		1		
Cluster 6	17	1		8	1	
Cluster 7	52	4	2	4		4
Cluster 8	19	18		1	1	

Source: CSA facility survey (CSA 2014)

Table 4.10. Access to public services and infrastructure

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8
Telecommunication	20	5	4		8	3	2	3
Metrology Station		2				1		1
Power Station		1				1	2	
Youth Centre	1	1			1		37	7
Tourist Centre	5				2		3	
Large Dam	2	7						
Admin. office	133	37	28	16	74	43	210	5
Police Station	46	1			4	2	19	3

Source: CSA facility survey (CSA 2014)

4.3.2. Access to basic infrastructure

The following discussion focuses on the baseline situation of the cluster areas in terms of access to basic infrastructure including road, telecommunication and electricity. The discussion is made based on the information collected during the field survey.

Roads

Cluster one and two are connected to the main asphalt road. In cluster one, almost all the cluster woredas have linked with accessible road facility and have electrification & telecommunication facilities. There are more than 60 accessible roads built with URAP project. Out of the total, 30 roads are serving in both winter and summer time that linked to woreda-town kebele. Cluster two is also found on the main corridor from Woldia via to Djibouti it covers 180 asphalt road and there is 60km gravel road that takes from Kasagita to Chifra. There are also accessible roads that link kebele to kebele. In Cluster 3, road problem is common and very serious problem in all the woredas and kebeles in the zone. The infrastructure of Siti zone is very poor, with only one main road connecting Dire Dawa and Djibouti, which passes through the eastern part of the zone. There are only dirt roads connecting the kebeles within the zone, many of which become impassable during rainy seasons.

In Cluster 4, road accessibility is major problem. Even all woredas are not connected through all whether road yet. Other than kebeles that are found along the main road, kebele to woreda roads are very seasonal. There is no transportation in the rainy season either to the woreda and/or from the woreda. According to the zone statistical abstract data, the road infrastructure in cluster six, the total length of all types of road is 3100.5km among which 169km is asphalt road, 586.5 is gravel road, 473.5is all-weather road and 1116 km is Dry weather road. The woredas in cluster seven are relatively connected to each other. The cluster

has asphalt road of 36.5k.m in Boloso Bore woreda. All the three remaining woredas have gravel earth road. In cluster eight, both woredas are accessible through asphalt road. There are also gravel and seasonal roads that connects the woredas in the cluster. See the detail in Table A4 in the annex.

Telecommunication

Regarding telecommunication accessibility, in cluster one woredas, there is network availability from fixed line to mobile network in cluster one but the land line services is limited to the Woredas with access to telecommunication centre. In cluster two, the woredas are accessible with digital and mobile telephone service and 24 hours hydroelectric power supply including bank and postal service. In cluster three, like the road and other basic social services, access to telecommunications service is extremely poor. Though telephone service is accessible in Cluster 4, it is very rarely functional especially in Dollo Ado and Filtu. In Cluster six, there is network availability from fixed line to mobile network but the land line service is limited to woredas that have got telecommunication office. Post office is only found in Dire and Moyale towns. While Cluster 7 is relatively better, there is telephone service in the form of wireless and mobile phone in cluster eight. The wireless exits only in government offices, 15 in Hamer and 40 in Dasenech. Additional 10 warless users for non-governmental organizations exist in Dasench woreda. But there is a mobile service in the area. See the detail in Table A4 in the annex.

Electricity

Access to electricity is negligible in the kebeles of cluster one but there is access in the capital city of woredas. Majority of the kebeles have no electricity connections. Not all households in all woredas have electric connection in cluster two. Our survey indicates that only some households are located in areas with electricity connection.. In Cluster three, like the road and other basic social services, access to electricity is extremely poor. Though electricity service is already installed in Cluster 4, it is very occasional even in Filtu town which is the capital city of Liben zone. In some woredas like Dollo Ado, it gives services only in the afternoon from 8:00 P.M. to 12:00 A.M. Electricity is also relatively better in clusters seven and eight. See Table 4.11 for current situation on access to basic infrastructure in the eight cluster areas. As it is seen, generally communities who live in all EU RESET II cluster areas have very poor access to infrastructure such as roads, electricity & telecommunication. See the detail in Table A4 in the annex.

Table 4.11. Current status of access to basic infrastructure

Cluster	Road	Electricity	Telephone	Overall
Waghimra	All woredas linked Woreda–kebele linked	Access at woreda town Poor at kebele level	Access at woreda town, poor at kebele level	Better access
Afar	All woredas linked Woreda–kebele linked	Limited access at woreda towns, not kebeles	Access at woreda town and kebele level	Better access
Siti	Major problem	Very limited access	Very limited access	Very poor
Liben	Major problem	Limited access	Limited access	Very poor
Bale	Woreda–woreda linked Woreda–kebele: limited	Limited access at woreda towns	Limited access	Poor
Borena	Woreda–woreda linked Woreda–kebele: limited	Limited access at woreda town, not kebeles	Limited access	Poor
Wolaita	Woreda–woreda linked Woreda–kebele linked	Access at woreda town Access to some kebele	Access at woreda and kebele level	Better access
South Omo	Woreda–woreda linked Woreda–kebele linked	Access at woreda level	Access at woreda level and some kebele level	Better access

Source: Own survey.

5. Livelihood and Wealth Analysis

5.1. Trends and Status of Livelihood

5.1.1. Rural livelihood strategies and activities

The assessment revealed that the principal livelihood system includes pastoralism, agro-pastoralism (livestock raising with crop production), crop production with livestock raising as minor and variety of non-agricultural activities. It should be noted, however, that the boundaries between the livelihood activities are not clear cut, and due to the dynamics of rural livelihood, households can change from one system to another. This mobility can be a response to either livelihood improvement (by choice) or deterioration (as necessity).

Four dominant livelihood activities are identified:

1. pure pastoralists engaged only in livestock raising;
2. agro-pastoralists pursuing a mixed livelihood system, livestock raising as major and crop production as minor;
3. crop production as major and raising livestock as minor; and
4. non-agricultural activities.

The main form livelihood in Clusters 2, 3, 4, 6 and 8 is raising livestock. The majority of the households depend on this system and significant number integrate raising livestock with crop production as minor. In Cluster 1 and Cluster 7 crop production is the main livelihood system. Most households in this cluster integrate crop production with raising livestock as minor. In Cluster 5, agro-pastoralists are dominant. Out of 18 woredas in the zone, nine are dominantly pastoralists and the other nine woredas livelihood system is majorly crop production with livestock raising as minor. Honey production, fishery and non agricultural activities are also practiced in some clusters. Table 5.1 presents the livelihood activity in different clusters focusing on selected woredas in order of importance.

In Waghimra the main source of livelihood is crop production. Crop production has been practiced for centuries in a traditional system. This coupled with lack of structural transformation of the economy and population growth led to significant deterioration of land fertility, fragmentation of farm lands. The cluster known for being vulnerable to drought and affected by drought repeatedly. In Seqota woreda alone, 86% of the total population are benefiting from PSNP and emergency support. About 72,822 (53.8%) people are in emergency support and 43,583 (32.2%) people are in safety net program. In the cluster livestock is

integrated with crop production as second source of livelihood and bee keeping is also practiced.

Table 5.1. Livelihood activity system

Cluster	Major livelihood activity	Other livelihood activities
Cluster 1	Crop production with livestock minor	Bee keeping
Cluster 2	Livestock raising with crop minor	Trade
Cluster 3	Livestock raising with crop minor	Daily labour, selling of firewood/charcoal, banana, etc
Cluster 4	Livestock raising with crop minor	Livestock and electronics trading, selling of fire wood and charcoal
Cluster 5	Crop production and livestock equally important	Gum and incense trading, selling of charcoal and firewood, handicraft activities (weaving, spinning, carpentry, house mudding, poet making, etc), petty trade (grain trade, fruits and vegetables trade), selling of local drinks, trading cattle.
Cluster 6	Livestock raising with crop minor	Small trading such as kiosk, small cafe and the selling of fuel
Cluster 7	Crop production with livestock minor	Bee keeping, trading livestock products and fruits
Cluster 8	Livestock raising with crop minor	Bee keeping, livestock trading, charcoal selling, local drinks, fishery

Source: Own construction from field reports

The livelihood of the population in Afar cluster (Zone 1, 3 and 5) is dominated by pastoral way of life. About 93% of the community in the region are pastoralists; the rest 7% of the community are practicing farming. Some people in Chiffra woreda (Zone 1) and Dewe and Telalak woredas (Zone 5) are trying their best to integrate crop production with their main livelihood activity, raising livestock. These people have also access to irrigation and produces maize, sorghum, cotton, sesame, tomato and onion using small scale irrigation. Maize and sorghum are mainly used for consumption, whereas sesame, cotton and onion used mostly for sale. Trading, especially salt is another source of livelihood. Thus, livestock raising, crop/vegetable production and trading are, in their order of importance, sources of livelihood in the cluster.

Siti cluster is a pastoral area and the dominant livelihood system is livestock raising in central and northern parts of the zone. More than 75% of the population is pastoralist. There are also agro-pastoralists (integrating livestock raising with crop production) in the southern foothills of the zone. This people accounts for 25% of the population. Some pastoral and agro-

pastoral people are also engaged in daily labour, selling of firewood/charcoal, banana etc to complement their income.

Liben cluster is also dominated by pastoralist way of life. But there is an emerging trend for a promising livelihood diversification towards crop production and non agricultural activity such as trade. Of course the majority are diversifying as a means of survival but a good number are engaged by choice; as a means to increase their income. The government is also introducing pastoral community development program that facilitates voluntary resettlement where pastoralists can practice crop production and other livelihood activities. Pastoralists in Filtu, Dollo Ado and Moyale woredas are benefiting from this program. According to Liben zone annual resettlement report (2008 E.C) in the last five years (2010/11-2014/15) about 26,121 households have been resettled and practiced crop and vegetable production on 14,606.8 hectares of land. Some are also engaged in livestock and electronics trading.

The main livelihood in Bale cluster is crop production and livestock. Both are equally important. The weather condition of the zone is suitable for production of different types of crops and for raising livestock. Among 18 woredas, 9 woredas are pastoralist and the other nine woredas are practicing crop production as the main source of livelihood. Crop production is completely rain-fed. Gum and incense trading is also practiced as alternative source of livelihood.

Borena cluster is largely inhabited by pastoralists with relatively small proportion of people engaged in crop production. Livelihood is strongly connected with raising livestock for about 80% of the population in the zone. Incomes from sale of livestock and livestock products constitute the major source of income. Some people are also practicing crop production such as wheat, corn and haricot bean to complement their livelihood. Due to back ward cultivation system, frequent drought, inadequate experience and lack of access to inputs and improved farm equipment, crop production is very low and even cannot support a household's food consumption for year round. This has discouraging the community members to engage in agricultural activities more seriously. As result of this crop production in the area remains insignificant as source livelihood. Handicrafts (weaving, spinning, carpentry, pot making etc) and petty trading are also practiced as supplementary source of livelihood.

The exception from most clusters is Wolayita, where the dominant livelihood system in the cluster is crop production (maize, haricot bean, teff, sweet potato). The second and third

most important livelihood activity is raising livestock and bee keeping. Some people are also engaged in fruits trading.

In South Omo, next to livestock raising as the main livelihood system, crop production, honey production, and fishery are practiced as minor livelihood system. The lion share of income is generated by sale of livestock and products of livestock. Agricultural products like crop (maize, sorghum, wheat, teff, and sesame), honey and fishery production constitute the second important source of income. The problem, however, is that there is no access to market and farmers are getting very low price. Modern and traditional irrigation system is being practiced in Hamer woreda and lots of water pumps are being used for irrigation purpose in 28 kebeles of Dasenech woreda. The area is marginalized from using modern production tools and an overwhelming majority is illiterate. Very few households use oxen for ploughing in Hamer woreda. Farmers in Dasenech woreda are still using stick to plant. Fishery is practiced by about 12% of Dasenech woreda population from Rudolf lake and Omo river. In addition to livestock trading, selling of fish and honey; people are engaged in selling of charcoal and local drinks.

As indicated in Table 5.1, Afar, Siti, Liben, Borena and South Omo clusters are engaged in raising livestock as a main livelihood system. Livestock raising in Bale cluster is also equally important as crop production. There are huge number of livestock though on declining trend with poor quality. Because of this the benefit derived (livestock products) from livestock is not commensurate to the size. In addition, livestock products are on a declining trend. The main reason for this is that livestock is being raised in traditional system. There are several and reinforcing reasons for this traditional system. Firstly, there is no and at best very limited technology input in terms of improved varieties, veterinary facilities and extension services for better quality of livestock and livestock products. Secondly, pastoralists attached high value not to the quality as such but to the number of livestock. Having large number of livestock is an indication of prestige, higher social status and wealth in the community. Because of this pastoralist does not want to sell their livestock (unless they are desperate). Hence, there is no incentive for them to keep less number/manageable size with high quality. One can conclude that market/generating income to engage in other livelihood system is not the driving forces for raising livestock.

This value system is now becoming a challenge for the community. Given the frequent drought and shortage of water and grazing, keeping a large livestock is becoming expensive. It requires frequent mobility of livestock in search of water and pasture and are increasingly forced to travel very long distance than usual and also stay lengthy period of time away from

home. This trend is forcing some people to complement raising livestock by crop production. It is mainly practiced for consumption. It should be noted, however, that this is not enough to encourage them to sell livestock and generate money for some other activities and to keep less number/manageable size of livestock with better quality. Table 5.2 presents the details for each cluster.

Table 5.2. Livestock population by cluster (2014/15)

	Waghimra	Afar	Siti	Liben	Bale	Borena	Wolayita	South Omo
Cattle	360,842	997,288	14,526	250,599	1,569,229	1,052,770	798,067	1,673,434
Sheep	141,874	945,218	55,387	318,337	378,286	439,082	215,579	1,205,825
Goats	416,551	1,999,445	145,595	879,685	742,490	878,355	146,292	2,924,841
Donkey	82,697	64,852	5,975	68,823	232,879	84,736	37,353	26,205
Mules	2,807	-	59,936	-	18,152	-	15,190	975
Horses	-	-	-	-	78,657	-	-	34,665
Camels	-	164,697	269,593	247,301	31,560	77,146	-	-

Source: CSA, Annual Agricultural Sample Survey 2014/15.

People in South Omo are richer than any other cluster in terms of size of livestock. Every household, on average, has 96 goats (second comes Afar cluster with 22), 55 cattle (second comes Bale with 23), and 39 sheep (second comes Afar with 10). Siti zone is on the lowest side. Details are presented in Table 5.3.

Table 5.3. Size of livestock per household by cluster for 2014/15

Cluster	Cattle	Sheep	Goats	Donkey	Mules	Horses	Camels
Waghimra	3.5	1.4	4.0	0.8	0.0		
Afar	11.2	10.7	22.5	0.7			1.9
Siti	0.2	0.6	1.7	0.1	0.7		3.1
Liben	2.2	2.8	7.8	0.6			2.2
Bale	23.2	5.6	11.0	3.4	0.3	1.2	0.5
Borena	20.3	8.5	17.0	1.6			1.5
Wolayita	6.4	1.7	1.2	0.3	0.1		
South Omo	55.1	39.7	96.3	0.9	0.0	1.1	

Source: CSA, Annual Agricultural Sample Survey 2014/15.

Availability of land for crop is being deteriorated by size due to population growth and also becoming less productive as it is over utilized in a very traditional system. As per the 2014/15 Annual Agricultural Sample Survey conducted by CSA, the land use of the total land estimated in each cluster is indicated in Table 5.4.

Table 5.4. Land use by cluster (in hectares)

Land use	Waghimra	Afar	Siti	Liben	Bale	Borena	Wolayita	South Omo
Temporary crops	120,934	8,117	2,199	8,596	388,814	32,578	115,899	62,198
Permanent crops	121	567	769	497	31,958	17,884	31,958	7,006
Fallow land	2,276	287	21	469	11,616	3569	442	6,241
Grazing	185	654	900	1,322	99,531	11,065	35,211	7,201
Woodland	69	1	194	-	4,616	387	13,738	771
Others	1,756	32,155	1,049	5,871	78,007	10,343	19,941	4,149
Total land holding	125,341	41,781	5,132	16,755	614,542	75,826	217,189	87,566

Source: CSA, Annual Agricultural Sample Survey 2014/15.

As can be observed from the table, out of the total land the least proportion of land that is covered by crops is in Afar cluster (20.8%), while Waghimra cluster has the largest proportion of the land under crops (96.6%). Bale, Wolayita and South Omo clusters are also utilized more than half of their land for crops.

The land use is somehow indicating the livelihood system indicated in Table 5.1. Most clusters whose livelihood is strongly attached with crop production, assign the largest proportion of their land to temporary crop production (see Table 5.5). Other clusters whose livelihood depends on livestock has relatively assign lower proportion of their land for temporary crops. This could be due to the less availability of arable land and/or livelihood system.

Table 5.5. Land use by cluster (percent)

Land Use	Waghimra	Afar	Siti	Liben	Bale	Borena	Wolayita	South Omo
Temporary crops	96.5	19.4	42.8	51.3	63.3	43.0	53.4	71.0
Permanent crops	0.1	1.4	15.0	3.0	5.2	23.6	14.7	8.0
Fallow land	1.8	0.7	0.4	2.8	1.9	4.7	0.2	7.1
Grazing	0.1	1.6	17.5	7.9	16.2	14.6	16.2	8.2
Woodland	0.1	0.0	3.8	0.0	0.8	0.5	6.3	0.9
Others	1.4	77.0	20.4	35.0	12.7	13.6	9.2	4.7

Source: Table 5.4

The relentless exploitation of agriculture and growth of population in Ethiopia have made land an extremely expensive natural resource and also less productive. This problem is being manifested in most clusters in different forms: very poor fertility, fragmentation and very small size of holding. By virtue of being an indispensable part of life, land is changing invariably in configuration resulting in minuscule holding size per household and becoming a scant supply to farmers in most clusters. In Waghimra cluster, for instance, there is no any parcel of land that can be allocated to young people. Information on the mode of land use that prevails within

the farming population certainly assists the government to spell out land use policy so as to cope with the pressure on agricultural land. The average landholding size by household is also very low which is not viable. Details are presented in Table 5.6.

Table 5.6. Household landholding sizes (hectares, 2014/15)

	Waghimra	Afar	Siti	Liben	Bale	Borena	Wolayita	South Omo
Landholding size	1.1	0.65	0.37	0.35	1.37	0.44	0.36	0.57

Source: Computed from CSA, Annual Agricultural Sample Survey 2014/15.

The size of holding in most clusters is by far very low even by the national standard and not viable given the traditional practice. It is in this context that households are struggling to produce crops. From the CSA sources, we managed to get crop production for the last five years. Details are presented in Table 5.7. As can be seen from the table, Waghimra, Bale and Wolayita clusters produce all the five types of major crops. Teff, barley and wheat are not produced in Afar, Siti and Liben clusters at all. In most clusters crop production is not a serious engagement due to their focus on raising livestock as a mains source of livelihood.

All clusters produce maize and the yield is much more than the other crops. This might be due to the agro-ecology. What is surprising is that most clusters are not familiar with intensive and knowledge based input utilization. Some clusters are even totally not familiar with agricultural inputs. Afar cluster, for instance, did not use any types of agricultural inputs in 2014/15 crop season and the yield for maize is the highest among all other clusters and it is even a little over the countrywide average figure. Table 5.8 presents trends in the productivity of land for major crops by cluster.

As shown in the table, productivity of land differs from cluster to cluster. For 2014/15 crop season, the difference in teff is about one quintal. The lowest yield is recorded in Waghimra (13.08 quintals per hectare) and the highest is in Bale (14.9 quintals per hectare). Maize yield hectare has a huge difference: it is 15.59 quintals in Waghimra and 36.46 quintals in Afar and Borena. The same holds for wheat, sorghum and barely. The highest yield per hectare for wheat and barley is recorded in Bale, 31.0 and 21.6 quintals respectively, both higher than the national average. The lowest yield is recorded in Waghimra, about 13.25 quintal of wheat and 11.7 quintal of barely per hectare.. But both clusters applied fertilizer for all crops in 2014/15 crop season.

Table 5.7. Trends in major crop production by cluster (in quintal)

Cluster	Crops	Output ('000 quintals)					Yield (kg per hectare)				
		2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Waghimra	Teff	265.2	293.6	326.0	288.8	332.8	10.9	11.4	11.7	12.5	13.1
	Barley	217.9	117.9	162.8	198.2	199.5	13.7	9.1	9.7	13.4	11.7
	Wheat	68.0	61.7	97.0	95.7	88.8	12.1	12.0	13.8	13.9	13.3
	Maize	49.5	47.0	43.5	47.5	47.8	14.7	14.1	14.6	14.5	15.6
	Sorghum	721.0	712.3	520.6	429.6	590.5	18.0	17.7	17.0	11.4	15.3
Afar	Teff	-	-	-	-	-	-	-	-	-	-
	Barley	-	-	-	-	-	-	-	-	-	-
	Wheat	-	-	-	-	-	-	-	-	-	-
	Maize	-	140.5	140.5	172.2	172.2	-	32.4	32.4	36.5	36.5
	Sorghum	46.4	-	-	15.8	-	17.2	-	-	20.8	*
Siti	Teff	-	-	-	-	-	-	-	-	-	-
	Barley	-	-	-	-	-	-	-	-	-	-
	Wheat	-	-	-	-	-	-	-	-	-	-
	Maize	6.5	4.9	3.3	6.8	7.0	-	12.4	11.8	27.8	-
	Sorghum	17.6	14.0	22.4	51.9	51.5	9.2	7.6	11.6	28.7	29.1
Liben	Teff	-	-	-	-	-	-	-	-	-	-
	Barley	-	-	-	-	-	-	-	-	-	-
	Wheat	-	-	-	-	-	-	-	-	-	-
	Maize	93.6	83.0	120.2	178.5	-	23.4	22.9	21.6	27.8	-
	Sorghum	-	0.4	-	4.7	-	-	-	-	28.7	-
Bale	Teff	474.5	474.3	530.5	637.3	830.6	11.5	11.3	11.9	12.5	14.2
	Barley	787.0	793.4	829.3	854.4	949.1	16.7	17.6	18.6	19.4	21.6
	Wheat	2,755.8	2,747.4	3,631.3	4,393.8	4,802.0	23.2	22.1	25.5	29.2	31.0
	Maize	487.6	867.4	814.1	867.4	1,037.1	18.2	20.3	21.5	27.0	30.0
	Sorghum	142.9	294.7	195.9	189.6	-	15.4	15.8	14.3	24.2	-
Borena	Teff	28.5	33.6	40.6	41.9	-	8.8	9.1	11.1	11.1	-
	Barley	8.7	3.0	3.3	4.4	-	8.4	-	12.1	13.0	-
	Wheat	75.3	17.7	-	17.5	5.6	21.6	14.2	-	20.5	-
	Maize	177.7	446.0	347.5	218.4	317.6	18.3	33.2	32.9	26.2	36.5
	Sorghum	67.6	-	-	32.7	-	8.0	-	-	13.9	-
Wolayita	Teff	247.9	214.1	209.2	341.3	298.5	9.1	10.6	11.6	12.1	13.3
	Barley	4.6	4.5	4.8	3.2	3.2	10.5	-	11.5	10.7	10.9
	Wheat	-	59.0	-	27.1	-	-	14.6	-	14.5	-
	Maize	52.2	582.0	492.4	247.6	451.8	17.1	24.1	25.7	25.2	26.0
	Sorghum	16.4	13.5	32.7	23.6	22.0	10.6	12.3	13.2	12.3	13.3
South Omo	Teff	9.8	31.7	36.9	52.5	18.7	6.2	9.6	11.5	13.1	13.5
	Barley	-	63.4	73.0	42.2	35.1	-	14.1	14.6	12.1	13.6
	Wheat	79.4	-	14.4	42.6	55.6	17.2	-	12.9	22.1	22.2
	Maize	420.0	283.3	485.8	620.8	743.5	22.4	16.5	24.4	26.5	28.3
	Sorghum	181.7	246.4	289.0	299.1	279.9	18.5	16.7	17.1	18.1	18.9

Source: Compiled from different sources of CSA.

What is presented in Table 5.7 is total production. This conceals the disparity among clusters and the amount of food production per household and per head. If we take maize which is produced by all clusters, South Omo cluster is produced 24.5 quintal per household and 4.7 quintal for each individual. The poorest clusters in this regard are Waghimra and Siti.

Table 5.8. Production of food crops (2014/15)

Cluster	Quintal per household					Quintal per capita				
	Teff	Barley	Wheat	Maize	Sorghum	Teff	Barley	Wheat	Maize	Sorghum
Waghimra	3.20	1.90	0.90	0.50	5.70	0.71	0.43	0.19	0.10	1.26
Afar	–	–	–	1.90		–	–	–	0.37	–
Siti	–	–	–	0.10	0.60	–	–	–	0.02	0.11
Bale	12.30	14.00	71.10	15.40	–	–	–	–	–	–
Borena	–	–	0.10	6.10	–	–	–	0.10	6.10	–
Wolayita	2.40	0.03	–	3.60	0.20	0.50	0.01		0.70	0.00
South Omo	0.60	1.20	1.80	24.50	9.20	0.10	0.20	0.30	4.70	1.80

Source: CSA, Annual Agricultural Sample Survey 2014/15.

One of the main problems of crop production is that all clusters are practicing traditional crop production system. Technology application that improves yield is very limited. It is reported that in 2014/15 crop season; Afar, Siti, Liben and Borena clusters did not use any inputs like fertilizer, improved seeds and pesticides. Pesticides are applied only in Bale cluster. Even those clusters applied inputs have problems of getting enough. Details are presented in Table 5.9.

Table 5.9. Input utilization by cluster (for 2014/15 season)

Cluster	Fertilizer	Improved seeds	Pesticides
Waghimra	For all except barley	Only for wheat	-
Afar	-	-	-
Siti	-	-	-
Liben	-	-	-
Bale	For all crops	Only for maize	Only for barley and wheat
Borena	-	-	-
Wolayita	Only for teff, wheat and maize	Only for teff & maize	-
South Omo	Only for maize	Only for maize	-

Source: CSA, Annual Agricultural Sample Survey 2014/15.

As discussed elsewhere in this report, all clusters are vulnerable to recurrent drought and are always exposed to livestock and crop failure. Pastoralists are increasingly challenged by lack of water and pasture and from year to year their frequency of mobility is increasing and are struggling to cope with this challenge. Drought along with highly fragmented and small

size of farms is increasingly becoming a challenge for crop production as a viable source of livelihood. Because of this some people are forced to engage in non-agricultural livelihood activities as a coping mechanism. This takes the form of wage labour, handicraft (weaving, spinning, carpentry, house mudding, poet making, etc), petty trade (selling of firewood, charcoal, gum, incense, livestock, grain, fruits and vegetables, etc).

In Siti cluster people are engaged in daily labour, selling charcoal and firewood, collecting and selling of bananas. In Liben cluster people are trying to integrate other forms of livelihood with their main livelihood system. The two woredas Dollo Ado and Moyale have geographic advantage that facilitates trading as another form of livelihood system. Dollo Ado woreda share boundary with Somalia and Moyale woreda with Kenya. People from both countries use both areas to sell livestock. Ethiopians buy camel from Kenyans and re-export to Djibouti, Yemen and other Arab countries. Ethiopians buy electronics and other clothes from Kenya and Kenyans buy alcohol, cattle and other agricultural products especially vegetables from Ethiopia. Somali, Kenya and Ethiopian currencies are functional in both areas. Selling of charcoal and firewood is also practiced.

In Bale cluster, particularly in Dawa Kachen woreda people are engaged in trading gum and incense to cope with food shortages. Sale of charcoal and firewood is also practiced. Handicraft activities (weaving, spinning, carpentry, house mudding, poet making, etc), petty trade (grain trade, fruits and vegetables trade), selling of local drinks, and trading of cattle are also practiced. Remittance transfers are also one source of livelihood in the cluster. Very small proportion people are engaged in small trading such as kiosk, small cafe and the selling of fuel in rural areas in Borena cluster. While bee keeping, trading of livestock and fruits are practiced in Wolayita cluster; bee keeping, fishery, livestock trading, selling of fish and honey; selling of charcoal and local drinks are practiced in South Omo cluster.

Given the challenges of raising livestock and crop production, non-agricultural livelihood activities should be encouraged and supported by the government. Currently most households are engaged in this activity as a means of survival and not by choice. The government should intervene to make non-agricultural activity as an opportunity for the community.

5.1.2. Livelihood diversification, risks to livelihood and coping strategies

Livelihood diversification: There are several reasons why people try to secure their means of livelihood from activities other than agriculture (livestock raising and crop production). Nearly all clusters under study are affected by and suffer from the consequences

of drought. Drought affects crop, livestock and livestock products. Most clusters are not well integrated to the market and have limited access to various infrastructure. Leave alone for the drought affected livestock, even in the normal time there is no fair price for the livestock. Because of this, the sustainability of pastoralism as a main livelihood system is becoming a serious concern for both pastoralists and government. Being desperate and in some cases provision of support from the government, an increasing number of pastoralists are integrating crop production with livestock raising. But this is not adequate to generate enough income to support their family. Crop production is affected by recurrent drought and irrigation is not common and not everywhere. Extension service and input supply is limited.

As indicated in Table 5.1, people in all clusters are trying their best to cope with crop and livestock production failure. Due to various problems, largely drought, the entitlement of people has been eroded through time and could not make enough from their main livelihood system. This is what happened in most clusters and story from FGDs and personal observations proved this. This implies that the major driving force for livelihood diversification is necessity and not choice.

For instance, Waghimra, Afar, Siti, and Liben clusters have been affected by drought and this was followed by a drastic fall in crop production and livestock. Crops have failed and livestock are exposed to death and loss of weight with the resultant of total loss or low price. Four consecutive poor rainy seasons have had a negative impact on livelihoods in this cluster. Because of this people are forced to engage in other forms of livelihood system, livestock trading and electronics trading. The driving force for livelihood diversification is, therefore, a coping mechanism for the main livelihood deficiency. The same driving force holds true for Bale cluster. People are usually food insecure largely due to drought. As a result of this they are forced to engage in different livelihood activities to cope with the shortages. For instance, people in Dawakachen woreda are engaged in trading gum and incense.

In Wolayita cluster people engaged in various forms of livelihood other than the main livelihood activity. People in Diguna Fango woreda from this cluster are usually food insecure and tried to engage in different livelihood activities such as trading fruits, crops and livestock products to cope with the food shortage. Some are also engaged in daily labour; employed on investors land, tobacco factory land, agricultural research centers. FGD participants in one of the kebeles stated that the main driving force for livelihood diversification is shortage of food. People are unable to produce enough food from their main livelihood activity, farming. In Boloso Sore woreda the same story holds true. FGD participants stated that they are suffering

from land fragmentation, population pressure and lack of employment opportunities. Farm households are unable to produce enough food and are forced to look for other livelihood activities to cope with shortages.

Risks to livelihood: As mentioned above major risk factor to livelihood is drought. Lack of rain affects crop production significantly. Drought also affects availability of water and pasture and livestock are suffered from lack of pasture and water. This exposed most livestock to various diseases that culminate in death, loss of weight with the resultant of low price. Nearly all clusters are affected by this. For instance, about 58% of the population in Erere woreda and a 55% in Meisso woreda (Siti cluster) are beneficiary of PSNP. In addition to this, livestock disease, violent conflicts between sub clans are also major risk factors for the livelihood systems in Siti cluster. In Meisso woreda the population of livestock particularly camel and goat, the most important for pastoralists, has experienced a drastic fall in 2014.

Drought is common and major disaster risk affecting the livelihood of the community which results in shortage of food shortage, pasture, water for people in Bale cluster. Most of the woreda people travel to their neighbouring woredas in order to find grazing land and water for their livestock. Especially, the four months spanning from December to March are the most problematic periods in terms of water and pasture. In addition to this, limited availability of veterinary facilities is emerging as one the major risk for livestock raising. In Wolayita cluster, land fragmentation, population pressure and drought are the major risk that affects the livelihood system in the area.

Table 5.10. Major risk factors to livelihoods

Cluster	Major risk factor for humans	Major risk factor for livestock
Waghimra	Drought	Drought, livestock disease
Afar	Drought, flood	Drought, livestock disease
Siti	Drought, violent conflict between sub-clans	Drought, livestock disease
Liben	Drought, flood	Drought
Bale	Drought and crop disease	Drought, livestock disease
Borena	Drought, flood	Drought
Wolayita	Drought, flood	Drought
South Omo	Drought, flood	Drought

Source: Own construction from field reports

Rural livelihood and drought are two inseparable phenomena in country in general and in most of the clusters in particular. This is due to the livelihood characteristics of the rural people. Rural people largely deal with plants and animals that require adequate and timely

rainfall. The types of livestock to be raised, the crop mix cultivated by peasants, and the cropping calendar are explained by the spatial and temporal distribution of rainfall. Thus, for rainfall dependent economy, both extreme situations of scarcity and excess would function against people's livelihood to a great extent, hampering the main production activities, the outcome of which is seen in the shortage of food supply. Water scarcity brought about by delay in rainfall from the normal period of occurrence, or even a complete failure constitutes drought and cause crop failure and weight loss and massive death of livestock.

Coping strategy: Both the pastoralists and agro-pastoralists had practiced some survival strategies to cope with the problem of shortages/drought. Coping strategies are a package of household responses to shortage of food in any abnormal seasons or years. Coping may differ from household to household depending on the severity of the food shortage and socio-economic contexts in pre-crises periods. Household survey could have been a best strategy for this. We have consulted the community whether there is a sequence or not in terms of coping strategy. It seems difficult to establish at community level but some informed us strategies are undertaken in a predictable and logical sequence, starting with easily reversible strategies which do not erode the asset base of the household (e.g. reduced meal frequency, shift to less expensive food) to less easily reversible and more erosive strategies (e.g. sale of cattle or land). Unfortunately, our data generation mechanism depends on KIIs with woreda officials, FGDs with the community and personal observation. The discussion is, therefore, on community's coping strategy and very difficult to put in order of importance or rank them against the severity of food shortage. It is with this understanding that we present the discussion.

As may be clear from Table 5.13, more than half of the year, pastoralists and agro-pastoralists suffer from shortages of food and water both for themselves and for their livestock. The maximum months where food is available is six months. For some cluster like Borena, food is available only for three months. Availability of water has also the same pattern. This means people and livestock has to suffer from shortages of food and water for about six to nine months every year.

How do they cope with this kind of disaster? Most people are supported by PSNP and recently animal feed is also provided by the government. This is the main support from the government.

The coping strategy under practice can be categorized into two: long-term and short term. Those coping strategies that have long-term nature and possibly brings sustainable solution for

pastoralists and agro-pastoralists are shifting to drought resistant livestock and crops, i.e., trying to cope with by remaining in the same livelihood system. For example, Filtu woreda (Liben cluster), Haydimtu kebele FGD participants reported that they are shifting from maize and haricot bean to sorghum as it is drought resistant and to sesame as it needs short period of rainfall. In Seqota people are also involved in selection of drought resistant livestock as a coping strategy. This still needs to a shift from a traditional system to technology based system of crop production and raising livestock. Productivity of the land and quality of the livestock is critical.

The other aspect of long-term coping strategy is engagement with bee-keeping in addition to the main livelihood system. People in Waghimra, Wolayita and South Omo clusters are trying their best to complement their livelihood by involving in honey production. Nearly in all clusters people are also engaged in small trading activities such as selling of livestock, fruits, electronics, grain and local drinks. People in Bale cluster, in addition to this, involve in handicraft activities to generate money. The emerging activity in South Omo cluster is fishing. Given the potential the cluster has, this has to be encouraged and supported as one of the main livelihood system.

The other most important coping strategy is building water reservoirs: water pond, water pool, *birka*, water well/*ella* and small dams to reserve water for further consumption during the dry season. This is made in collaboration with the government and non government organization. *Birka* will be used when all other sources of water are exhausted. This is practiced in Afar, Siti, and Liben clusters. In Wolayita cluster, people always save crop residue to use it as grazing in time shortage, buying crop residue from others who don't have cattle, selling cattle for those who have many.

The other long-term strategy is livelihood diversification. Previously, households were relied only on raising livestock. However, for the fact that recurrent drought is making them to be more vulnerable for food insecurity; they have been trying to integrating livestock raising with crop production in some cases with irrigation access. The practice in Liben zone is exemplary in this regard. About 26,121 households have been resettled and practiced crop and vegetable production with irrigation on 14,607 hectares of land.

Short term coping strategies include like selling of resources, seasonal migration in search of food/job, seasonal migration in search of pasture and water for livestock, reducing daily food consumption and substituting for less expensive foods, decreasing the number of

meals per day and decreasing the quantity of meals, borrowing food or money, eating wild food (less preferable in normal season), participation in food-for work, sale fire wood, dung, charcoal. These are the most common coping strategies in most clusters. In Siti and Borena clusters people have additional coping strategy like sending children to stay with wealthier relatives or as a cattle herder. Liben cluster has an additional coping which is remittance. There is also uncommon coping mechanism in South Omo cluster. people use tree leaves like *moringa*, *mekela*, *huzo* and *kedi* as food which is not the case during normal time.

Coping with selling firewood and charcoal which is practiced in Siti, Liben, Bale and South Omo clusters causes deforestation and environmental degradation that would eventually exacerbates the adverse implication of the livelihood system of the community.

The last resort in the form of short term coping is seasonal migration in search of job/food (all clusters), pasture, and water (Afar, Siti, Liben, Borena and South Omo clusters). Migration with livestock in search of pasture and water is not an easy task. It always confronted with conflict with the host community. This has happened in Siti, Liben, Bale, and Borena clusters. The migration profile with some destinations are presented in Table 5.11.

Table 5.11. Migration profile by cluster and destination

Cluster	In search of food/job to cope with the food shortage	In search of pasture and water for livestock
Waghimra	Migrate to South Gondar, Raya Kobo and Wollega	
Afar	Migrate to woredas within the region and Amhara and Oromia regions depending on the severity of drought	Migrate to Amhara and Oromia
Siti	Migrate to nearby towns, Somalia, Djibouti	Migrate to Afar and Oromia
Liben	Migrate to nearby woredas	Migrate to Kenya
Bale	Migrate to nearby woredas	Migrate to nearby woredas
Borena	Migrate to nearby woredas	Migrate to nearby woredas
Wolayita	Migrate to Kembata, Hadiya, Wolkitie	
South Omo		Migrate to Omo river and Mango park

Source: compiled from field reports

5.2. Trends and Status of Wealth Profile and Food Security

5.2.1. Wealth ranking, perception about wealth and inequality

Different livelihoods such as pastoralism, agro-pastoralism, non agricultural activities clearly imply people are quite heterogeneous and unequal in terms of their wealth. We have attempted to understand how the pastoralists and agro-pastoralist in each cluster perceived

wealth, the disparity among themselves and what attributes are mostly considered by them to label a household as either rich, poor and very poor. We also tried to gauge their perception about the drivers for wealth disparity. We used FGDs to identify who is rich, poor and very poor and to identify the indicators used in categorizing.

The process of pastoralists and agro-pastoralists household differentiation involved two steps. First the field team made clear the objective which is understanding the situation of livelihood disparity and there is no any reaction to be expected by the community in different forms of assistance. The second step was identifying individuals from the community with different experiences and roles for the FGDs. With the help of a semi-structured interview guide, FGD participants were asked whether people in their community experienced wealth disparity, and how people perceive this disparity. The discussion was not welcomed by the participants as most areas visited are drought affected which, as per the community, brings everybody equal. The field team managed to convince participants and tried to get their perception at list from what they know in the previous time.

Number of livestock is the main criteria to categorize wealth status of individuals. Among livestock, camel and cattle are the most recognized livestock but sheep and goats are rarely considered as wealth. This is because, camels and cattle are drought resistant and can stay long period of time without water unlike sheep and goats. Size of landholding, labour supply, brewing local alcohol for selling, and cash are also considered for wealth differentiation. It should be noted that livelihoods are quite dynamic and there can be upward (gain) or downward (loss) fluctuations affecting a households' wealth ranking. Most clusters are drought affected and some clusters encounter frequent drought which affected livestock production significantly.

Table 5.12. Household wealth ranking

Cluster		Rich	Poor	Very poor
Waghimra	Landholding	>0.5 ha	<0.5 ha but can't plough because of old age or other problem	No land
	Livestock	>/=5 cattle, >3 cattle/goat	Has 1 or 2 goat and a number of hen	May have 1 chicken
	Beehives	>6 beehives	None	none
Siti	Livestock	>15 goat/sheep, >15 cattle, >20 camel, >5 donkey	2-5 goat/sheep, 1-2 cattle, 1 camel, 1 ox, 1-2 donkey	0-2 shoats, 0-3 cattle, 0-1 camel and 0-1 donkey.
	Landholding	>3 ha.	0.5 - 1ha	
	Labour supply	Employs seasonally at least 5 workers	Employed by others as daily labour	
	Family size	>11	7-9	4-6
Liben	Livestock	>100 cattle, >10 camels >100 sheep and goat	4-5 cattle, 4-5 camel 10-20 sheep and goat	
	Landholding	5 ha	1 ha	Has nothing except wage labour and some tools
Bale	Livestock	A good number of livestock, mule for transportation	5-6 goats, 2 donkeys, 5 - 7 and chicken	Some chicken,
	Landholding		Cultivate their land by hand	Daily labourer
	Beehives		5-7 beehives	
Borena	Livestock	> 10	>5	Nothing
Wolayita	Cash	>10,000 birr	<5,000 birr	No cash
	Landholding	>1 ha	About 0.25ha	<0.25ha but could not work on it
	Others	Motorcycle, house in town		
South Omo	Livestock	>240 cattle, >550 goats, >150 sheep	4 farming oxen, 10 cows, 10 calves, 20-40 goats, 20 sheep	Nothing except 2-3 cows

Source: Own construction from cluster reports

As can be seen from Table 5.12, the disparity among clusters is not pronounced. The only exception is Hamer where the standard is very high to be rich. In terms of livestock, a poor in South Omo cluster can be considered as rich in Siti, Bale and Borena clusters and very rich in Waghimra cluster.

FGD participants in Waghimra cluster used livestock, beehives and size of land holding to rank household wealth. They stated that some years ago size of landholding was an appropriate measure to differentiate households by wealth. Those who owned more than half a hectare could easily be categorized as rich, those owned less than this could be categorized as poor or very poor. This time land is highly degraded and not suitable for crop production as it

has lost its fertility. Among all clusters, Waghimra is the poorest in terms of the wealth category.

In Afar cluster, the overwhelming majority of the people are poor. It was stated that about 5-10% of households of the cluster are food secure. Total number of PSNP beneficiaries in the cluster are 36% ranging between 23% in Afambo woreda to 43% in Dawe woreda. According to the informant the total food insecure people are much more than this but it is only for this proportion of the people that the government can afford to assist.

In Siti cluster, wealth differentiation was based three assets: livestock, land holding, labour supply, and family size. FGDs were conducted in all woredas with the community (Bella kebele from Erer and Mencha kebele from Meisso). Ranking was based on the importance of livestock: cattle milk and milk products for own consumption and selling, rental income from camel, goat/sheep are considered equally or second best with livestock category as they are considered as 'liquid cash. Land is second important as pastoralists are practicing crop production. Family size is also considered as one indicator to household wealth ranking. FGD participants stated that in their area family size is positively associated with wealth. Polygamy is practiced in the area and those who are better off are usually go for additional wives.

The number of wives is an indicator of wealth and hence household size. In most cases the poor have only one wife. In this cluster the very poor constitute about 2-5% of the population. From this group 2 to 3 family members from each household will migrate to better-off relatives and/or looking for employment in trading centers, towns, or in Djibouti. The poor constitute about 25-35% of the pastoral population in the cluster. About 1-2 family members from poor households usually migrate for employment in Djibouti, Dire Dawa and other trading centers. FGD participants noted that the ranking is based on the existing situation. Since 2013/14 there was a series of droughts that adversely affected livestock production. There are some communities that lost up to 80% of their livestock. Had it not been for the effect of the drought, the rich could be those who have more than 100 camels, 60 cows, 100-200 goats and 12-20 oxen. Despite this participatory wealth ranking, the objective reality shows different figures. About 58% of the population in Erere woreda and a 55% in Meisso woreda are beneficiaries of PSNP.

In Liben cluster wealth differentiation was based two assets: livestock and land holding. In terms of livestock this cluster is the second richest, next to South Omo cluster. But most

people are poor who cannot feed themselves. In Moyale and Dollo Ado woreda, for instance, 47% and 46 % of the population are beneficiary of PSNP, respectively.

In Bale cluster livestock, land and beehives are considered for wealth differentiation of the households. Livestock, however, take the highest value. Like other clusters it is the small proportion of the community that is rich. In Wolayita cluster, particularly in Diguna Fango woreda, 40% of the people in the woreda are said to be rich and most are located in the lowland area (where they have large land holding and livestock feed and water is easily available) and 25% of the population are very poor.

With regard to community's perception about why some people are rich and others are poor and what drives this disparity, most attribute the disparity to Allah/God. Most said that wealth of individuals is predetermined by Allah/God. FGD participants in Wolayita and South Omo clusters are, however, of different opinion. FGD participants in Wolayita cluster stated that wealth differentiation is driven land, fertility of the land, oxen, access to water/irrigation, skill and access to modern production system, individual's effort, improper income management, and habit/knowledge of saving. Another interesting area mentioned by FGD participants of South Omo cluster is wealth status of parents and inheritance rules. Head of the household/father inherits all its resources (land and all livestock) to the first born child. All the rest have to start from zero.

5.2.2. Trends and calendar of food availability

As discussed elsewhere in this paper, most of the clusters are affected by drought repeatedly and household entitlement over food has been eroded to a point where most households could not produce or access enough food for their family. The trend in food availability is declining and most people are supported by PSNP. Here we ask the community to establish food and drinking water availability across the 12 months at different degrees: highly available, medium availability or start to diminish, shortage/insufficient amount, and serious shortage/little available which means family can eat only once per day. The same is expected for food and drinking water availability for livestock. Table 5.13 presents this.

As can be seen from the table, in more than half of the year, pastoralists and agro-pastoralists have to suffer from shortages of food and water both for themselves and for their livestock. The maximum number of months in a year during which food is available is five months. For some clusters like Borena, food is available only for three months. Availability of

water has also followed the same pattern. This means people and livestock has to suffer from shortages of food and water for about six to nine months within one year.

Table 5.13. Calendar of food and water availability

Cluster	Needs for:	Item type	Months											
			Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Waghimra	Human	Food	H	H	H	H	H	M	M	M	M	S	S	S
		Water	M	M	M	M	M	S	S	S	S	H	H	H
	Livestock	Food	H	H	M	M	M	M	M	M	S	S	S	H
		Water	M	M	M	M	M	S	S	S	S	H	H	H
Afar	Human	Food	H	H	H	H	H	M	M	M	S	S	S	S
		Water	M	M	M	M	S	S	S	S	S	H	H	H
	Livestock	Food	H	H	M	M	M	M	S	S	S	H	H	H
		Water	M	M	M	M	S	S	S	S	S	H	H	H
Siti	Human	Food	H	H	H	M	M	S*	S*	S*	S*	S	S	S
		Water	M	S	S*	S*	S	S	S	M	M	S	S	M
	Livestock	Food	M	S	S*	S*	S	S	S	M	M	S	S	M
		Water	M	S	S*	S*	S	S	S	M	M	S	S	M
Liben	Human	Food	S	S	S	S*	S*	S*	S*	H	H	H	M	S
		Water	S	S	S	S*	S*	S*	S*	H	H	H	M	S
	Livestock	Food	S	S	S	S*	S*	S*	S*	H	H	H	M	S
		Water	S	S	S	S*	S*	S*	S*	H	H	H	M	S
Borena	Human	Food	S*	S	M	S*	S*	S*	S*	H	H	H	2	3
		Water	S*	S	M	S*	S*	S*	H	H	H	H	M	S
	Livestock	Food	S*	S	M	S*	S*	S*	S	H	H	H	M	S
		Water	S*	S	M	S*	S*	S*	H	H	H	H	M	S
Wolayita	Human	Food	H	H	H	M	M	M	S	S	S	S	H/M	H/M
		Water	M	S	S	S	S	S	S	M	M	H	H	H
	Livestock	Food	M	M	S	S	S	S	S	H	H	H	H	H
		Water	H	M	M	S	S	S	S	M	H	H	H	H
South Omo	Human	Food												
		Water	M/H	H	M	S*	S*	S*	M/H	H	H	H	S	S
	Livestock	Food	H	H	M	M	S*	S*	S*	H	H	H	M	M
		Water	S	H	H	S*	S*	S*	S*	H	H	H	M	M

Note: H, M, S and S* stand for high availability, medium availability, shortage, and serious shortage respectively.
Source: Own construction from field report.

5.2.3. Main reasons for shortage of food

Further exploration was carried out through FGDs with the community to identify the reasons for shortages for food and water. The production system is an age-old traditional system which is the central problem. This problem is not yet addressed in a meaningful way. The problem is worse in the pastoral areas. Livestock are exposed to several diseases and lack of pasture and water as a result of recurrent drought is much more critical. The size of land

holding is significantly deteriorated (0.33 ha in one of the cluster) and this has generated intensive cultivation and compromised traditional techniques of maintaining soil fertility (crop rotation and bare fallowing).

Absence of fallow land, which is used to provide pasture for livestock, combined with the deterioration of grazing land, is also significant, since use of crop residues as grazing had compromised the other traditional ways of regenerating soil fertility. The overall pattern seems that there is no improvement in the quality of land, which might compensate for the decline in size of holdings. The deterioration in size of farm holdings, fragmentation, and the resulting intensification of cultivation have, therefore, weakened the productive capacity of land and, hence, resulted in low and stagnating yields and sharply declining output per head. In the context of traditional peasant agriculture, therefore, it is very likely that there would be a positive relationship between the size of holdings and output; less size goes with less output.

Drought in the above context means disaster to pastoralists and agro-pastoralists. For people who cannot even produce enough in normal times, drought means a lot. Drought is affecting people whose entitlement is already weakened by several process. As discussed in the preceding section, most people are suffering from shortage of food for half of the year. What they produce be it crop or livestock production could not take them to the full year. Most are in fact beneficiaries of PSNP.

The underlying reason for the shortage of food are the structural problems mentioned in the beginning of this section. Drought is fuelling this, just like adding benzene to fire. Because of this the impact of drought is huge. Crop fails and this means no food at all until next harvest. Livestock are exposed to mass death, significant loss of weight with the consequence of very low price and low livestock products. This drought is the main vehicle that pushed pastoralists and agro-pastoralists to significant shortage of food. This is proved by the KIIs and FGDs we had in all clusters. For them drought is the main reason that exposed them to severe food shortage. The details are presented in Table 5.14,

In Dollo Ado woreda (Liben cluster) we asked both pastoralists and agro-pastoralists to rank their major problems that hinder from producing enough food for them and their family. Both communities unanimously agreed water is the most important reason. The second most important reason is animal feed; both are the product of drought. These are followed by flood, market and disease as third, fourth and fifth ranking reasons.

The problem of water means a lot. It has an adverse impact on crop production, pasture, livestock, livestock products, and household health. It also generates conflict with an adverse impact on human and livestock life. Drought is number one reason for shortage of crop and livestock production in all clusters. Crop disease/pests, animal disease, flood, shortage of animal fodder, livestock disease are among the major reasons that adversely affect crop and livestock production. The details are presented in Table 5.14 and 5.15.

Table 5.14. Major constraints for crop production

Cluster	Major constraints for crop production
Waghimra	- Drought that led to crop failure and livestock production failure - Crop disease: root rust, chicken spot, barley shoot fly - Crop pests: Kubkuba, Fentira, Locust, Rat, Dengeza, Atertil, Zinzina and armyworm
Afar	- Drought that led to crop failure and livestock production failure - Shortage of agricultural equipment such as hoe, shovel and water pump. - Inaccessible or lack of improved seed especially for vegetables - Inaccessible or shortage of crop extension worker - Inaccessible or lack of irrigation channel in irrigation area such as Meila river - Flooding (Awash river) - Undeveloped knowledge and skill of farmers in crop production. - Crop disease: cut worm and damping off, stem bore - Crop pests: kenchera, locusts and worms affected permanent trees (such as mango and papaya) are among the major constraints raised by experts.
Siti	- Drought that led to crop failure and livestock production failure - Crop diseases: stock borer, aphid, white fly, red sticks, trips and leaf eating insects.
Liben	- Drought that led to crop failure and livestock production failure - Unavailability of improved seed especially for vegetables - Undeveloped knowledge and skill of farmers in crop production
Bale	- Drought that led to crop failure and livestock production failure - Crop diseases and pests - Shortage of supply of appropriate seed (the seed provided by the zonal office is not compatible with the woreda's agro-ecology). - Shortage and untimely supply of fertilizer - No advice on the rate of fertilizer usage - Crop and livestock extension system is not in the context of pastoralist agro-ecology and production system. - Overwhelming majority of kebeles do not have crop extension worker
Borena	- Drought that led to crop failure and livestock production failure - Shortage and untimely supply of modern agricultural inputs - Flood - Degradation of land due to over grazing - Crop diseases like rust, leaf hopper, aphids

Source: Own construction from field reports

Table 5.14. Major constraints for crop production (*continued*)

Wolayita	- Drought that led to production failure (only in Diguna Fango and Kindo Koyesha) - Flood for the same two woredas - Crop disease and pests like midge, honeydew, maize streak, army worm, cassava mosaic and brown streak diseases, mildew - Lack of infrastructure like road for transporting agricultural inputs - Lack of road access to localities for development agents to outreach their missions - Lack of water pump generator even if there is water source for irrigation - Lack of labour during pick time as youngsters move to other areas for better livelihood - Small land holding (on average 0.33 ha) in Damot Pulassa woreda
South Omo	- Repeated drought that led to production failure (both woredas) - Crop pest and disease: army worm, locust, stock borer, crop rust - Late arrival of pesticide chemicals (arrive after the damage) - Flood - Lack of awareness by the farmers with regard to the benefits of using modern agricultural technology (only 20% of the farmers apply modern technology like use of improved seed, fertilizer or pesticide chemicals) - Lack of improved seed in the market; for instance, improved sorghum seed has not been available in the regional store for three consecutive years - Conflict: there was conflict among dwellers in 2005, 2006 and 2007 in some kebeles which resulted in migrating from their own farmland leading to damage of crops and livestock - Lack of water pump to use Omo river in Dasenech woreda - Inability to cope up with the overflowing of Omo river

Source: Own construction from field reports

Table 5.15. Major constraints for livestock production

Cluster	**Major constraints for livestock production**
Waghimra	- Shortage of water resource, - Shortage of animal fodder, - Livestock disease: anthrax, black leg, internal & external parasites & chocolate spot, - Inaccessible of improved livestock production, - Shortage of natural communal grass land or there is no access to use opening grass land
Afar	- Shortage of water, - Shortage of animal fodder, - Shortage of transport access in market place, - Lack of proper livestock marketing facilities in this area, - Livestock disease: External parasite, such as mange mite, and orf, liver and internal parasite such as lungworm, Peste des Petits Ruminants (PPR), Variola caprina (goat pox), anthrax, - Shortage of animal drug and medical equipment, - Inaccessible of local improved livestock production

Source: Own construction from field reports

Table 5.15. Major constraints for livestock production (*continued*)

Siti	- Shortage of water, - Shortage of animal feed, - Animal diseases specially in Erere woreda: Antrax, Black leg, PPR (Bovain and Ovian), Trypanosomes, Shoat pox, LST, Fashola, Ticks and Mange, - Scarcity of veterinary infrastructure facilities, manpower and shortage of drugs, - Traditional animal husbandry system, - Conflict. - Poor livestock market access
Liben	- Shortage of water, - Shortage of animal feed, - Livestock disease: Goat and sheep: *Dhiifdherr, Shoat pox, Pasteurollosis, Brucellosis and Hart water;* *C*attle: *Trypanosomiasis, botulism, pasteurolsis, brucellosis, mastitis, hart water, block leg* Camel: *Skin tumours, Brucellosis, Pasteurollesis, Tryponosomosis, camel pox* - The health facility is poorly staffed and have no even common medicine
Bale	- Shortage of water - Shortage of animal feed - Livestock disease - Shortage of drugs (it is only provided once a year by zonal office) - Lack of instrument like refrigerator for drug and vaccine storage - Lack of awareness and knowledge among the community to use drugs and vaccine (acceptance rate is very small). - Lack of transportation to reach kebeles for support - Traditional animal husbandry system (no supply of improved livestock varieties)
Borena	- Shortage of water - Shortage of animal feed - Conflict between different ethnic groups (Gari – Borena) due to grazing land and water. - Prevalence of livestock diseases, - Shortage of veterinary infrastructures (lack of standard animal clinic: no laboratories, refrigerators for preserving medicines, serious shortage of drugs) - Access to market (road problem) - Unabated decline in the price of livestock and rising price of grains.
Wolayita	- Shortage of water - Shortage of animal feed - Resistance by the society to accept modern livestock production - Livestock disease - Lack of animal health experts
South Omo	- Shortage of water - Shortage of animal feed - Livestock disease - Lack of awareness in scientific livestock production - Lack of improved animal varieties - Lack of veterinary experts and medicines

Source: Own construction from field reports

5.3. Gender Dimensions of Rural Livelihoods Analysis

It is well known that women play a highly subordinated role in Ethiopian rural society and rigid divisions of tasks between men and women tend to be observed. We tried to collect qualitative information that will enable us to explore division of tasks between women and men; resource acquisition and decision by gender; household chores, domestic violence, participation of women in community matters, and perception of local community on girls' education. We generated this information using FGDs with women.

On division of labour: In a pure pastoralist community both men and women participate in livestock raising. For example, keeping livestock such as goats, sheep and to some extent cattle; milking and selling milk; buying daily consumption goods and services from the market; fetching water, collecting firewood, cooking; washing cloth, caring children, elders and sick individual; cleaning the house; keeping house and managing home activities are mostly reserved for female. Women are also actively involved in weeding, sowing and harvesting. Men on the other hand engaged in farming, sowing, excavation, harvesting, fencing house; selling livestock; trading livestock; searching food and water for livestock, fetching water using donkey for their consumption if it is far from their home; and any other things outside the residence area. Unlike that of goat and sheep, keeping camel and cattle is given to men because camel and cattle are hard to manage for women.

During drought time where there is no food and water for the livestock it is men that are responsible to search for food and water for the livestock. Females and children with some cows that provide milk are staying at home. This implies that when the worst effects of drought hit the area, women and children suffer much more due to scarcity of food, water, medicine etc.

On access and decision making of households' resources: Opinion from KIIs and women FGD participants is that '*Someone has to own and decide'.* The head of the household has to guide decisions on what to do with the resources the household has. It is stated that 'women is also culturally obliged to obey his position/idea'.

Women have no right on the household's resources like land, livestock, and other assets. Dollo Ado woreda (Liben cluster) gender officer stated that when they get divorce, women will share nothing from the household's resource rather she only takes her own belongings and those given from her husband during the wedding. Women do not have equal right on resources. Decision on household resources and purchases are nearly the same across

all clusters. Men decide on money, businesses, materials, belongings, etc. Men are the ones who decide to sell livestock, cattle and camels without consulting the women. The women only have the right to sell goats, chickens, milks, milk products, fruits, etc. With regard to decision about household purchases, the men took the upper hand. Small purchases can be managed by women but purchases that involve significant amount of money are to be made by men. This includes even income generated by women. If the income is significant, women have no power on how to spend that money. The only exception is in Meisso woreda (Siti cluster). Regarding decision making, women participate in the decision making of the usage of their own income. Women propose large purchases and they decide jointly most of the time and men decide by themselves less often.

In Borena cluster, there is an interesting story. If women raise some concern about land, they will be beaten. The community and religious leaders are also not willing to hear any complain by women. Women FGD participants noted that this is one of the negative influence that culture and religion brought to them and very hard to challenge.

It is evident that the traditional type of absolute power of the husband throughout the communities is on the decline. There are families who discuss on purchase, on selling and on other household issues. But the respondents indicated, even if the two discuss, the final authority lies with the husband and the tradition never allows her to reject the decision of her husband.

Women FGD participants and woreda officials noted that the role of women in the household livelihood activities is essential. Recognizing that role and empowering women is beneficial for the household. Recent theoretical perspectives on food security issues have highlighted the centrality of women's role in efficiently and effectively controlling and managing resources within the household, and its important implications for ensuring the participation of female stakeholders in household food security planning. Different studies found that there is an evident and direct link between resources controlled by the mother and the well-being of household members. Thus, accrediting women with access to and control over resources in such a production system means restoring the relationship production → distribution → consumption in its most equitable form, where those directly contributing to production and income generation are allowed to decide on their main use within the household (Masefield 1998).

On household chores: KIIs and FGDs in all clusters reported that given the cultural context, no one expects men to do what is traditionally expected to be done by women. This has been the case even in urban areas. This is not even accepted by the wives. If there is someone who does this, he will be considered as having some shortage of a male character and thus inferior to other males in the community. Wives do not want to be part of this. Husbands do help with household chores (if they wish so) in two situations: when the wife is absolutely unable to work and when there is no matured woman in the household by the time. Apart from this almost all respondents indicated that it is not customary for husbands to help their wives with household chores. In other words, the household chores are considered the duty of the wife while the husband feels responsible for the outdoor activities. Instead, the wife is, in many cases, expected to help the husband on some outdoor duties such as farming, weeding, harvesting, attending cattle, etc.

On domestic violence: Domestic violence in the form of husband beating his wife has been reported to be a common phenomenon in almost all clusters. Husbands used to beat for every sort of mistakes including being late for work, jealousy, violation of any of the rules he set for her and her children, etc.. Many of the respondents indicated that the prevalence of this situation is presently declining. Yet, most husbands still beat their wives when they think that the women violated the norm (disrespect, weakness on her business, etc. can all lead to beating). Beating can happen even for very minor things – e.g. if he thinks that she took more time when going for firewood collection, fetching water, etc. No one cares much locally if a husband beats his wife. It is normal.

The role of the community and religious leaders in this regard is very limited as they themselves somehow practice it in their own house. Though not strong and frequent, some community members intervene whenever there is a quarrel between partners. Neighbours could take the woman to temporarily stay in their houses. Elders try to reconcile between the two parties and amicably solve the problem although in many cases the right of women is compromised. If there is physical injury, that needs treatment, neighbours may accompany her to the nearby health facility. The role of the community to help bring the perpetrators to justice is extremely limited.

There are some exceptions: in Waghimra cluster, unlike other clusters, beating wives is not a serious problem. According to FGD participants, if a husband beat his wife, community members and neighbours stand on the wife's side in supporting her and try to bring peace without compromising the wife's rights. They even take the case to court. This might be due to

the experience of the community during the civil war as they were hosting and cooperating with the socialist rebels during the fight against the military regime.

Another interesting story is in Moyale woreda (Liben cluster). A KIIs with gender office in Moyale woreda stated that if a husband beat his wife to death, the husband will compensate 50 camels. This is something that discourages men from involving in domestic violence. It is worth mentioning that if women by some chance beat her husband to death, she has to compensate with 100 camels. If this is something that is really to be enforced, this is beyond the capacity of most pastoralists. It will serve, however, to curb domestic violence. The other important point is the difference in the amount of penalty. This difference indicates how the community sees male and female.

However, these attitudes and practices of the communities in all clusters have been somehow changing, as many FGD participants indicated. This change is attributed to efforts by stakeholders such as community policing, kebele administration, health extension workers, development agents, school teachers and women and youth associations to raise the awareness of communities. Nowadays, it is reported that most community members know that beating, raping, insulting are illegal activities that are punishable by law. However, a lot has to be done to make communities understand and internalize that not only is domestic violence illegal, but also because of the multidimensional harmful effects it brings on victims, dependents, and the community at large including perpetrators themselves.

On participation of women in community matters: As discussed in the beginning of this sub section, women are busy with the household chores and assist their husbands on some outdoor activities. Because of this, it is not customary in the society for women to participate in community matters. If women attend any meeting, they usually do not speak or give comment if men are also attending the meeting. There are, however, some exceptions. In some clusters like Meisso woreda (Siti cluster) women have strong participation in *iddir* which is the most trusted community based organization. Women FGD participants in Bale cluster indicated that women participate in meetings. However, they just don't give any suggestions during the meeting and they just listen and go home even though the issue of the meeting is on women's problem.

We found an interesting story in Borena cluster. Some years before, women were not allowed to attend any meetings including *iddir*, religious association and others. Recently, things are changing and women are encouraged to attend meetings including kebele meetings.

When we probe why this is the case, we came to know that men do not like to attend kebele meetings. They in fact force women to attend the meeting.

On girls' education: During the KIIs and FGDs it is observed that community in the pastoral areas are not much aware of the benefit of girls' education. Until recently the facilities were not even available. There are changes though slowly. Most girls are allowed to attend at least elementary school but not encouraged to continue as this is the time for girls to become adolescent and have to get married. What is observed in South Omo cluster is even worse. A girl's education is not supported by the majority of the community due to the significant amount of income parents can make during marriage (dowry). The only exception observed is in Siti cluster particularly Meisso woreda. There is an increasing trend in considering girls' education as worth investing on. Since 2009/10 significant changes are observed. Every household is sending two to three girls to school which was not a practice of the community before. Parents and community found out that girls' education is helpful. It is difficult to attribute this only to parent/community awareness. We also believe that the school girl's incentives and school grants which are in place with the help of Save the Children UK and regional school grants program has some role to encourage girls' education. This program provides female students exercise books, pens and oil.

5.4. Major Drivers of Livelihood

In section 5.2.2 we have discussed trends of food security and the availability of food over a year. We have found that most clusters do not produce enough and the maximum availability of food is not for more than 6 months. In section 5.2.3, we have discussed the main reasons why people in this cluster could not produce enough by asking the community and relevant woreda officials. The driving factors may vary depending on the community's livelihood system.

For those who are practicing crop production, production depends on climate, availability of land, labour, livestock, agricultural inputs (improved seeds, fertilizer, plant and animal health), and equipment. As discussed in Section 5.2.3, the main driving force behind food shortage in all clusters is drought. Drought has serious impact on crop production. Furthermore, crop disease and pests are prevalent in all clusters except Liben cluster. Agricultural inputs are also another problem that most clusters are facing. Lack of improved seeds, and lack and untimely distribution of fertilizer and pesticides are the major drivers for shortage of crop production in the cluster areas (see Table 5.16).

Table 5.16. Major drivers for crop production shortage

Major drivers	Affected clusters
Drought	All clusters
Crop disease and pests	All clusters except Liben
Lack of improved seed	Afar, Liben, Bale, Borena, and South Omo
Flood	Afar, Liben, Borena, Wolayita and South Omo
Untimely distribution of agricultural inputs	Bale, Borena and South Omo

Source: Own construction from Tables 5.11 and 5.14.

For those who are pure pastoralists, the driving factors are the less income they generate from their livestock and the less livestock products they make due to several factors. All clusters are affected by drought and this has adverse effects on weight and health of livestock, and on livestock products. This means the price of livestock will drastically fall and pastoralists could not generate enough income to by food. This is compounded by several drivers such as livestock disease (prevalent in all clusters); lack of adequate health facility for livestock health and when there is the facility it lacks either the essential drugs or the proper health professional (this is the case in all clusters), lack of well integrated market system and very poor transport facility (Afar, Siti, Bale and Borena); and lack of improved livestock production/varieties (Waghimra, Afar, Siti, Bale and South Omo). For details see Table 5.17.

Table 5.17. Major drivers for poor livestock production

Major drivers	Affected clusters
Shortage of water	All clusters
Shortage of animal fodder	All clusters
Livestock disease	All clusters
Lack of veterinary facility, drugs and equipment	All clusters except Waghimra
Lack of improved livestock production/varieties	Waghimra, Afar, Siti, Bale, and South Omo
Lack of marketing linkage and transport	Afar, Siti, Bale and Borena

Source: Own construction from Tables 5.11 and 5.15.

The drivers for both livelihood systems combined generate and perpetuate poverty and one can say that in a generic form poverty is the main drivers of food shortage. Due to this, the poor cannot generate enough income to deal with food shortage.

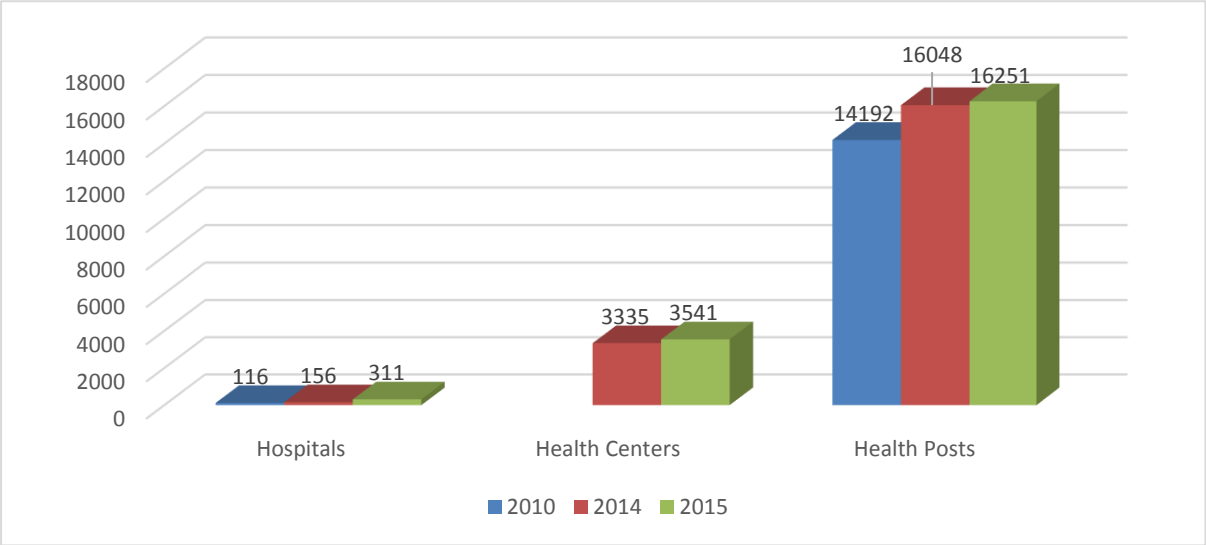
6. Health and Nutrition Analysis

6.1. Health and Nutrition Service Delivery

6.1.1. Access to primary level healthcare facilities

The health and nutrition of members of household or community crucially determines the capability to lead a decent life as it affects productivity and creativity to utilize their environment to meet their livelihood objectives. Ethiopia implemented the Health Sector Development Program (HSDP I-IV) for twenty years (1997-2015). The HSDP IV was part of the Growth and Transformation Plan which ended in July 2015. Under successive HSDPs, Ethiopia invested on huge health service infrastructure expansion with the objective of improving access to basic health services. The ministry of health report shows that there are 311 hospitals, 3541 health centres and 16, 251 health posts at the end of July 2015 in Ethiopia (Source: Health Sector Transformation Plan 2016-2020).

Figure 6.1. Trend on health service expansion in Ethiopia



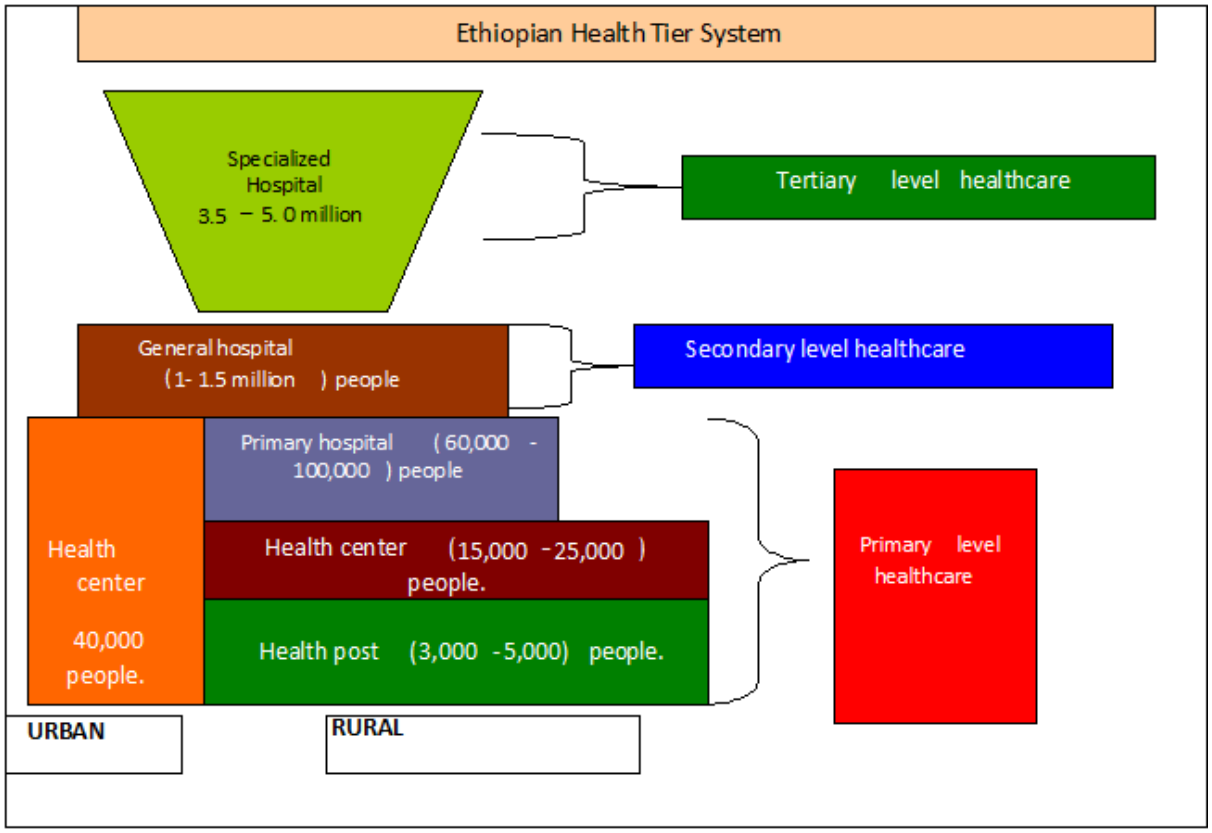
Source: Health Sector Transformation Plan 2016-2020, Federal Ministry of Health.

The health service in Ethiopia is re-structured under Ethiopian Health Sector Transformation Plan (HSTP) into three tier system that provide different levels of care to patients and the population.

- **Primary level healthcare** : the primary level healthcare is composed of primary hospital that provides service to 60,000-100,000 population; rural health centre that provide service to 15000-25000 people; and five satellite health posts that provides service to 3000-5000 people.

- **Secondary level healthcare:** the secondary level healthcare is provided by a general hospital that serve a population of 1-1.5 million. It serve as a referral centre for primary hospital and provides inpatient and ambulatory services with specialist care to major illnesses.
- **Tertiary level healthcare**: the tertiary level healthcare is provided by specialized hospitals that serve a population of 3.5-5 million and serve as a referral centres for general hospitals. The specialized hospitals provide sub-specialty care to patients in addition to specialist care to major illnesses.

Figure 6.2. Ethiopian healthcare tier system



Source: Health Sector Transformation Plan 2016-2020, Federal Ministry of Health

Improving the provision of basic social services, mainly health, nutrition and WASH is one of the four cornerstones for building resilience in recurrent drought and food insecure woredas, the so called the "eight geographical clusters" enrolled in EU resilience building program in Ethiopia. Improving access to basic health services in the geographic clusters enables the population to lead healthy life that would improve productivity and livelihood activities to build the resilience in light to recurrent drought cycles. The expansion of health service infrastructure particularly health centres and health posts in Ethiopia during Health

Sector Development Plan (HSDP) I-IV has benefited the most vulnerable rural population of the country through improving access to primary healthcare.

Table 6.1. Functional health facilities in the geographical clusters in 2016

Cluster	Population	Primary Hospital		Health Centre		Health Post	
		Number	Ratio	Number	Ratio	Number	Ratio
Waghimra	469,356	3	1:156,465	31	1:15140	125	1:3754*
Afar	462,918	1	1:462,918	22	1:21041	75	1:6172
Siti	468,392			11	1:42581*	51	1:9184*
Liben	640,940	1	1:640,940	19	1:33733*	124	1:5168*
Bale	353,994				1:18631	90	1:3933
Borena	318,365	1	1:318,365	27	1:11791	89	1:3577
Wolayita	638,400	1	1:638,400	22	1:29018*	128	1:4987
South Omo	159,481			6	1:26580*	42	1:3797
Total	3,511,855	7		179		724	

* This mark indicates that the Ethiopian healthcare tier system standard is not met.
Source: Woreda and zone health offices.

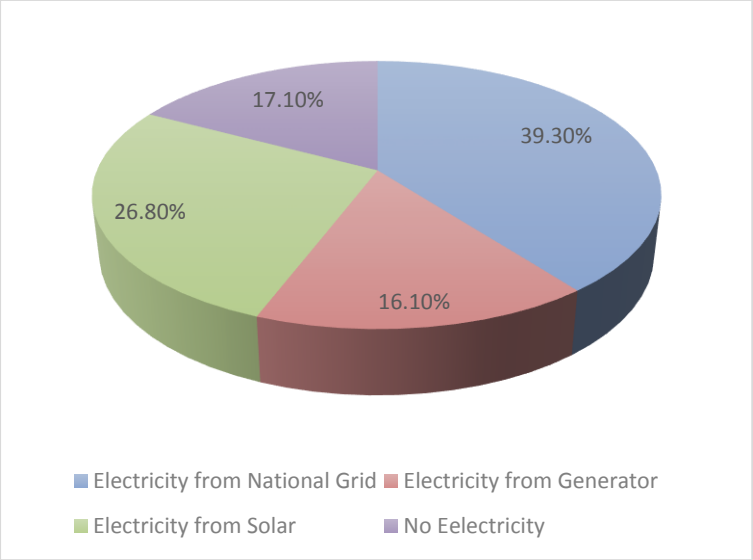
The population of the geographic clusters generally have low access to primary hospitals that are components of primary level healthcare. There are only seven primary hospitals in the clusters to a population of over 3.5 million, whereas the standard of Ethiopian healthcare tier system defines a primary hospital to serve a population of 60,000-100,000 (Source: Ethiopian Health Sector Transformation Plan (HSTP), 2016-2020, Federal Ministry of Health). As stated in the previous section, based on the Ethiopian healthcare tier system definition the population access to health centres is not met in Siti, Liben, Wolayita and South Omo and the population access to health post is not met in Afar, Sit and Liben clusters. These implies the population access to both health centres and health posts is not met in Siti and Liben clusters. The access to primary healthcare facilities is extremely low in Siti cluster which a health centre on average serves a population of 42,581 and a health post serves a population of 9,184 that reflects the Ethiopian healthcare tier system standards for both health centre and health post are far from being met. The issue of access to primary healthcare facilities in Siti cluster is more prominent in Afdem woreda where a health centre serves a population of 81,682 scattered over a wide geographical area.

6.1.2. Infrastructure in healthcare facilities

Access of health facilities to basic infrastructure is important to the provision of quality healthcare. Among basic infrastructure, potable water supply and uninterrupted electricity supply are key factors for providing quality curative and preventive health services. Infection

prevention activities are generally linked to access to continuous water supply. The electricity supply also plays important role in maintaining the quality of disease prevention, diagnostic and curative services including maintaining cold chains of vaccines and medicines, performing laboratory tests and providing services at night including attending deliveries and emergency healthcare services.

Figure 6.3. Water and power supply in health centers



Source: Woreda health offices.

The figures from the clusters show only 35.7% of health centres have access to potable water supply. The majority (64.3%) have no access to potable water supply and get access to water from various sources including roof harvesting, ponds, river, public tap, protected dug well, etc. The findings reflect health facility access to potable water supply is a serious challenge at all clusters. Key informants in most clusters revealed that health facilities that lack potable water supply face severe shortage particularly during the dry season as yields of nearby water sources diminish.

Among the health centres in the clusters, 39.3% have access to electricity connected to the national grid and 16.1% have no access to power source at all. The remaining 17.1% and 26.8% get power from solar sources and generators, respectively, which usually are not adequate to provide the level of power needed. Access to power supply is particularly a challenge in Afar, Siti, Liben, Bale, Borena and South Omo clusters. Electric power supply is an important infrastructure challenge in providing healthcare services in the clusters.

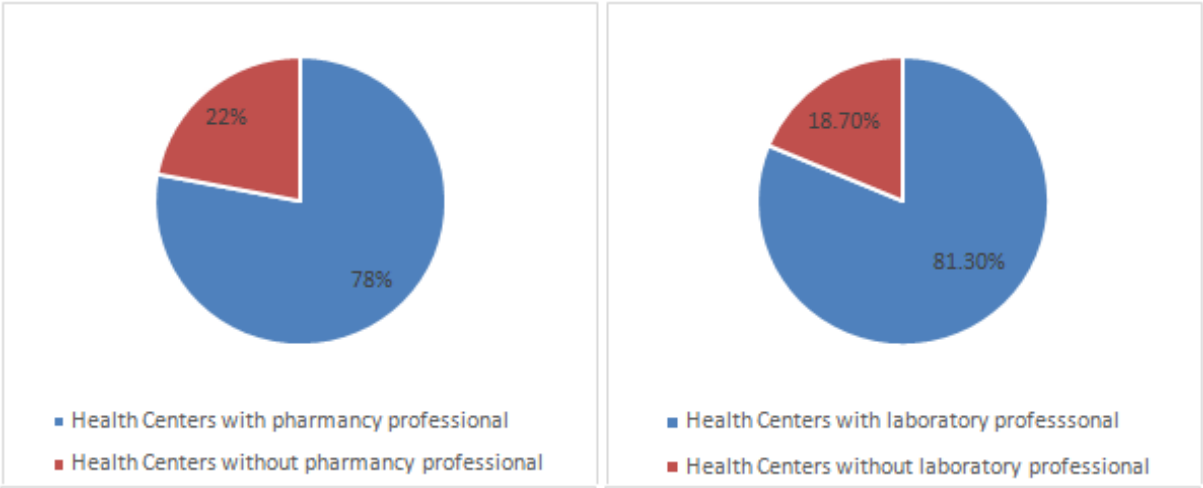
All seven hospitals in the geographical clusters have access to potable water supply and power source either from a national electricity grid or a high capacity generator. Although there

is no complete information, key informants and focus group discussion participants suggested most health posts lack access to either potable water supply or electricity. The lack of access to potable water supply and electricity adversely affects the functionality of the health facilities by limiting the quality of primary healthcare services.

6.1.3. Human resource for health availability

Human resource for health is one of the six building blocks of World Health Organization's (WHO's) framework for health systems strengthening to improve access and quality of healthcare. The minimum threshold established by World Health Organization to deliver essential maternal and child health services in sub-Saharan African countries is 2.3 health workers (doctors, nurses, midwives) per 1000 population (Global Health Workforce Alliance, World Health Organization, 2014). Although there is tremendous expansion of pre-service education institutions training health workers, Ethiopia is still behind in meeting the threshold. In 2012 the health workforce density (doctors, nurses, midwives and health extension workers) in Ethiopia was 0.84/1000 population (The Health Workforce in Ethiopia, Addressing the remaining challenges, Washington DC, World Bank, 2012).

Figure 6.4. Availability of pharmacy and laboratory professionals at the geographic clusters



Source: Woreda health offices.

In the geographic clusters, the skill mix of the majority of human resource at primary healthcare units include public health officers, nurses, midwives, laboratory professionals, pharmacy professionals, environmental health and health extension workers. In Waghimra, Afar, Liben, Borena and Wolayita clusters, where there are primary hospitals, medical doctors, emergency surgeons and anaesthetists are available in addition to midwives, nurses, laboratory technologists, pharmacists and environmental health professionals. Key informants at the

woredas of all clusters mentioned general shortage of human resources for health. However, our analysis shows that the most critical shortage is of laboratory and pharmacy professionals in particular. The findings revealed that 22% of health centres have no pharmacy professional and 18.7% of health centres have no laboratory professional (Figure 6.4). The shortage of pharmacy professionals is in Waghimra, Afar, Siti, Liben, Bale and Borena; and that of laboratory professionals in Waghimra, Afar, Siti, Liben and Bale.

Health centres without laboratory professionals do not provide basic laboratory services which affect access to basic laboratory investigations essential to deliver quality primary healthcare services. Health centres without pharmacy professional provide pharmacy services by assigning clinical nurses to work at drug stores and dispensaries. The clinical nurses may not meet the required knowledge and skills to carry out the duties of pharmacy professionals that may affect the quality of primary healthcare services provided at the health centres.

Key informants in all geographic clusters revealed shortage and high attrition of all types of health professionals, particularly midwives and environmental health professionals. The major reasons stated for high attrition include the remoteness of the clusters and dissatisfaction with the benefit package. According to the key informants, the health authorities at the geographic clusters recognize the need for motivation and retention of health workers. Although the mechanisms varies at each cluster, various retention mechanisms including hardship allowance, sponsoring continuous professional development through summer courses and provision of housing are being implemented.

6.1.4. Availability of essential drugs and supplies

Availability of essential drugs and supplies is central to the provision of quality primary healthcare services. Key informants in the geographical clusters revealed frequent stockouts of essential drugs, laboratory supplies and long-acting family planning commodities. The major reason stated by key informants as a cause is delayed deliveries by the pharmaceutical supply agency. Observations made by the field team confirmed stockout of essential drugs at Waghimra, Afar, Liben, Wolayita and South Omo clusters; laboratory supplies shortage to perform haemoglobin, VDRL, blood film, HIV and AFB microscopy tests at all clusters except Bale and Borena clusters; stockout of vaccines in Afar and Liben clusters; and shortage of long-acting family planning commodities in Waghimra, Afar, Siti and Liben clusters (Table 6.2). Similarly community members at the focus group discussions confirmed situations of drug unavailability at the primary healthcare facilities and collect prescription orders to procure

drugs from drug vendors that incurs extra cost and time for travelling to find drug shops in urban areas. The key informants in most geographical clusters also revealed that inadequate implementation of integrated pharmaceutical logistic system (IPLS) is a factor behind the stockouts. At health centres with no pharmacy professionals, clinical nurses that have no formal training on integrated pharmaceutical supply system (IPLS) are responsible for managing the supply chain.

Table 6.2. Availability of essential drugs and supplies at the geographical clusters in 2016

Cluster	Essential Drugs	Laboratory Supplies	Vaccines	Family Planning
Waghimra	Stockout	Stockout	No stockout	Stockout
Afar	Stockout	Stockout	Stockout	Stockout
Siti	No stockout	Stockout	No stockout	Stockout
Liben	Stockout	Stockout	Stockout	Stockout
Bale	No stockout	No stockout	No stockout	No stockout
Borena	No stockout	No stockout	No stockout	No stockout
Wolaita	Stockout	Stockout	No stockout	No stockout
South Omo	Stockout	Stockout	No stockout	No stockout

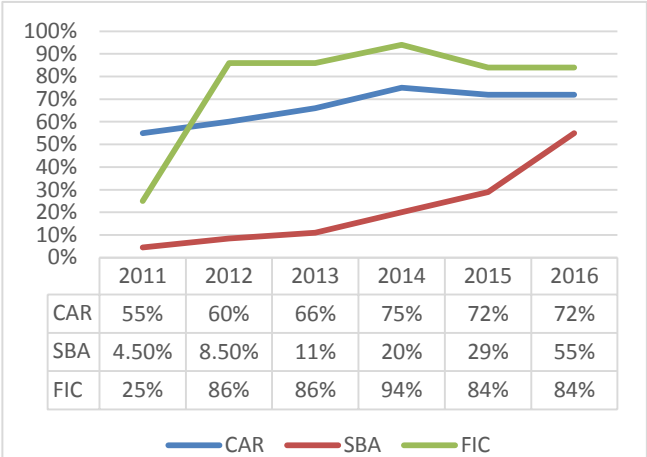
Note: Items marked "stockout" indicate shortage of one or more supplies in the category.
Source: woreda health offices and health facilities; observation by field team

6.2. Health and Nutrition Service Utilization

6.2.1. Maternal and child health

Maternal and child health service utilization is a key indicator that shows the health of women and children in the society. In this report the maternal health service utilization in the geographic clusters is analysed using family planning and skilled delivery services while the child health situation is analysed using immunization coverage and infant and young child feeding.

Figure 6.5. Trends in maternal and child health, Waghimra



	2011	2012	2013	2014	2015	2016
CAR	55%	60%	66%	75%	72%	72%
SBA	4.50%	8.50%	11%	20%	29%	55%
FIC	25%	86%	86%	94%	84%	84%

Waghimra Cluster Summary

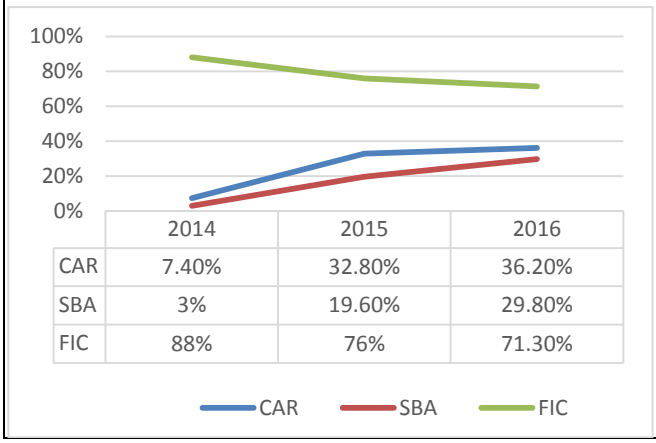
CAR*: shows increasing trend; in 2014 higher than Mini-DHS 2014 average for Amhara region (48.0%).*

SBA*: show increasing trend; in 2014 higher than Mini-DHS 2014 average for Amhara region (11.7%).*

FIC (FIC): *shows decreasing trend from 2014; in 2014 higher than MoH report for Amhara region (75.9%).*

Generally there is better utilization of family planning, skilled delivery and immunization services.

Figure 6.6. Trends in maternal and child health, Afar



	2014	2015	2016
CAR	7.40%	32.80%	36.20%
SBA	3%	19.60%	29.80%
FIC	88%	76%	71.30%

Afar Cluster Summary

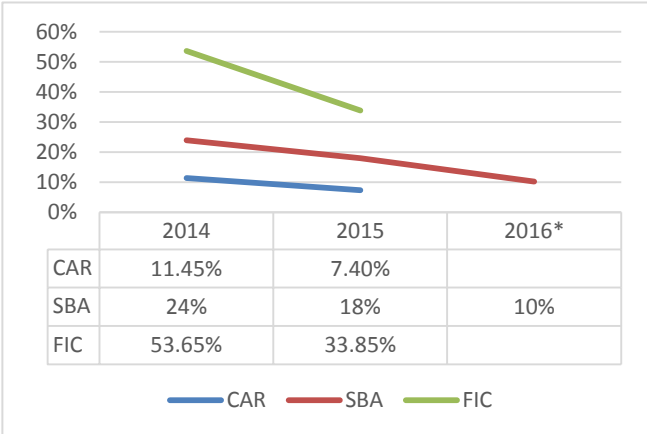
CAR*: shows increasing trend: in 2014 lower than mini-DHS 2014 average for Afar region (13.7%).*

SBA*: shows increasing trend: in 2014 lower than mini-DHS 2014 average for Afar region (10%).*

FIC: *shows decreasing trend; in 2014 higher than MoH report for Afar region (77.9%).*

Generally there is low utilization of family planning and skilled delivery; better utilization immunization services.

Figure 6.7. Trends in maternal and child health, Siti



	2014	2015	2016*
CAR	11.45%	7.40%	
SBA	24%	18%	10%
FIC	53.65%	33.85%	

Siti Cluster Summary

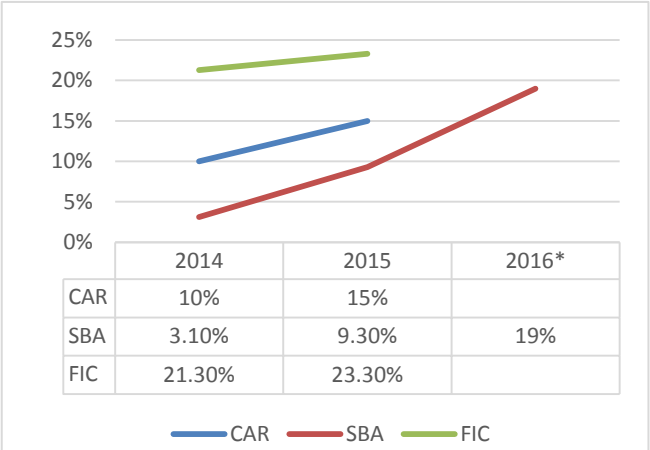
CAR*: shows decreasing trend; in 2014 higher than Mini DHS 2014 average for Somali region (1.6%).*

SBA*: shows decreasing trend; in 2014 higher than mini-DHS 2014 average for Somali region (15.3%).*

FIC*: shows decreasing trend; in 2014 the same level with MoH report for Somali region (53.6%).*

Generally there is low utilization of family planning, skilled delivery and immunization services.

Figure 6.8. Trends in maternal and child health, Liben



	2014	2015	2016*
CAR	10%	15%	
SBA	3.10%	9.30%	19%
FIC	21.30%	23.30%	

Liben Cluster Summary

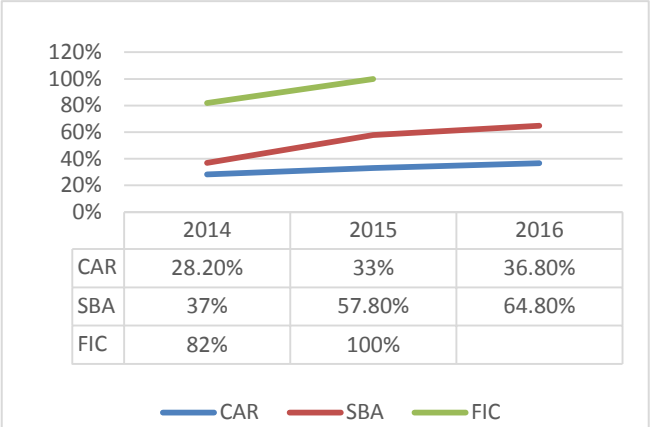
CAR: *shows increasing trend; in 2014 higher than Mini DHS 2014 average for Somali (1.6%).*

SBA: *shows increasing trend; in 2014 lower than mini-DHS 2014 average for Somali region (15.3%).*

FIC: *shows increasing trend; in 2014 lower than MoH report for Somali region 2014 (53.6%).*

Generally there is low utilization of family planning, skilled delivery and immunization services.

Figure 6.9. Trends in maternal and child health, Bale



	2014	2015	2016
CAR	28.20%	33%	36.80%
SBA	37%	57.80%	64.80%
FIC	82%	100%	

Bale Cluster Summary

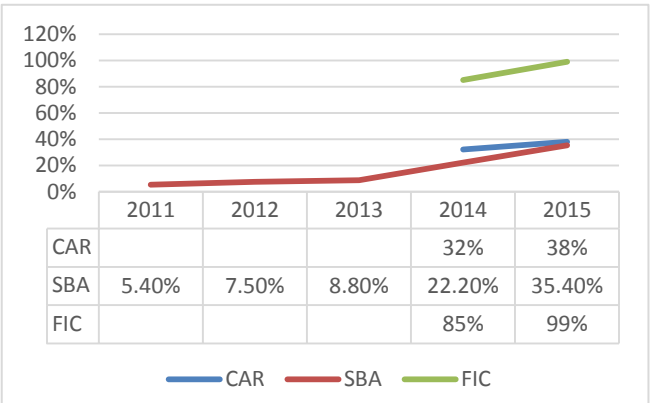
CAR*: shows increasing trend; in 2014 lower than Mini DHS 2014 average for Oromia region (39.1%).*

SBA*: shows increasing trend; in 2014 higher than mini-DHS 2014 average for Oromia (13.1%).*

FIC*: shows increasing trend; in 2014 same as MoH report for Oromia (82.4%).*

Generally there is low utilization of family planning; and better utilization of skilled delivery and immunization services.

Figure 6.10. Trends in maternal and child health, Borena



	2011	2012	2013	2014	2015
CAR				32%	38%
SBA	5.40%	7.50%	8.80%	22.20%	35.40%
FIC				85%	99%

Borena Cluster Summary

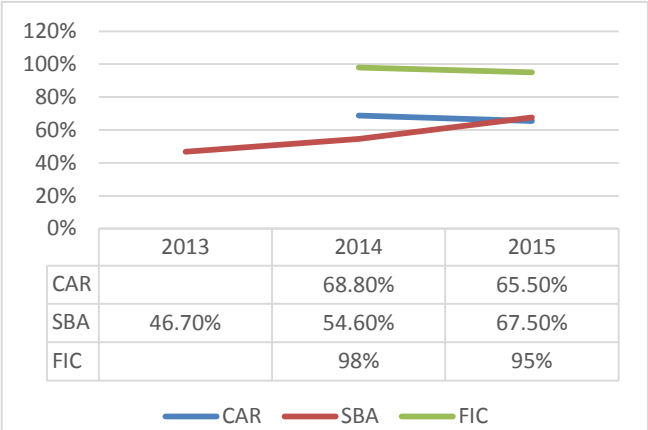
CAR*: shows increasing trend; in 2014 lower than Mini DHS 2014 average for Oromia region (39.1%).*

SBA*: shows increasing trend; in 2014 higher than mini-DHS 2014 average for Oromia (13.1%).*

FIC*: shows increasing trend;In 2014 higher than MoH report for Oromia (82.4%).*

Generally utilization of family planning is close to the regional average; low skilled delivery utilization; better immunization service utilization.

Figure 6.11. Trends in maternal and child health, Wolayita



Wolayita Cluster Summary

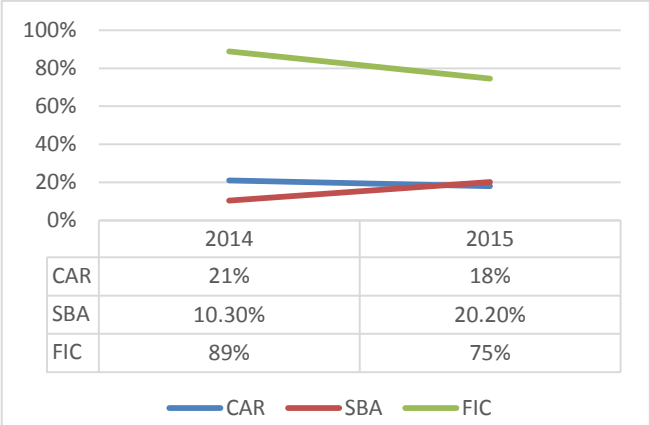
CAR*: shows decreasing trend; in 2014 higher than Mini DHS 2014 average for SNNP (39.2%).*

SBA*: shows increasing trend; in 2014 higher than mini-DHS 2014 average for SNNP (11.7%).*

FIC*: shows decreasing trend; in 2014 higher than MoH report for SNNP (96.2%).*

Generally there are good family planning, skilled delivery and immunization services utilization.

Figure 6.12. Trends in maternal and child health, South Omo



South Omo Cluster Summary

CAR*: shows decreasing trend; in 2014 lower than Mini DHS 2014 average for SNNP (39.2%).*

SBA*: shows increasing trend; in 2014 lower than mini-DHS 2014 average for SNNP (11.7%).*

FIC*: shows decreasing trend; in 2014 lower than MoH report for SNNP (96.2%).*

Generally there is low family planning & skilled delivery utilization; better immunization service utilization.

Family planning

Studies indicates that family planning and child spacing are key determinants for the well-being of the mother and the child. Current use of contraceptives among women of reproductive age (15-49) is one of the major indicators that measure the success of family planning programs. The contraceptive acceptance rate in Ethiopia among married women aged 15-49 in 2014 was 42% (Mini EDHS 2014). There was 13% increase in the use of contraceptive nationally among married women in 2014 form 2011 (Mini-EDHS 2014). This increase is partially attributed to the ministry of health effort to expand contraceptive method mix through training of health extension workers to provide insertion of implants in addition to oral contraceptive pills and injectable methods available at the health post level that improved access to method of choice at the community level.

The contraceptive acceptance rate in the geographical clusters improved between 2014 and 2015 except in Siti, Wolayita and South Omo clusters which indicated a decline. The highest contraceptive acceptance rate in 2015 was in Waghimra cluster (72%) while the lowest was in Siti cluster (7.4%) (Figure 6.5, 6.7)). The findings showed the contraceptive acceptance rate in 2014 was higher than their respective regional averages in Waghimra, Siti, Liben and Wolayita clusters. On the other hand, the contraceptive acceptance rate in 2014 in Afar, Bale, Borena and South Omo clusters was lower than their respective regional averages. The contraceptive acceptance rate in 2014 was lowest in Siti cluster (11.45%) and Liben cluster (10%), however the regional average for Somali region where they are located was extremely low (1.6%). Generally there is low utilization of family planning services in Afar, Siti, Liben Bale and South Omo clusters; moderate family planning service utilization in Borena cluster; and high family planning service utilization in Waghimra and Wolayita clusters.

Key informants at the woreda health offices and health facilities confirmed access of women to modern types of short-acting and long-acting contraceptives including pills, injectable, implants, IUCD's and condoms. The key informants emphasized health education on family planning choice at the community and counselling at health facilities are parts of routine family planning services. However, religious and cultural factors play a role in most of the geographic clusters in using family planning services. The focus group discussion participants revealed religious factors in Afar, Siti, Liben and Bale clusters affect use of contraception while male dominance in making decision on contraceptive use affect women in all geographic clusters even if the women have desire to limit the number of children.

Skilled birth attendant

Maternal health outcomes depend on access to skilled healthcare during pregnancy, delivery and postnatal period. Birth attendance by skilled health worker is the most important intervention to reduce maternal and neonatal mortality. According to Mini-EHDS 2014, nationally 41% of pregnant women received antenatal care from a skilled provider, that is, a nurse, midwife or doctor as compared to the 34% in 2011. Improved ANC coverage by skilled providers contributed to a modest increase in deliveries attended by skilled providers. According to Mini-EDHS 2014, deliveries attended by skilled healthcare providers has increased from 10% in 2011 to 16% in 2014 nationally.

The skilled birth attendant showed improvement in all geographical clusters in 2015 as compared to 2014 except in Siti cluster which showed a decline. However, there is a wide

variation on the performance of skilled birth attendant in the geographical clusters in 2015 ranging from 9.3% in Liben cluster to 67.5% in Wolayita cluster. In 2014 Waghimra, Siti, Bale, Borena, Wolayita and South Omo clusters achieved better performance on skilled delivery compared to their respective regional average, while the Afar and Liben clusters achieved lower performance compared to their respective regional average. Generally, there is low utilization of skilled delivery services in Afar, Siti, Liben, Borena and South Omo clusters; and better utilization of skilled delivery services in Waghimra, Bale and Wolayita clusters.

Most key informants revealed training of midwives on Basic Emergency Obstetric and Newborn Care (BEmONC) which resulted improvement on the knowledge and skills of the midwives in handling major obstetric complications was one of the major factors contributed to improved quality of services that attracted women to deliver in the health centres. The informants explained before BEmONC training most midwives refer women with any obstetric complication to hospitals, currently this is changed and BEmONC trained midwives are handling most obstetric complications in the health centres. However, most key informants have mentioned that BEmONC training has not covered all midwives and there is a challenge of retaining BEmONC trained and experienced midwives. Focused antenatal care provided by midwives and health extension workers was another factor mentioned by the key informants that contributed to improved skilled birth attendant as pregnant women are counselled on birth preparedness and complication readiness that would help them to decide to seek skilled care during child birth.

The focus group discussion participants identified ambulance service readily available in most of the geographical clusters to transport labouring woman to the nearby health centres as one of the factors for improvement in skilled birth attendant. The key informants in Dawe Kachen woreda of Bale cluster revealed the woreda population contributed 1,132,000 birr to procure additional ambulance to improve transportation access for labouring women to reach health facilities for skilled care. The focus group discussion participant's in all geographical clusters except Afar and Liben clusters, revealed maternity waiting rooms constructed in health centres with the participation of the community created an enabling environment for pregnant women to get access to skilled delivery. According to focus group discussion participants most home deliveries are attended by traditional birth attendants, and the participants in Afar, Siti and Liben clusters emphasized that the majority of deliveries in the woredas of their cluster are attended by traditional birth attendants.

Immunization

Immunization against vaccine-preventable childhood diseases is a key intervention which plays a major role for child survival. The coverage of fully immunized children showed increasing trends between 2014 and 2015 in Waghimra, Liben, Bale and Borena clusters while it showed decreasing trends in Afar, Siti, Wolayita and South Omo. The coverage of fully immunized children in 2014 in Waghimra, Afar, Bale and Wolayita clusters was higher than their respective regional averages. It was lower than the regional average in Liben and South Omo, and was equal to the regional average in Siti and Bale. In 2015, the share of one-year-old children who took all the recommended vaccines varies from 23.3% in Liben to nearly 100% in Bale. Immunization coverage in clusters in 2015 was generally high, except in Siti and Liben coverage of 33.8% and 23.3% ,respectively. Key informants identified movement of pastoralist communities across large geographic areas, coupled with low access to health facilities, as the main reasons behind low immunization coverage in the two clusters.

6.2.2. Nutrition

Nutrition plays an important role in leading a healthy life, improved productivity and driving sustainable development. The government of Ethiopia launched national nutrition program with the objective of reducing stunting, wasting and under nutrition. The program was revised in 2013 to align with Ethiopian Growth and Development Plan to reduce stunting among children and under-nutrition among women at a faster rate (National Nutrition Program, June 2013-June2015, Government of Federal Democratic Republic of Ethiopia). The government of Ethiopia further demonstrated its commitment to end child malnutrition in 2030 by launching Seqota Declaration during the Third International Conference on Financing and Development in July 2015. The Seqota Declaration reflects strong commitment of the government to improve nutrition and recognition of the role of nutrition to propel sustainable development. The population of the geographical clusters are particularly vulnerable to chronic and acute malnutrition as they are living in a recurrently drought affected woredas with chronic food shortage.

Infant and young child feeding

To improve the nutritional status of infants and young children the national nutrition program recommend exclusive breast-feeding for six months and to continue breast-feeding up to the age of 23 months. In addition to breast-feeding, introduction of diversified

complementary diet at six month of age and maintain vitamin A supplementation and de-worming are among the strategies to improve nutritional status of infants and young children.

Table 6.3. Infant and young child feeding practises in the geographical clusters

Cluster	Initiation of breast-feeding	Introduction of complimentary diet	Duration breast feeding
Waghimra	2-6 hours of birth	6 month	>=2 year
Afar	Within 12 hours of birth	6 month	Until next pregnancy
Siti	Within an hour	6 month	Until next pregnancy
Liben	Immediately	6 month	Until next pregnancy
Bale	Within an hour	6 month	Until the next pregnancy
Borena	Within 12 hours	4-6 month (milk, butter)	>= 2 years
Wolayita	Within an hour	6 month	3-4 years
South Omo	Within 12 hours	4 month (milk & water)	3 years

Source: Woreda health offices, Woreda agriculture offices, and FGD participants.

The focus group discussions revealed wide variation among the clusters on initiation of breast-feeding. There is a practice of breast-feeding immediately after birth in Liben; within an hour in Siti, Bale and Wolayita; within 2-6 hours in Waghimra cluster; and within 12 hours in Afar, Borena and South Omo. Mothers in the clusters commonly breast-feed their newborn exclusively up to the age of six months, except in Borena, where children are given milk and butter, and South Omo where children are given milk and water starting in the age of four months. Women in the clusters universally continue breast-feeding of young children up to the age of two or beyond unless another pregnancy happens, which is common in Afar, Siti, Liben and Bale. The complementary diet across the clusters is mainly composed of milk and cereals. Focus group discussion participants in Wolayita revealed that infants and young children have access to fruits and vegetables in addition to cereals and milk.

Household dietary diversification

Information on household and individual food consumption patterns provide evidence based information on intake of key nutrients and identification of nutritional gaps in household and individual level to address the nutritional need of most vulnerable segments of the population particularly women and children.

Table 6.4. Contribution of food groups to consumption in 2013 based on regional figures

Cluster	Cereals	Legumes & nuts	Roots & tubers	Meat	Dairy products	Eggs	Fats & oils	Vitamin A rich fruits & vegetables	Other fruits & vegetables	Sweets	Spice, condiments and beverages
1. Contribution of food groups to total food consumption among children 6-35 months of age (%)											
Waghimra	17.7	2.8	1.4	0	57.5	0.6	1.4	6.3	3.4	5.9	3.0
Afar	16.1	0.7	1.9	0.1	57.2	0.6	0.4	3.3	8.4	6.2	5.3
Siti	10.6	0.1	0.9	0.2	66.4	0.7	0.3	0.6	2.9	10.0	7.5
Liben	10.6	0.1	0.9	0.2	66.4	0.7	0.3	0.6	2.9	10.0	7.5
Bale	16.6	2.4	2.5	0.5	55.1	1.9	2.0	2.8	6.5	7.4	2.2
Borena	16.6	2.4	2.5	0.5	55.1	1.9	2.0	2.8	6.5	7.4	2.2
Wolayita	13.6	3.3	5.2	0.1	60.6	1.1	1.8	2.5	5.3	4.7	1.8
South Omo	13.6	3.3	5.2	0.1	60.6	1.1	1.8	2.5	5.3	4.7	1.8
2. Contribution of food groups to total food consumption of women 15-49 years of age (%)											
Waghimra	70.0	6.8	1.4	0.6	0.9	0.1	1.5	4.3	5.5	2.2	6.6
Afar	57.7	1.6	0.4	1.1	13.1	0.0	0.6	0.8	17.6	2.2	4.9
Siti	67.9	1.1	0.3	1.5	13.9	0.0	1.8	0.2	5.7	4.4	3.3
Liben	67.9	1.1	0.3	1.5	13.9	0.0	1.8	0.2	5.7	4.4	3.3
Bale	60.0	6.4	5.4	1.1	4.5	0.8	1.6	3.9	8.4	1.6	6.2
Borena	60.0	6.4	5.4	1.1	4.5	0.8	1.6	3.9	8.4	1.6	6.2
Wolayita	35.8	4.9	28.9	0.4	2.8	0.2	1.3	8.6	6.9	0.8	9.5
South Omo	35.8	4.9	28.9	0.4	2.8	0.2	1.3	8.6	6.9	0.8	9.5
3. Contribution of food groups to total food consumption of men 19-45 years of age (%)											
Waghimra	59.0	6.0	1.8	0.5	0.5	0.0	1.40	4.6	12.4	6.5	7.4
Afar	50.7	0.0	0.0	6.8	0.0	1.4	0.0	0.0	32.9	5.5	2.7
Siti	56.1	1.2	1.2	2.4	3.7	2.4	3.7	2.4	15.9	4.9	6.1
Liben	56.1	1.2	1.2	2.4	3.7	2.4	3.7	2.4	15.9	4.9	6.1
Bale	50.6	8.1	3.5	4.1	0.6	0.6	3.5	5.2	15.1	1.7	7.0
Borena	50.6	8.1	3.5	4.1	0.6	0.6	3.5	5.2	15.1	1.7	7.0
Wolayita	52.1	1.8	8.3	1.2	1.8	0.6	2.4	9.5	5.9	8.3	8.3
South Omo	52.1	1.8	8.3	1.2	1.8	0.6	2.4	9.5	5.9	8.3	8.3

Source: National Food Consumption Survey, Ethiopian Public Health Institute

A national food consumption survey was conducted by Ethiopian Public Health Institute (EPHI) in 2013 to collect data on food consumption patterns by categorizing household members into children, women and men. The findings showed that dairy products and cereals (wheat, maize, teff and sorghum) contributed most of children's consumption across the clusters. Roots and tubers ('enset', potato, sweet potato, cassava, yam) contributed higher proportions of food consumed by children in Wolayita and South Omo. Consumption of meat and vitamin A rich fruits and vegetables was low among children in all clusters.

Cereals constitute the majority of food consumed by women in Waghimra, Afar, Siti, Liben, Bale and Borena clusters while the combination of cereals and roots or tubers constitute the majority of food consumed by women in Wolayita and South Omo clusters. The proportion of dairy products consumed by women in Afar, Siti and Liben is relatively higher than the remaining clusters, and the proportion of vitamin A rich fruits and vegetables consumption by women is relatively higher in Wolayita and South Omo.

Similarly, cereals constituted the highest proportion of diet among men across clusters. Consumption of meat and dairy products by men was low across the clusters. Consumption of vitamin A rich fruits and vegetables by men is very low across the clusters except Wolayita and South Omo clusters.

Nutrition of pregnant, lactating women and adolescent girls

The national nutrition program recommends adequate dietary intake and diversification during pregnancy and lactation and access to micro-nutrient services. The focus group discussion participants in all geographical clusters revealed pregnant women access similar type of meal with the remaining members of the family, however they have better access during the first forty days of postpartum with the intention of facilitating recovery the energy lost during child birth and help the mother produce adequate breast milk to feed the newborn. On the other hand pregnant women attending ANC have access to iron folate provided to prevent anaemia. Adolescent girls do not get special consideration to address their nutritional needs associated to puberty and menstrual cycle.

6.2.3. Water, hygiene and sanitation

The integrated approach to improve access to water, hygiene and sanitation is a strategy designed by the government to foster integrated behaviour of the community members towards safe use of water, healthy hygienic practises and regular use of improved sanitation facilities.

Diarrhoeal diseases as a result of low access to water and poor hygienic and sanitation practises are common causes of morbidity and mortality particularly in children under five years of age.

Table 6.5. Water, hygiene and sanitation profile of the geographic clusters

Cluster	Common Source of water	Water treatment before drinking	Personal Hygiene Practices
Waghimra	Public tap, Spring, river, ground water	Less frequent water treatment; rare practice of water boiling	Wash hands before and after eating; uncommon to use soap; less practice of hand washing after toilet use
Afar	Protected wells, ponds, Birka, river	No water treatment or boiling at households	Wash hands before and after eating depending on availability of water; less use of soap; less practice of hand washing after toilet use
Siti	Hand dug well, traditional well (Birka), deep well, river	Less frequent water treatment; rare practice of water boiling	Some use soap or ash for hand washing before and after eating; less practice of hand washing after toilet use; hygiene practice depends on water availability
Liben	Hand dug wells, Birka, Pond, public taps, deep well; water tracking during dry season	Less frequent water treatment; rare practice of boiling water	Some use soap or ash for hand washing before and after eating; less practice of hand washing after toilet use; hygiene practice depends of water availability
Bale	Deep and shallow well, pond, roof harvesting, spring; water trucking during dry season	Less frequent water treatment; rare practice of water boiling	Increasing practice of hand washing before and after eating using ash or soap. Less practice of hand washing after toilet use; hygienic practice depends on water availability
Borena	Pond, deep and shallow wells, river	No practice of water treatment or boiling water	Less practice of hand washing with soap and water before and after eating; less practice of hand washing after toilet use
Wolayita	Public tap, river, wells	More frequent water treatment; less practice of boiling water	Frequent practice of hand washing using ash or soap before and after eating; less practice of hand washing after toilet use
South Omo	River, public tap, pond	No practice of water treatment or boiling	Less practice of hand washing before and after eating and toilet use

Source, Woreda health office, woreda water office, FGD participants

Access to safe water sources

The source of water indicates the suitability of water for drinking. The proportion of Ethiopian population that has access to safe water source has increased only marginally from 54% in 2011 to 57% in 2014 (Mini-DHS 2014). Common source of water at the geographical clusters widely varies which includes public tap, spring, pond, deep well, shallow well and river while water trucking at dry season supplies water to Liben and Bale clusters. There is

some practice of treatment of water to make it safe for drinking at the household level at Waghimra, Siti, Liben, Bale and Wolayita clusters while no treatment of water at household level is practised at Afar, Borena and South Omo clusters. Boiling water for drinking purpose is rare in all clusters. The geographical clusters which are vulnerable to recurrent drought situations are particularly vulnerable to scarcity of water.

Focus group discussion participants revealed access to safe water supply varies with the season of the year as some water sources diminish yielding during dry season. The participants at all the geographical clusters revealed mostly women and girls are responsible to fetch water from the source for household consumption. The average time spent to fetch water according to the participants varies from one to eight hours with the lowest spent in Siti, Wolayita and South Omo clusters taking one hour while the longest time spent was in Bale cluster taking eight hours and Borena cluster taking six hours (Figure 6.13).

Figure 6.13 Average time spent to fetch water (2016)

Cluster	Average hours spent to fetch water
Waghimra	4
Afar	4.5
Siti	1
Liben	2
Bale	8
Borena	6
Wolaita	1
South Omo	1

Hygiene and sanitation

The focus group discussions and key informants revealed there is a general awareness on the principles of hand washing before and after eating, toilet use and handling of dirt. However, the practice depends on a number of factors including behavioural factors and availability of water and soap. Hand washing practice in the geographical clusters is improving as the population in all clusters increasingly wash hands with water and soap or ash before and after eating. However there is less practice of hand washing after toilet use across the clusters. During water scarcity, which is common in the geographical clusters water utilization is prioritized for drinking and food preparation instead of utilization for hygienic practises. However, there is no direct correlation with the distance of the water source and hygienic practises as water fetching takes 4 and 8 hours respectively in Waghimra and Bale clusters,

there are better hygienic practises reported from those clusters. As a result it is more likely behavioural factors play the major role in hygienic practises across the clusters.

Table 6.6. Open defecation free kebeles coverage in the geographic clusters

Cluster	Share of Open Defecation Free (ODF) Kebeles
Waghimra	45.5%
Afar	11.3%
Siti	3%.0
Liben	0.0%
Bale	6.6%
Borena	26.0%
Wolayita	50.0%
South Omo	11.0%

Source: Woreda health offices

The government of Ethiopia planned to achieve 80% of kebeles to be open defecation free (ODF) by ensuring each household's access to latrine facilities through woreda transformation initiative of creating model kebeles by 2020 (Woreda Transformation Implementation Guide, Federal Ministry of Health, 2016). Key informants in the geographical clusters revealed latrine facility use in pastoralist clusters is very low as the population moves in a wide geographical area depending on the season of the year. In 2016, few kebeles in the predominantly pastoralist geographic clusters achieved the open defection free initiative. Accordingly, Siti cluster (3%), Bale cluster (6.6%), Afar cluster (11.3%) and South Omo cluster (11%) of the kebeles achieved access to latrine facilities at household level. There was no open defecation free kebele in Liben cluster at the time of data collection. The agrarian population of the geographical clusters have better access to latrine facilities. Accordingly, in Waghimra cluster 45.5% of kebeles and in Wolayita clusters 50% of kebeles achieved access to latrine facilities at household level and are categorized as open defection free.

6.3. Morbidity and Mortality: Trend

6.3.1. Morbidity trend

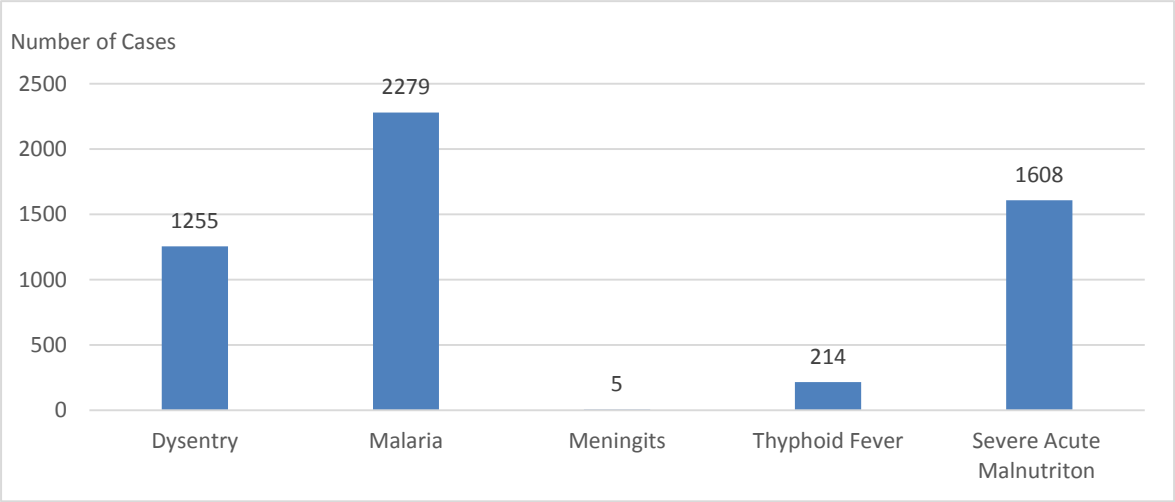
Communicable diseases

A strong surveillance system is a key to identify early and manage public health emergencies. The ministry of health implemented a WHO strategy of Integrated Diseases Surveillance and Response (IDSR) system designed to detect early cases of highly communicable diseases and take prompt action to control. The system classified diseases under

surveillance into immediately and weekly reportable diseases to monitor disease occurrence, trend, and death.

Immediately reportable diseases surveillance at the geographical clusters during the first eight month of 2016 reported a total of four cases of Acute Flaccid Paralysis (unconfirmed poliomyelitis) from Waghimra cluster , six cases of measles from Waghimra cluster, 371 cases of anthrax from Waghimra cluster, and 281 cases of acute watery diarrhoea (AWD) from Liben cluster. On the other hand, no case of neonatal tetanus, small pox and yellow fever reported in the same period. Among the reported cases acute flaccid paralysis (poliomyelitis) and measles are vaccine preventable. Anthrax is a disease which is transmitted from cattle to humans associated with contact and consumption of livestock products.

Figure 6.14 Cases of weekly reportable diseases in the geographical clusters in 2015
Source: Woreda health offices



Acute watery diarrhoea (AWD) in an epidemic proportion was reported form Moyale woreda of Liben cluster related to water and food contamination during the first eight months of 2016. The disease is associated to poor hygiene and sanitation which is evident in Liben cluster where there is no kebele that secured latrine facility at household level. A total of 281 cases were treated for acute watery diarrhoea with an attack rate of 10.72 per 10,000 population with overall death rate of 0.36%. The public health emergency response was coordinated by the Somali regional health bureau, with the support of UN agencies (UNICEF and WHO) as well as developmental partners including Save the Children and IDURUS development Ethiopia.

The findings on the surveillance of the weekly reportable diseases in the geographical clusters showed malaria is the most common disease under surveillance followed by severe acute malnutrition and dysentery.

Malaria

Malaria is among the major diseases identified by millennium development and sustainable development goals requiring attention. Roughly a third of Ethiopian population live in high malaria transmission area (>1 case per 1000 population); the other third live in low transmission area (0-1 case per 1000 population); and the remaining third of the population live in malaria free areas (World Malaria Report 2015). Ethiopia demonstrated remarkable progress in reducing morbidity and mortality as a result of malaria by mainly reducing the transmission of the disease. According to World Health Organization, Ethiopia is among the countries with reported decline in the incidence of malaria by more than 75% from 2000 to 2015 (World Malaria Report 2015). The progress have been achieved through improving access of the population at risk to preventive and curative services including use of insecticide indoor residual spraying (IRS); distribution of insecticide treated nets (ITN); availability of effective drugs; and availing the service of malaria diagnosis and treatment at the health post level.

The surveillance report from the geographic clusters shows that all clusters reported cases of malaria in 2015. According to key informants insecticide indoor residual spraying (IRS) conducted on annual basis at the households of the geographical clusters. ITN is also distributed regularly to protect the population at risk from malaria exposure.

Acute malnutrition in children

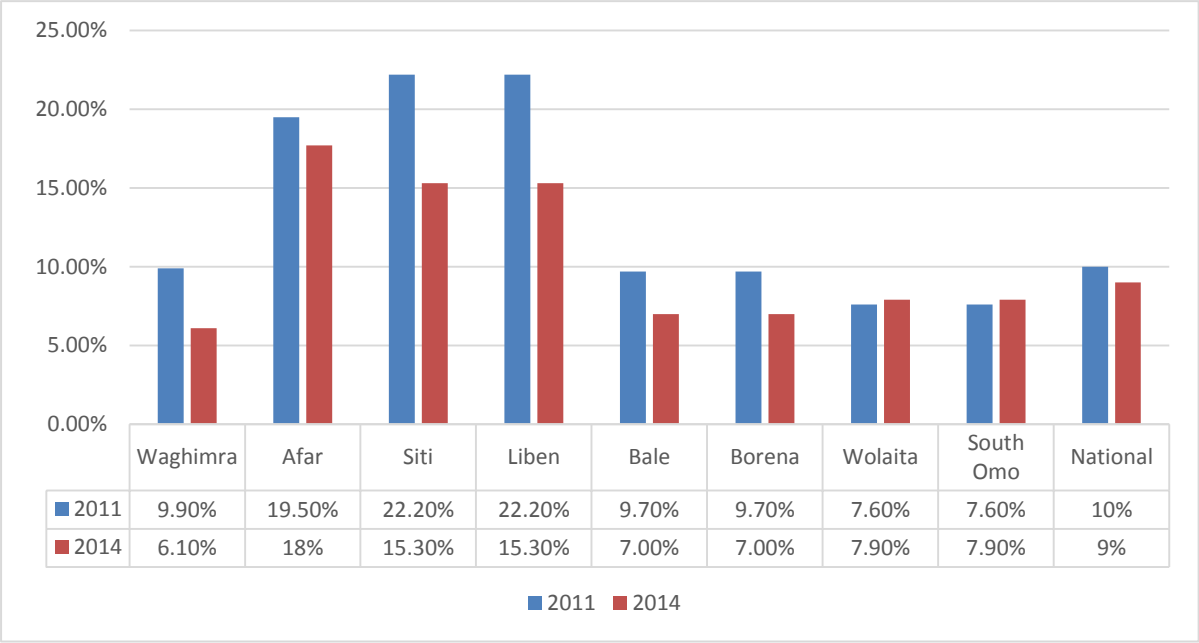
Acute malnutrition is a condition that results sudden weight loss as a result of decreased consumption of food due to food shortage or illness. The geographical clusters which are vulnerable to drought would expose the most vulnerable children under five years of age to a state of acute malnutrition. Acute malnutrition manifests itself as moderate acute malnutrition which is characterized by wasting and severe acute malnutrition that is characterized by severe wasting with or without oedema. Severe acute malnutrition is the most serious form of malnutrition that could result in death if left untreated.

Acute malnutrition (wasting)

Wasting as measured by weight for height is an important indicator of acute malnutrition in under-five children as a result of inadequate intake of food due to starvation or disease condition. Wasting therefore reflects a short term effect of malnutrition. The prevalence of acute malnutrition in under-five children in 2014 was 6-9 percentage points higher than the national average in Afar, Siti and Liben clusters (Figure 6.15). The prevalence of acute malnutrition showed declining trend between 2011-2014 in Waghimra, Afar, Siti, Liben, Bale

and Borena clusters while it remained the same in Wolayita and South Omo clusters. The findings indicate that although the prevalence of acute malnutrition was declining between 2011 and 2014, the prevalence of acute malnutrition in under-five children remained high in Afar, Siti and Liben clusters as compared to the national average. The result gives an indication that under-five children in Afar, Siti and Liben clusters more likely face acute shortages of food as compared to the other clusters.

Figure 6.15 Trends of wasting 2011-2014 based on regional figures



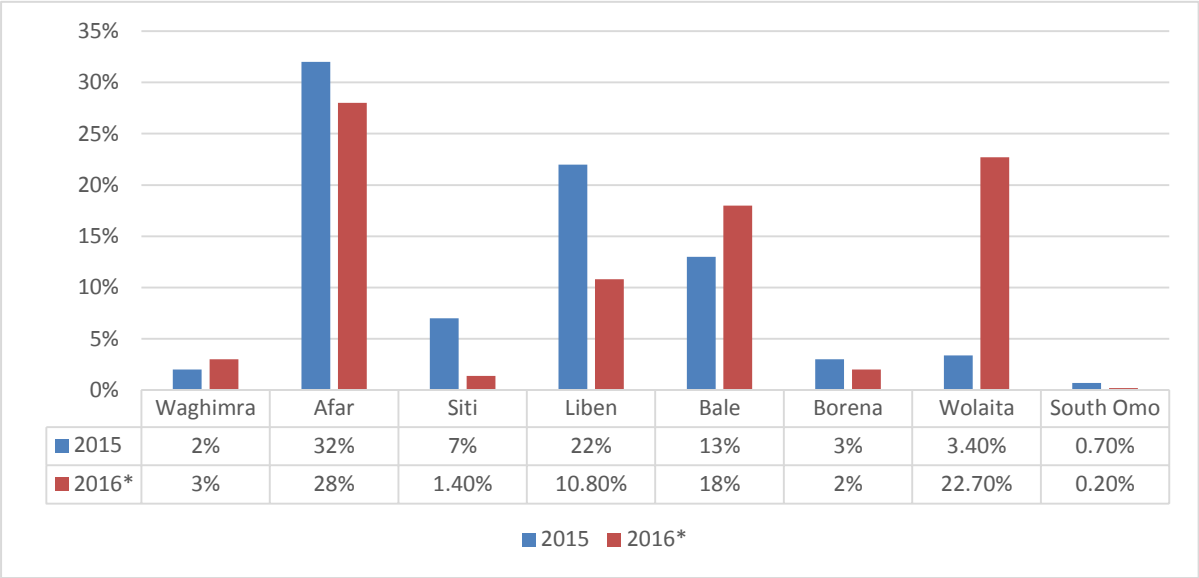
	Waghimra	Afar	Siti	Liben	Bale	Borena	Wolaita	South Omo	National
2011	9.90%	19.50%	22.20%	22.20%	9.70%	9.70%	7.60%	7.60%	10%
2014	6.10%	18%	15.30%	15.30%	7.00%	7.00%	7.90%	7.90%	9%

Source: DHS (2011, 2014)

Prevalence of facility based severe acute malnutrition

The eight month prevalence of facility-based severe acute malnutrition in 2016 widely varies among the geographical clusters with the highest in Afar cluster with a prevalence of 28% and the lowest in South Omo cluster with a prevalence of 0.2% (Figure 6.16).

Figure 6.16 Trend on facility-based SAM (2015-2016)



	Waghimra	Afar	Siti	Liben	Bale	Borena	Wolaita	South Omo
2015	2%	32%	7%	22%	13%	3%	3.40%	0.70%
2016*	3%	28%	1.40%	10.80%	18%	2%	22.70%	0.20%

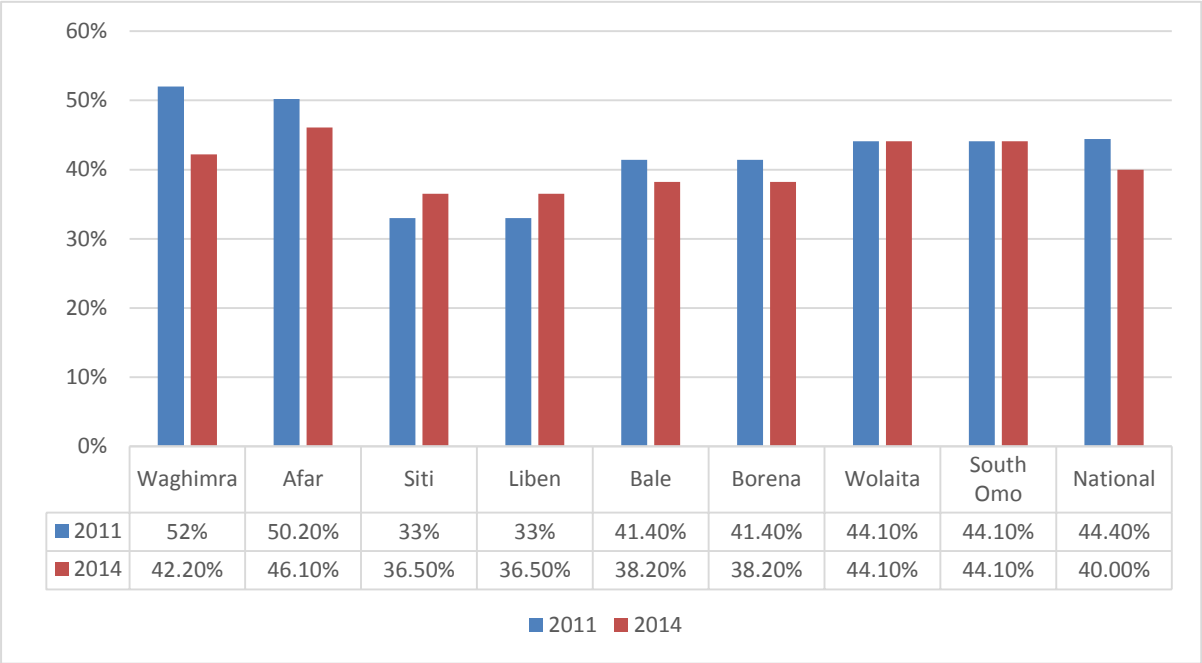
Source: WoHO and ZHD

There was an increase in the prevalence of facility-based SAM in 2016 eight month as compared to 2015 in Waghimra, Bale and Wolayita clusters. The SAM trend in the eight months of 2016 predicts decreasing prevalence in Afar, Siti, Liben, Borena and South Omo clusters. According to key informants, the higher prevalence of SAM in 2015 was attributed to food shortage associated with the recent drought situation and the predicted declining trend in 2016 is a results of emergency nutrition interventions taken to prevent malnutrition. The focus group discussion participants perceive that inadequate food access at household level due to recurrent drought and lack of access to diversified food due to production of few varieties and non-availability of diverse varieties in the local market are the major causes for malnutrition in their areas.

Chronic malnutrition

Stunting is an important indicator of chronic malnutrition in under-five children as a result of receiving inadequate nutrition in a long period of time. Stunting is therefore reflects a long-term effects of malnutrition.

Figure 6.17 Trends of stunting 2011-2014 based on regional fugures



	Waghimra	Afar	Siti	Liben	Bale	Borena	Wolaita	South Omo	National
2011	52%	50.20%	33%	33%	41.40%	41.40%	44.10%	44.10%	44.40%
2014	42.20%	46.10%	36.50%	36.50%	38.20%	38.20%	44.10%	44.10%	40.00%

Source: DHS (2011, 2014)

The prevalence of stunting based on the regional figures showed declining trend between 2011 and 2014 in Waghimra, Afar, Bale and Borena clusters; increasing trend in Siti and Liben clusters; and remained unchanged in Wolayita and South Omo clusters. In 2014 the prevalence of stunting was higher than the national average in Waghimra, Afar, Wolayita and South Omo clusters, while it was lower in Siti, Liben, Bale and Borena clusters. The findings give an indication of under-five children in Waghimra, Afar, Wolayita and South Omo clusters more likely face long-term shortage of food compared to the other clusters.

Dysentery

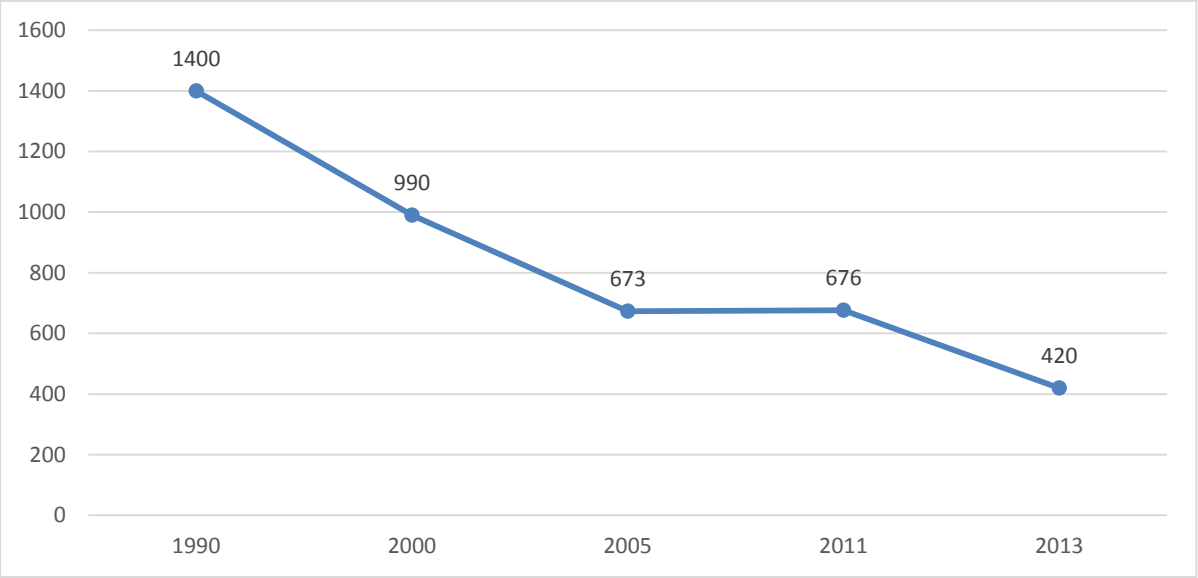
Dysentery is the third most common disease under surveillance in the geographical clusters followed by malaria and severe acute malnutrition. It is an infection of the intestines as a result of exposure to bacilli or protozoa commonly amoeba. The transmission of infections is associated with contamination of water or food by the microbes that cause intestinal infections. The low access to safe water supply; low practice of water treatment or boiling before drinking; less practice of personal hygiene particularly washing hands after using toilets and before eating; low coverage of sanitation facilities in households are contributing factors for the occurrence of dysentery as an important cause of morbidity in the geographical clusters.

6.3.2. Mortality trend

Maternal mortality

Maternal mortality, death associated with pregnancy and child birth, is a key indicator of the health status of women and families. Ethiopia achieved progress on improving maternal health in the past decade towards achieving the millennium development goal by reducing maternal mortality from 1400/100,000 in 1990 to 420/100,000 live births in 2013. The progress is mainly attributed to improved access of pregnant women to skilled care during pregnancy, delivery and postnatal period. Although there is significant reduction in the maternal mortality since 1990, the trend indicates the country is unlikely to have achieved the MDG target of 267/100,000 live births by 2015 (Assessment of Ethiopia's Progress towards MDGs, UNDP, 2014).

Figure 6.18: Ethiopian national trend on maternal mortality, 1990-2013



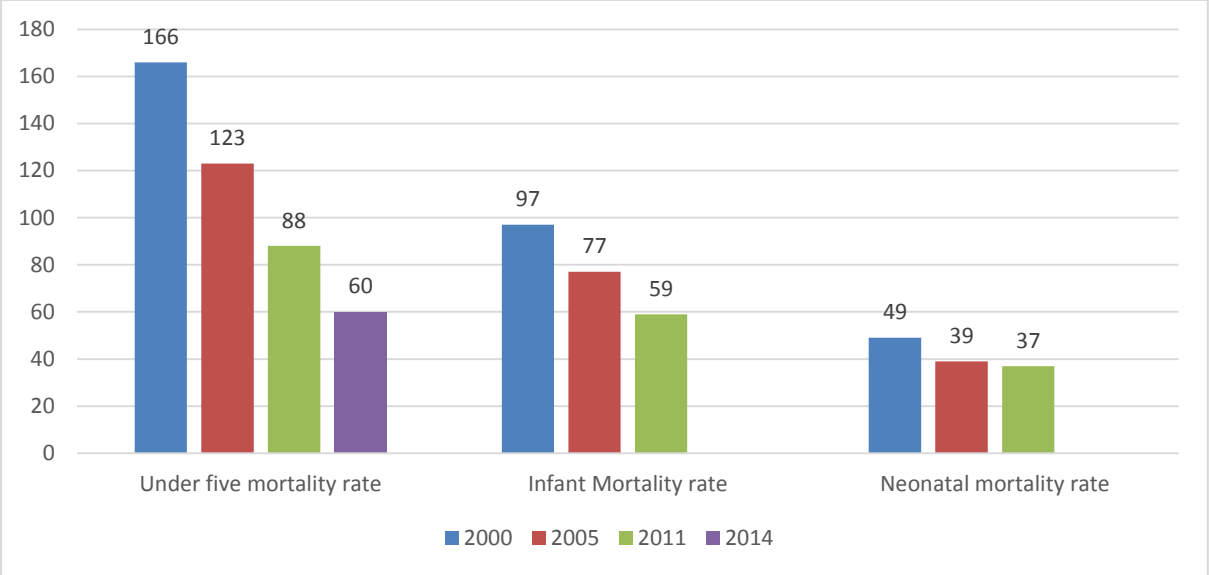
Source: EDHS (2011), Assessment of Ethiopia's Progress towards MDGs, UNDP (2014).

Child mortality

Children are vulnerable to vaccine preventable childhood illnesses and nutritional deficiencies that would determine child survival. Ethiopia achieved the target for millennium development goal by reducing child mortality from 166/1000 live birth in 2000 to 60/1000 live birth in 2014, earlier than the date set for MDG goals in 2015 (UNDP 2014). Similarly the infant mortality declined from 97/1000 live birth in 2000 to 59/1000 live births in 2011 (Figure 6.19). This achievement is mainly attributed to the health extension program that improved coverage of child health services at the community level by providing services including

routine immunization against vaccine preventable childhood diseases and integrated community case management (ICCM) for diarrhoea, pneumonia, malaria and mild to moderate malnutrition. On the other hand although neonatal mortality has shown modest decline form 49/1000 live birth in 2000 to 37/1000 live birth in 2011, it remains the major contributor for child mortality (Figure 6.19).

Figure 6.19 National trend in early childhood mortality 2000-2014



Source: EDHS (2011) and Assessment of Ethiopia's Progress towards MDGs, UNDP (2014).

6.4. Gender

6.4.1. Gender Dimensions of Health

Women make up around 49.8% of Ethiopian population (CSA 2007). Like many other African countries the status of women is generally low in Ethiopia. However, the government has taken a series of actions towards creating women empowerment and gender equality. The Ethiopian constitution ratified in 1995 assures women equal rights with men in every sphere of life and has created a favourable condition to promote women empowerment on property ownership, right to family planning, extension of maternity leave etc. Based on the constitution, the government has developed a gender policy with a main strategy of gender mainstreaming in sector and development programs, advocacy and capacity building.

The government's flagship health extension program is designed to improve health access of women and children with a strong community ownership mechanism. At the centre of the community ownership principle, the government advocates empowering women at household level to ensure the health of all family members. The health development army mainly women

from households are organized to scale-up best practises gained from the implementation of the health extension program at household level.

Health seeking behaviour

A number of key informants and focus group discussion participants have looked at the distribution of decision-making power between males and females in the household as a determinant of health and nutrition seeking behaviour in the clusters. The results point in different directions and it is not possible to say that men, for their decision making power, consistently deprive women and children from seeking appropriate healthcare service. In fact, it seems more likely that women have the first say, or at least have an equal voice, when it comes to decisions over healthcare and general nursing of the children, while the men have dominant power in terms of the women (i.e., their wives') healthcare seeking decisions as men generally control resources across the clusters.

Maternal health

Women face extra morbidity and mortality burden related to pregnancy and childbirth. The maternal mortality rate for Ethiopia in 2013 was 420/100,000 live births (UNDP 2014). The health extension program improved access of women to family health services that plays an important role in reducing maternal mortality. Key informants in the geographic clusters revealed family health services in government health facilities are provided free of charge to alleviate the burden of low access of women to resources. At all geographic clusters most services contributing to maternal health including antenatal care, postnatal care, family planning, and counselling on birth preparedness are provided at health post level by health extension workers. This has brought most health services that contribute to the improvement of maternal health at the door steps of households. The proportion of skilled birth attendant, a proxy indicator for reduction of maternal mortality has improved in all the geographical clusters except in Siti cluster between 2014 and 2015 although there is variation in each geographical cluster. Generally, the maternal health services provided at health posts and health facilities free of charge would improve access of women to services that contributes to reduction of maternal mortality and improve the wellbeing of women in the society.

Maternity Waiting Room

The three delays model contributing to maternal mortality include delay in making decision to seek skilled care, transportation delay to reach a health facility and delay in getting service at the health facility. To address the second delay caused by access to transportation,

the government is advocating maternity waiting rooms for pregnant women to stay at a health facility when the date of confinement approaches with an objective of ensuring delivery attended by skilled healthcare provider and improve health outcomes to the mother and the newborn. The key informants revealed that the women in Waghimra, Siti, Bale, Borena, Wolayita and South Omo clusters are benefiting from staying at maternity waiting rooms to improve access to skilled birth attendant. However, the women in Afar and Liben clusters are not getting benefit of maternity waiting rooms as a result of lack of maternity waiting rooms at the health facilities. Not surprisingly, the proportion of deliveries attended by skilled care providers in 2015 was the lowest in Afar cluster (19.6%) and Liben cluster (9.3%). The maternity waiting room at the health centres will create an enabling environment to empower women to get skilled attendant during delivery.

Picture 6.1 Maternity waiting room at a health centre in Borena cluster

Respectful Maternity Care

The notion of respectful maternity care recognize safe motherhood should be expanded beyond prevention of morbidity and mortality to encompass respect for basic human rights including respect for women autonomy, dignity, feelings, preferences, including companionship during maternity care (The White Ribbon Alliance for Safe Motherhood 2012). The focus group discussion participants in most of the geographical clusters emphasized respectful maternity care are exercised in some of the health centres of the clusters by handling women with dignity and providing services based on their preference including allowing

relatives to accompany women during child birth, allowing preferred birthing positions and allowing relatives to celebrate child birth by holding coffee and porridge ceremonies in health facilities. The community in Dawe Kachen woreda of Bale cluster contributed 72,000 ETB and 29 quintals of cereals in 2015 to support respectful maternity care in health facilities. However, the focus group discussion participants in Siti and Liben clusters revealed less practice of respectful maternity care in the health facilities. No relatives are allowed except traditional birth attendants during child birth and no cultural ceremonies like coffee, porridge are provided in the health facilities to celebrate child birth. Moreover, pregnant women are expected to give birth in delivery beds and no option is given to respect the choice of birthing position. '*When pregnant women are choosing the birthing position, the healthcare providers are trying to convince them to have birth in delivery bed than respecting their choices'*. Focus group discussion participant in Siti cluster.

Family planning

The government of Ethiopia through the health extension program has made family planning methods of choice readily available at the community in the health posts. Although the constitution of the country give women the right to family planning, cultural and religious factors play roles for a women to exercise the right to family planning. The focus group discussions in predominantly pastoralist clusters revealed male dominance on making decisions on family planning. The participants at focus group discussion in Bale cluster stated that the husbands do not allow women to seek family planning services by saying to their wives "*you are going to make my family less in number than others"* as a result women are reluctant to go to health facilities to seek the family planning services. The focus group discussion in Liben cluster revealed the community members perceive the use family planning methods are religiously condemned and having many children is a blessing as they perceive "*Children are gifts from Allah".* One of the focus group discussion participant strengthened the issue by saying *"women have 2 of 20 years and in the second 20 years they are expected to have at least 10 children".* Most participants perceive that *"Allah is there to feed their children".* The focus group discussion participants revealed religious factors in Afar, Siti, Liben and Bale clusters affect use of contraception even if the women has a desire to limit the number of children.

Gender-based violence

Violence against women would have consequences on physical, mental, social and reproductive wellbeing. The proportion of Ethiopian women who believe that wife beating is

justified for certain situations declined from 81 percent in the 2005 to 68% in 2011 (EDHS 2011). This trend suggests that Ethiopian women are less likely to accept wife beating than in the past. The focus group discussion participants in all geographic clusters admit the practice of wife beating, enforced early marriage, and rape. However, they emphasized that these practises are decreasing in recent years through education and advocacy works done by various sectors including the health, women affairs, education and low enforcement. The focus group discussion in Afar, Siti and Liben clusters revealed female genital cutting is still practised in their cluster although the practice is declining significantly.

Access to water supply

The focus group participants in all the geographical clusters revealed that mostly women and girls are responsible to fetch water from the source for household consumption. The average time spent to fetch water according to the participants varies from 1-8 hours with the lowest spent in Siti, Wolayita and South Omo clusters taking one hour while the longest time spent was in Bale cluster taking 8 hours and Borena cluster taking 6 hours (Figure 6.13). This creates extra burden on women and girls in their daily routine activities. When women are away long hours from home to fetch water obviously the care which they are expected to provide to dependent children would be affected. Therefore, low access to water supply would have an impact not only on women and girls but also children and the whole family.

6.4.2. Gender Dimension of Nutrition

The government, through its gender policy, recommends gender mainstreaming in developmental works. Gender equality and women empowerment are essential components of factors that affect nutrition outcomes. Food insecurity takes a toll on all members of the household or the community, however it affects most women and girls. Most rural women in Ethiopia are confined to household works such as food preparation, fetching water, caring for children and the sick without getting any formal income. The men or husbands are the major sources of income to households as a result they are holding a great deal of decision making power.

Access to food

The focus group discussion participants in the geographic clusters revealed the role of most women in the geographic clusters is mainly caring for children, preparation and serving of available food in the household to the family members. As a result they have less access to resources to meet the nutrition need of the family in terms of quantity and quality. This would

have an effect on the nutritional status of the family and particularly the women themselves as the focus group discussions participants revealed during food scarcity husbands get priority access to food followed by children and then women. That means women get less food in terms of quality and quality during scarcity.

Nutrition during pregnancy, lactation and adolescence

Women are generally vulnerable to nutritional deficiencies during pregnancy and lactation as they need to have access to nutritious diet for proper growth of the fetes and production of adequate milk for the new-born. This period is a time that women need to get improved access to food and micro-nutrients. The focus group discussion participants revealed, there is no special consideration given to pregnant, lactating women and adolescent girls nutritional need as they get similar type of meal with the remaining members of the family in all geographic clusters. These implies the nutritional need of women and girls as a result of physiological phenomenon peculiar to their gender is not considered in the geographic clusters. The participants mentioned the only time women will get priority access to food is during the first 40 days of delivery to assist the production of adequate milk for breast-feeding and facilitate recovery from the state of pregnancy

6.5. Major Drivers of Health and Nutrition

6.5.1. Access and utilization of primary healthcare

The national health policy emphasizes access to a basic package of quality primary healthcare services by all segments of the population, using democratized and decentralized health system (FDRE Health Policy 1993). Access to primary healthcare is the major strategy to address the health of the population in an efficient and cost effective way. To this end access to primary healthcare facilities including health centres and satellite health posts are major drivers to improve the health of the population. Primary healthcare units provide a wide range of primary healthcare services that are essential in disease prevention, health promotion and basic curative services. Therefore, not only access to physical health facilities is a driving factor to health of the population but also the functionality of the health facilities to provide quality primary healthcare service is paramount important. Access to health centres in Siti, Liben, Wolayita and South Omo clusters in 2016 is below the standard defined by the Ethiopian healthcare tier system that would affect the access to primary healthcare services. On the other hand 18.7% of the health centres in the geographic clusters do not provide basic laboratory services as a result the catchment population of the health centres do not get adequate primary

healthcare services. Moreover, stockouts of essential drugs, laboratory supplies and family planning communities affect utilization of primary healthcare services. Therefore, access to primary healthcare facilities and their functionality are major driving factors determining the health status of the population in the clusters.

6.5.2. Access to basic infrastructure

The locations of the geographical clusters are generally less developed in terms of infrastructure including road access, access to safe water supply and access to electricity. The limited infrastructure would affect health seeking behaviours of the communities and the quality of health services provided in the health facilities. The findings in the geographic cluster revealed that 64.3% of the health centres have no access to potable water supply while16.1% the health centres have no power supply at all from any source. The lack of water and electricity supply affects the quality of primary healthcare services provided in the health facilities. The focus group discussion participants revealed the road networking in the clusters are limited as a result it creates less access to primary healthcare facilities. The key informants have also revealed the lack of adequate road networking limits timely delivery of drugs and supplies resulting shortage that would affect the quality of the primary healthcare services provided in the health facilities. Therefore, access to basic infrastructure is another driving factor in providing primary healthcare services to the population of the cluster.

6.5.3. Access to water

Water is an essential element deeply linked to the livelihood activities of the communities. Limited access to safe water supply to a large population of the geographical cluster means limited access to safe drinking water, less practice of personal hygiene and proper handling of food that would expose the community to water borne diseases including diarrhoea which could have serious consequences in particular to children. The disease surveillance in the geographical clusters indicated dysentery is the third most common disease under surveillance transmitted by contamination of water and food. Availability of water is also a key factor for health facilities in the geographic clusters to provide quality primary healthcare services. Among health facilities in the cluster 64.3% do not have access to potable water supply that would affect a wide range of services provided in the facilities that include among others infection prevention and patient safety practises, laboratory services and delivery service. These indicate access to safe water supply is a key driving factor in the geographical

clusters to promote the health of the population and provide adequate and quality primary healthcare services.

6.5.4. Hygiene and sanitation

Household hygiene and sanitation are important drivers of health of the population. In the geographical clusters, shortage of water adversely affect hygienic behaviour of the population. In the state of scarcity of water, personal and household hygiene do not get priority that affect the health of the population by increasing the chances of exposure to water borne diseases. There is less practice of hand washing after using toilets in the geographical clusters. Household access to latrine facilities is another key driver of the health of the population. The findings in the geographical clusters revealed that the proportion of kebeles that ensured access to latrine facilities at household level varies from 0 to 50% with the lowest in Liben cluster with no open defecation free kebele and the highest in Wolayita cluster with 50% open defecation free kebeles. The practice of open defecation in the kebele means there is a chance of contamination of common water sources that would affect the residents of the whole community even if some residents have latrine facilities. Therefore, improper excreta disposal is highly associated with contamination of water. This implies hygiene and sanitation as integral components of WASH are major drivers of the health of the population in the geographical clusters.

6.5.5. Food security

The geographic clusters are characterized by recurrent drought and generally exposed to chronic food shortage. The shortage of food in the clusters makes the population, in particular children and women, vulnerable to nutritional deficiencies. Severe acute malnutrition was the second most common disease under surveillance in the geographical clusters in 2016. This indicates that children under five years of age access to adequate nutrition is an important driving factor for the wellbeing of children. Chronic or recurrent shortage of food as a result of recurrent drought would affect proper growth of children reflected by the high prevalence of stunting. Therefore, food security is among the key driving factors that influence the health of the population particularly children in the geographic clusters.

6.5.6. Gender

Women and children are the most vulnerable segments of the population in terms of health and nutrition risks. Empowering women in household level would help to improve the

health of women, children and the whole family. In the geographic clusters gender plays important role for women to make health and nutrition decisions. As men control resources women depend on men to make decision to seek healthcare or nutrition decision. The findings in most geographic clusters indicate the access of women to family planning is affected by the will of the husband and religious influences. At the same time women in the geographical clusters have less access to resources to go out to the market and buy adequate food. Pregnant and lactating women do not get special consideration to get a better access to food and nutrition. As a result the role gender plays in accessing health and nutrition services and decisions could be taken as a major driver of health and nutritional status of the women, children and families in the cluster.

6.6. Summary Findings on the Situation of Health and Nutrition

6.6.1. Health and nutrition service delivery

Ethiopia made a tremendous progress on health and nutrition in the past two decades under health sector development plan (HSDP I-IV) 1997-2015. However, the access of the population of the geographical clusters to primary hospitals do not meet the standard defined by Ethiopian healthcare tier system. Access to health centers in Siti, Liben, Wolayita and South Omo clusters and the population access to health posts in Afar, Siti, and Liben clusters do not meet the standards defined by the Ethiopian care tier system. The health facilities access to basic infrastructure like water and electricity is still a challenge to be addressed to ensure quality primary healthcare services. The analysis on access of health facilities to basic infrastructure revealed 64.3% of health centers do not have access to potable water supply and 17.1% do not have access to any power source.

The analysis on human resource for health situation in the geographical clusters show a critical shortage of pharmacy and laboratory professionals. The situation analysis showed 22% of health centers have no pharmacy professionals and 18.7% of health centers have no laboratory professionals in 2016. In addition there is high turnover of midwives and environmental health professionals. Availability of essential drugs and supplies are necessary to provide quality primary healthcare services. Observations made by the field team in the visited health facilities of the geographical clusters confirmed stockout of essential drugs, family planning commodities, vaccines and reagents for performing haemoglobin test, VDRL test, AFB microscopy, blood film and HIV testing.

6.6.2. Health and nutrition service utilization

Improving maternal and child health would improve the health of families and societies that eventually improves productivity and livelihood. The trend in health status in terms of input utilization for all clusters is shown in Table 7. Family planning and child spacing are key determinants for the well-being of the mother and the child. The contraceptive acceptance rate in Ethiopia among married women aged 15-49 in 2014 was 42%. The findings showed the contraceptive acceptance rate in the geographical clusters in 2014 was higher than their respective regional averages in Waghimra, Siti, Liben and Wolayita clusters. On the other hand the contraceptive acceptance rate in 2014 in geographical clusters Afar, Bale, Borena and South Omo was lower than their respective regional averages. Generally there is low utilization of family planning services in Afar, Siti, Liben, Bale and South Omo clusters; moderate family planning service utilization in Borena cluster; and high family planning service utilization in Waghimra and Wolayita clusters. Factors mainly religion, culture and gender play a key role in influencing women's access to family planning.

The skilled birth attendant showed improvement in all geographical clusters in 2015 as compared to 2014 except in Siti which showed a decline. However, there is a wide variation on the performance of skilled birth attendant in the geographical clusters in 2015 ranging from 9.3% in Liben to 67.5% in Wolayita cluster. In 2014 the geographical clusters of Waghimra, Siti, Bale, Borena and Wolayita achieved better performance on skilled delivery compared to their respective regional average, while the geographical clusters Afar, Liben and South Omo achieved lower performance compared to their respective regional average. . Generally there is low utilization of skilled delivery services in Afar, Siti, Liben, Borena and South Omo clusters; better utilization of skilled delivery services in Waghimra, Bale and Wolayita clusters.

The coverage of fully immunized children in 2014 was higher in Waghimra, Afar, Borena, and Wolayita; lower in Liben and South Omo; and the same in Siti and Bale clusters compared to their respective regional average. Immunization coverage in the geographical clusters in 2015 was generally high except in Siti and Liben clusters which had immunization coverage of 33.8% and 23.3%, respectively.

There is a wide variation in the geographical clusters on initiation of breast-feeding to a newborn ranging from immediate initiation to initiation after 12 hours. Mothers in the geographic clusters commonly breast-feed their newborn exclusively up to the age of 6 month except in Borena which provide milk and butter and South Omo which provide milk and water

starting in the age of 4 month. Women in the geographical clusters universally continue breast-feeding of young children up to the age of two or beyond unless another pregnancy happens which is common in Afar, Siti, Liben and Bale. The complementary diet is mostly limited to few varieties of cereals and milk across the clusters. On the other hand pregnant and lactating women and adolescent girls do not get special consideration to meet their nutritional needs associated to physiological changes. .

Dairy products and cereals contributed most of children consumption pattern across the clusters. Roots and tubers contributed relatively higher proportions of food consumed by children in Wolayita and South Omo while the consumption of flesh foods and vitamin A rich fruits and vegetables was low in children across all the clusters. Cereals constitute the majority of food consumed by women in Waghimra, Afar, Siti, Liben, Bale and Borena clusters while the combination of cereals and roots or tubers constitute the majority of food consumed by women in Wolayita and South Omo clusters. Similarly, cereals constituted the highest proportion of the diet among men across the clusters. Refer table 6.4 in the main report for the detail household food consumption pattern.

Common source of water in the geographical clusters widely varies which includes public tap, spring, pond, deep well, shallow well and river while water trucking at dry season supplies water to Liben and Bale clusters. There is less practice of treatment of water to make it safe for drinking at the household level while boiling water before drinking is rare. Women and girls are responsible to fetch water from the source for household consumption. The average time spent to fetch water according to the focus group discussion participants varies from 1-8 hours with the lowest spent in Siti, Wolayita and South Omo clusters taking one hour while the longest time spent was in Bale taking 8 hours. There is a general awareness on the principles of hand washing before and after eating, toilet use and handling of dirt. However, the practice depends on a number of factors including behavioural factors and availability of water and soap. The population in all clusters increasingly wash hands using water and soap or ash before and after eating. However, there is less practice of hand washing after toilet use. During water scarcity, which is common in the geographical clusters water utilization is prioritized for drinking and food preparation instead of utilization for hygienic practises.

There is variation in the geographical clusters in ensuring access to latrine facility at household level where Afar, Siti, Bale and South Omo achieved 11.3 %, 3%, 6.6%, and 11% open defecation free kebeles in 2016 respectively while no kebele is open defecation free in Liben. The kebeles in Waghimra, Borena and Wolayita achieved a relative better access to

latrine facility at household level with 45.5%, 26% and 50% of kebeles are open defection free respectively in 2016.

6.6.3. Morbidity and mortality: trend

Disease surveillance is an important mechanism to monitor the occurrence and pattern of diseases with public health significance. Immediately reportable diseases surveillance at the geographical clusters during the first eight month of 2016 reported a total of four cases of acute flaccid paralysis (unconfirmed poliomyelitis) from Waghimra, six cases of measles from Waghimra, 371 cases of anthrax from Waghimra, and 281 cases of acute watery diarrhoea (AWD) from Liben. On the other hand, no case of neonatal tetanus, small pox and yellow fever reported in the same period. The findings on the surveillance of the weekly reportable diseases in the geographical clusters showed malaria is the most common disease under surveillance followed by severe acute malnutrition and dysentery.

The prevalence of acute malnutrition based on regional figures showed declining trend 2011-2014 in Waghimra, Afar, Siti, Liben, Bale and Borena clusters while it remained the same in Wolayita and South Omo clusters. Although there is declining trend, the prevalence of acute malnutrition in under-five children remained higher than the national average in Afar, Siti, and Liben clusters. This gives an indication of under-five children in Afar, Siti and Liben clusters more likely face acute shortages of food as compared to the other clusters.

Similarly the eight month prevalence of facility based severe acute malnutrition in 2016 widely varies among the geographical clusters with the highest in Afar with a prevalence of 28% and the lowest in South Omo with a prevalence of 0.2%.

The prevalence of stunting based on the regional figures showed declining trend between 2011 and 2014 in Waghimra, Afar, Bale and Borena while it showed increasing trend in Siti, Liben, Wolayita and South Omo clusters. In 2014 the prevalence of stunting was higher than the national average in Waghimra, Afar, Wolayita and South Omo which give an indication of under-five children in those clusters are more likely face long-term shortage of food compared to the other clusters.

Ethiopia achieved progress on improving maternal health in the past decade towards achieving the millennium development goals by reducing maternal mortality from 1400/100,000 in 1990 to 420/100,000 live births in 2013. The progress is mainly attributed to

improved access of pregnant women to skilled care during pregnancy, delivery and postnatal period.

On the other hand Ethiopia achieved the target set for millennium development goal by reducing child mortality from 166/1000 live birth in 2000 to 60/1000 live birth in 2014, earlier than the date set for MDG goals in 2015. Similarly the infant mortality declined from 97/1000 live birth in 2000 to 59/1000 live birth in 2011. This achievement is mainly attributed to the health extension program that improved coverage of child health services at the community level by providing services including routine immunization against vaccine preventable childhood diseases and integrated community case management (ICCM) of common childhood illnesses. On the other hand although neonatal mortality has shown modest decline form 49/1000 live birth in 2000 to 37/1000 live birth in 2011, it remains the major contributor for child mortality.

6.6.4. Gender dimension of health and nutrition

Gender plays a key role in empowering women at household level to ensure the health of all family members. The situation analysis revealed men have a dominant power in terms of the women healthcare seeking decisions as men generally control resources. The practice of wife beating, enforced early marriage and rape are types of gender-based violence with decreasing frequency. Female genital cutting is still practiced in Afar, Siti and Liben clusters. Access to family planning services are influenced by religious condemnation in Afar, Siti, Liben and Bale clusters while cultural influences are evident in all clusters. Respectful maternity care; maternity waiting areas at health facilities; free antenatal care, delivery, postnatal care, family planning and ambulance services are interventions that empower women in improving access to maternal health services. Women and girls are primarily responsible to dedicate 1-8 hours a day to fetch water for the households.

At the time of food shortage husbands get priority access to food followed by children and then women that implies women get less food in terms of quality and quantity during scarcity. There is no special consideration given to pregnant and lactating women and adolescent girls nutritional need as they get similar type of meal with the remaining members of the family in all the geographic clusters

6.6.5. Key drivers

The findings on the status and trends on health and nutrition suggest access and utilization of primary healthcare services; access to basic infrastructures including safe water supply and electricity; hygienic practices and access to household sanitation facilities; access to adequate and diversified food; and gender are the main drivers of health and nutrition situation of the population in the geographical clusters.

6.6.6. Gaps and opportunities

This study revealed that the current status of the communities in the eight cluster areas can be characterized as very poor. This is mainly due to poor service delivery and low utilization of the available services by the community. These situations resulted in low level of health and nutrition related outcomes. There are a number of important gaps identified for the poor health and nutrition status of the communities. Based on this situation analysis, the underlying gaps are outlined as follows.

Gaps related to service delivery and utilization

- Low access to primary healthcare facilities in Afar, Wolayita and South Omo clusters and very low access in Siti and Liben clusters.
- Limited access of health facilities and to basic infrastructure such as potable water supply and electricity.
- Shortage of human resources for health in particular laboratory and pharmacy professionals.
- Shortage of essential drugs, laboratory supplies, family planning commodities and vaccines.
- Low utilization rate of available health facilities, particularly family planning and skilled delivery services.
- Low utilization of child immunization services particularly in Siti and Liben clusters.

Gaps related to nutrition

- Shortage of food and lack of access to diversified food to children 6-35 months old particularly low access to meat and vitamin A rich fruits and vegetables.
- Limited access of diversified food by family members.
- High rate of acute malnutrition in under-five children in Afar, Siti and Liben.

- High rate of chronic malnutrition (stunting) in under-five children – mainly in Waghimra, Afar, Wolayita and South Omo clusters.

Gaps related to WASH

- Low access to safe water supply to the community and health facilities.
- Low access to sanitation facilities at household level.
- Poor hygienic practices.

Gaps related to gender

- Men dominant role in decision making on health seeking behaviour and spending household resources.
- Long hours spending of women and girls fetching water taking 1-8 hours.
- Presence of gender-based violence including female genital cutting in Afar, Siti and Liben.
- Religious and cultural factors in accessing family planning.
- Lack of consideration to the nutritional needs of pregnant and lactating women and adolescent girls.

Overall, the study findings on the gaps that substantially contributed to the vulnerability of communities in the cluster areas include poor access to health facilities, available health facilities are with low access to basic infrastructure such as potable water supply, electricity; shortage of essential drugs and laboratory supplies, low utilization rate of available health facilities by users/beneficiaries; shortage of pharmacy and laboratory professionals; inadequate implementation of Integrated Pharmaceutical Supply System (IPLS); low family planning practice (low contraceptive acceptance rate), low skilled delivery service utilization and low immunization coverage.

With regard to the nutrition aspect of resilience building, the key gaps include high rate of acute malnutrition compared to national average in 2014 in Afar, Siti and Liben due to shortage of food and lack of access to diversified food; low consideration to improve access of pregnant and lactating women and adolescent girls to their nutritional needs at household level. The key gaps related to poor WASH status include low access to safe water supply as well as poor access to sanitation facilities such as improved latrine facility. The key gaps from gender perspective of the health and nutrition are that men plays dominant role in decision making on health-seeking behaviour and spending household resources; that women and girls spend on

average 4 hours to fetch water from the nearest safe water source; and the presence of gender based violence in the cluster areas.

The study also identified important opportunities that will have to be considered in designing interventions to address health and nutrition among vulnerable communities so as to build their resilience capacity. There are multiple policy, program and resource opportunities available to improve the health and nutrition situations of the geographical clusters to build resilience to any shocks that negatively affects their health and nutrition security. The available opportunities include:

- Health sector transformation plan that gives due emphasis to provide equitable, accessible, and quality primary health services;
- The woreda transformation plan which aims to create high performing health facilities and creating model kebeles that ensure home delivery free and open defecation free;
- The Ethiopian government flagship health extension program designed to improve health access of women, children and families with a strong community ownership mechanism;
- The health development army mainly women organized to scale-up best practices gained from the implementation of the health extension program at household level;
- Maternal health initiatives of Maternity waiting areas at health centres and Respectful maternity care;
- The integrated WASH framework with a strategy of integrated approach to improve access to water, hygiene and sanitation;
- National nutrition strategy a multi-sectoral and multi-dimensional approach, which aims at producing healthy and productive citizens by fulfilling the nutrition need of the population;
- The productive safety net program (PSNP) and availability of rivers in most clusters suitable for irrigation;
- The government of Ethiopia gender policy with a main strategy of gender mainstreaming in sector and development programs;
- The presence of experienced development partners on the ground in the geographical clusters working in the technical areas of health, nutrition and WASH.

7. Natural Resources and Disaster Risk Management

RESET aims to build the resilience of vulnerable communities in its eight focal cluster areas. One of the four basic cornerstones of RESET is to build resilience and reduce disaster risks. This situational analysis report focuses on natural resources and disaster risk management (NR & DRM) and is based on the information obtained from the DR profile reports of some of the woredas in the clusters (from relevant federal government agency website), and from reports of study teams dispatched to the clusters to gather secondary data and interview experts working at local level and other key informant community members. GIS and remote sensing data of a woreda per cluster (for the seven clusters) and the Siti zone at large was used to make quantitative assessments of land use and land cover changes over a decade, between 2003 and 2013.

Based on our assessment of NR and DRM in the clusters, the major take-home messages are the following:

- Population growth in the clusters is much higher than the national average, and most depend on NRs. Dependence on NRs continues to grow due to population growth and also to more frequent droughts that force many to depend on charcoal making and fuel wood collection for sale that in the long-term undermines resilience of the ecosystem.
- DR profile and DR Reduction Planning documents have been prepared for most woredas in all clusters except for clusters in Liben and Wolayita. But there is little evidence to show that these documents are informing planning and implementation of NR and DRM undertakings of woredas.
- Drought, livestock disease and conflict are the three major disaster risks in all clusters.
- We see sharp increase in agricultural land and bare lands and major decline in area under forests and woodlands and grasslands. This undermines the resilience of the ecosystem.
- NR degradation (notably the expansion of bare lands and invasive species and shrinkage of grasslands and forests and woodlands) is likely to be the major threat for livestock based livelihoods in all clusters.
- Yet most interventions focus on relief and on improving access to basic services. There is little to report on NRM. Emphasis remained on the communities but not on ecosystem.

- Unless NR and DRM are mainstreamed and made integral parts of interventions, building resilience of communities and their productions systems (the socio-ecological system) to climate variability and change would simply prove very difficult.
- In this regard, bridging the research-development-policy continuum is critical.

The following sub-sections present in detail the natural resources and disaster risk management aspects of resilience building in the eight cluster areas of the EU RESET program. The first subsection discusses the status and changes over time of the natural resource base of the cluster areas. The second subsection discusses the dependence on and access to natural resources in the cluster areas, followed by major causes of natural resource degradation in the third sub-section. The fourth subsection presents disaster risk management aspects of the cluster areas.

7.1. Natural Resources: Current Status and Changes over Time

The status and trend of natural resources in Cluster 1 (Waghimra)

Two thirds of the Waghimra zone is in the lowland and close to a third in the midland agro-ecological zones. Hilly and rugged topography, severe soil erosion, and short and erratic rain fall characterize the zone. Agro-ecologically, Waghimra is a dry *woina dega* zone where moisture deficiency, rugged topography, land degradation, poor soil fertility and an unusually short rainy season undermine agricultural production and productivity. Though some 40 permanent and seasonal rivers and streams including the Tekeze river exist in Waghimra zone, irrigated farming is still under developed due to topographic barriers and under development of irrigation facilities. In the lowlands, livestock production dominates. The population of Waghimra zone is projected to be 0.5 million in 2017. It grows at a rate of 3.4% per annum. The population density of the zone averages 51 persons per square km though it is 28 in Ziquala and 70 in Seqota woredas (CSA 2013).

There exist over a million livestock, of which 360,000 are cattle (CSA 2016). The livelihood of most people in the cluster is dependent on agriculture (smallholder crop and livestock farming) coupled with apiculture, indicating high dependence on existing communal natural resources for fodder. Though people depend on livestock and beekeeping, the livestock-environment link is not adequately understood. Thus it is still poorly managed, aggravating further landscape degradation. Thus, there is need to manage in a balanced way the relationship between agriculture, livestock and the natural resource base in order to sustain the agricultural

production system. Unsustainable use and subsequent degradation of natural resources severely undermines the livelihoods of the rural people who are dependent on managing these resources.

Figure 7.1. Land use land cover changes of Seqota woreda between 2003 and 2013

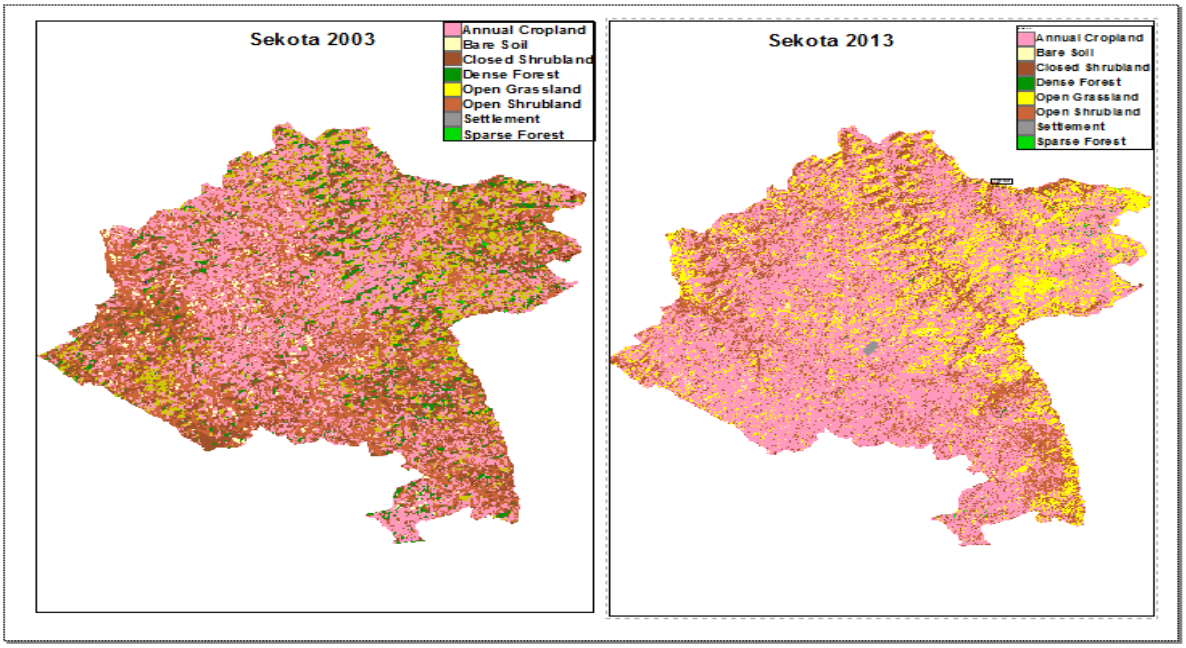
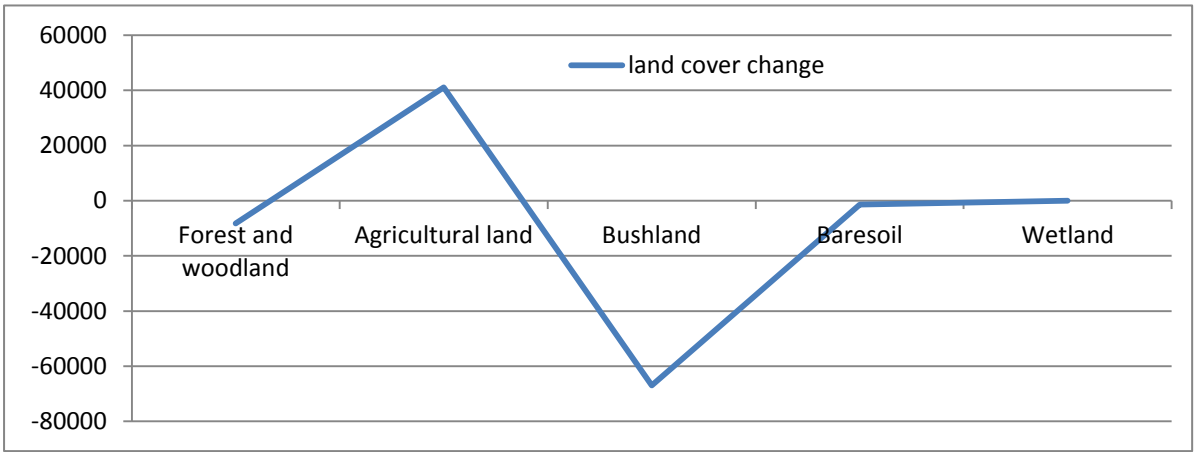


Figure 7.2. Gains and losses in major land use categories in Seqota woreda, 2003-2011



As can be observed from Figure 7.1 and Figure 7.2, the LULCC in Seqota woreda (assuming that it depicts the general trend in the cluster) is characterized by sharp increase (over 40,000 ha) in agricultural and grass lands at the expense of shrubs and bush lands (reduced by over 60,000 ha). The satellite images also put in question the validity of woreda level figures about forest area overage in the woreda of over 47,000 ha. The remnant forest and woodlands were converted either to agricultural or grasslands. This clearly indicates a worrying trend of depletion of the vegetation cover and the need to address this challenges in a coordinated and well thought manner.

The status and trend of natural resources in Cluster 2 (Afar Zone 1, 4 and 5)

Cluster 2 is located in Afar region, and is characterized by arid and semi-arid climate with an annual average temperature in excess of 30°C. The rainfall is low and erratic and its distribution is bimodal. The average annual rainfall amounts to 500 mm in the west and decreases to 150 mm in the east. The major rainfall, locally known as *karama,* occurs from mid-June to mid-September whereas the small rains called *sugun* are expected in March and April. Erratic rainfall distribution affects the availability of pasture and water as well as overall food security situation of the pastoral and agro-pastoral communities.

There exist a number of perennial rivers in the cluster such as Awash, Mille, Dewe, Telalak, and Borkana. The topography of the landscape is gentle and its soil quality good, indicating suitability for irrigated farming. But irrigation is underdeveloped and these water and land resources are thus underutilized. Afar Regional Bureau of Economic Development report indicates that the current population in the cluster is 337,718. The population of Afar region in 2017 will be 1.8 million, and grows at a rate of 3.4% per annum The population density in Afar region is 22.2 person per square, making it among scarcely populated regions of the country (CSA 2013). Pastoralism is the main livelihood. The total number of livestock in the region in 2014/2015 was close to 7 million, of which 3.2 million are goats, 1.7 million are sheep, 1.6 million are cattle and 0.4 million are camels (CSA 2016). Wealth is determined by number of livestock especially cattle and camels. Poor households own few livestock and engage in self-employment such as the collection and sale of firewood. The poor also receive government assistance in the form of food aid (emergency ration distribution) or benefit from the productive safety net program. These sources contribute to a significant proportion of household food needs. In Dewee woreda for example, more than 85% of the households had received either food aid or benefited from food for work (NDRMC 2016).

The LULCC in the cluster as assessed using the case of Chifra woreda (Figure 7.3) shows that there is not that much of change in agricultural land, slight decline in the area of forests and woodlands, but significant decline in the area of shrubs and bush lands (by over 40,000 ha), and increase in the area of grasslands by close to 40,000 ha, and increase in the total area of bare lands by about 10,000 ha (Figure 7.4). This indicates a major vegetation removal from the landscape over the years. The economic (whether positive or negative to livestock production) and ecological implication of this trend calls for closer investigation of the major drivers and their implications to propose appropriate interventions measures.

Figure 7.3. Land use land cover changes of Chifra woreda between 2003 and 2013

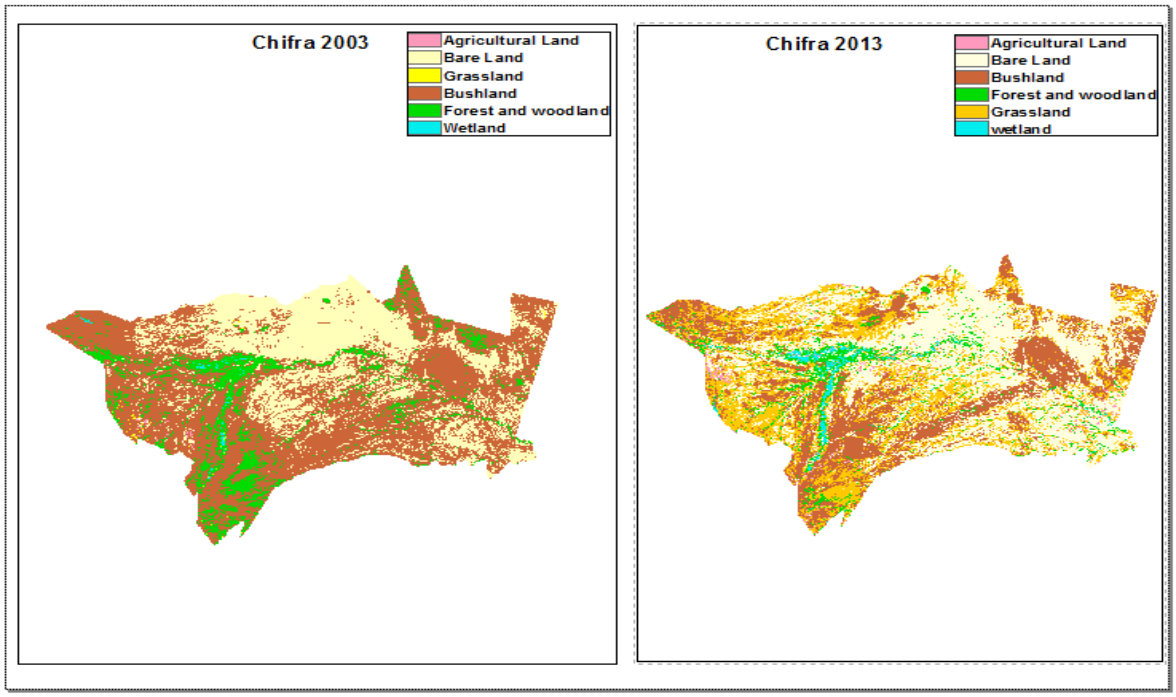
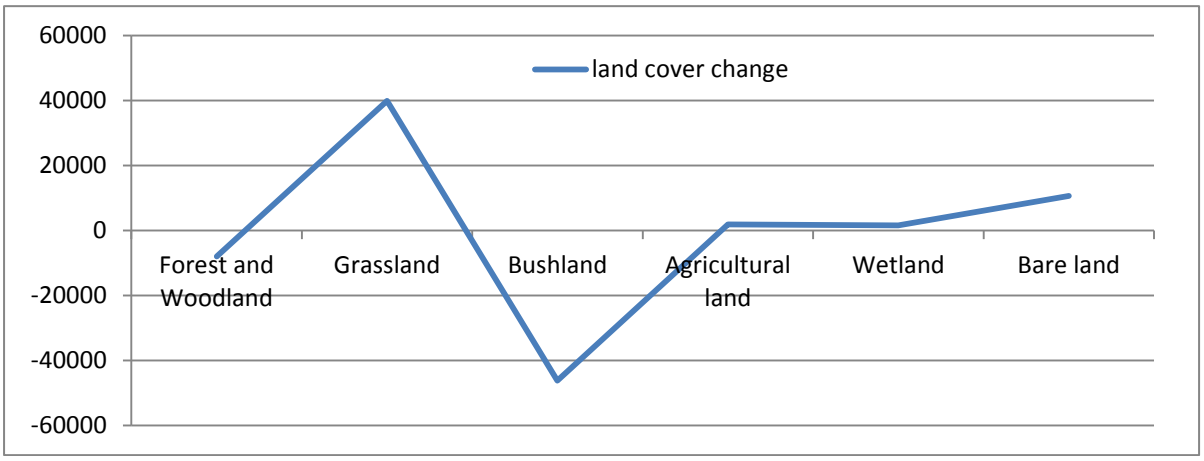


Figure 7.4. Gains and losses in major land use categories in Chifra woreda, 2003-2011



The status and trend of natural resources in Cluster 3 (Siti)

Like Afar zones, Siti zone is also a semi-arid area where pastoral and agro-pastoral production systems dominate. The terrain is mainly flat with semi-arid climate and suitable soils for farming. The vegetation is characterized mainly by sparse woodlands, thorn bushes and grasses that support large number of grazing and browsing livestock species.

The rainfall is generally erratic. The annual rainfall varies between 500 and 700 for most areas in the cluster. The rainfall has a bimodal distribution with *diraa* rains expected to occur from March to May and the *karan* rains from July to October. While both rainy seasons are important, failure of the *diraa* rains has a much more significant effect on livestock because it

comes after the long dry season, locally known as *jilaal*. In the dry season, portion of the herd except milking cows and sheep move in search of water and pasture. This mobility enables pastoral and agro-pastoral communities to make use of seasonally available fodder and water over large area.

The population of the zone is estimated to be 0.6 million in 2017, and grows at a rate of 3.4% per annum (CSA 2013). People in this zone manage large numbers of livestock as they depend on pastoral and agro-pastoral production systems. Most of Siti zone is inhabited by pastoral communities, and only a small part in the south is considered as an agro-pastoral livelihood zone. As a result, the majority (about 75-80%) of the people in Siti zone are pastoralists. Agro-pastoral and urban communities account for about 15% and 5% of the population, respectively. Rural pastoral households are very dependent on markets, income and food transfers to cover their food requirements. Income from firewood and charcoal sales is among the main household income sources, especially for the poor. Unlike other clusters, renting pack animals is an important source of household income, particularly for relatively wealthy households.

As getting woreda level information for woredas in Siti cluster proved difficult, we assessed LULCC using the changes in Siti zone in general. The zone is marked by already dry and challenging environment. As can be observed from Figure 7.5 and Figure 7.6, the LULCC in zone shows an overall decline in grassland and expansion of agricultural land by about 80,000 hectares at zonal level. There is also a marked bush expansion from south-western part of the zone and an overall decline in vegetation/bushes and shrubs in the south-eastern part of the zone.

Figure 7.5. Land use land cover changes of Siti zone between 2003 and 2013

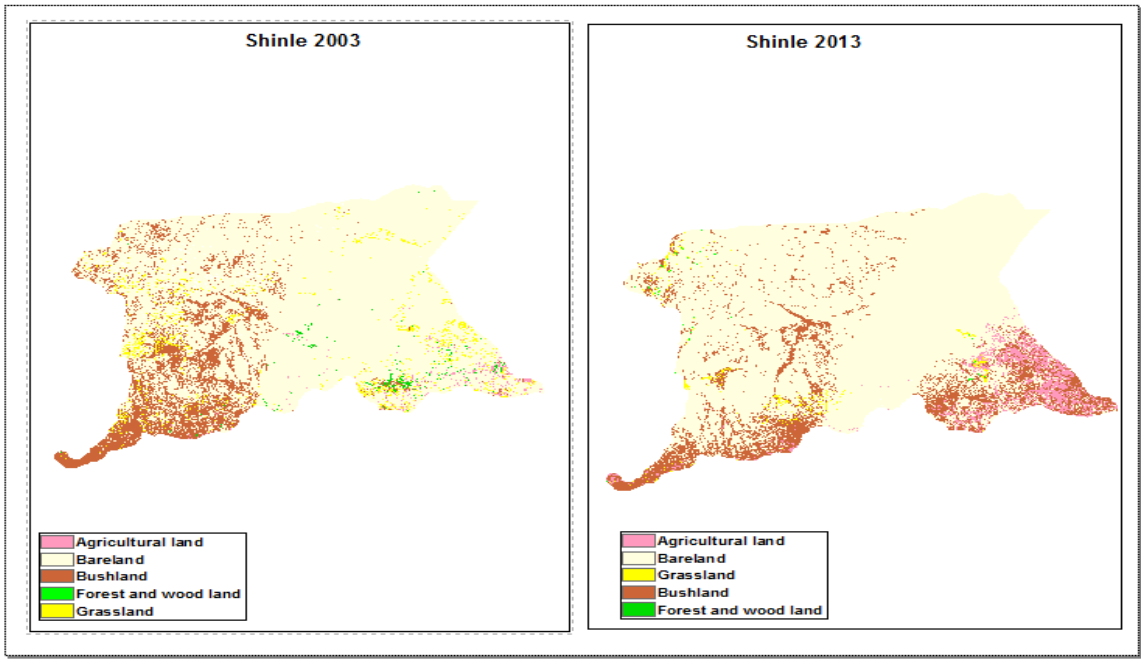
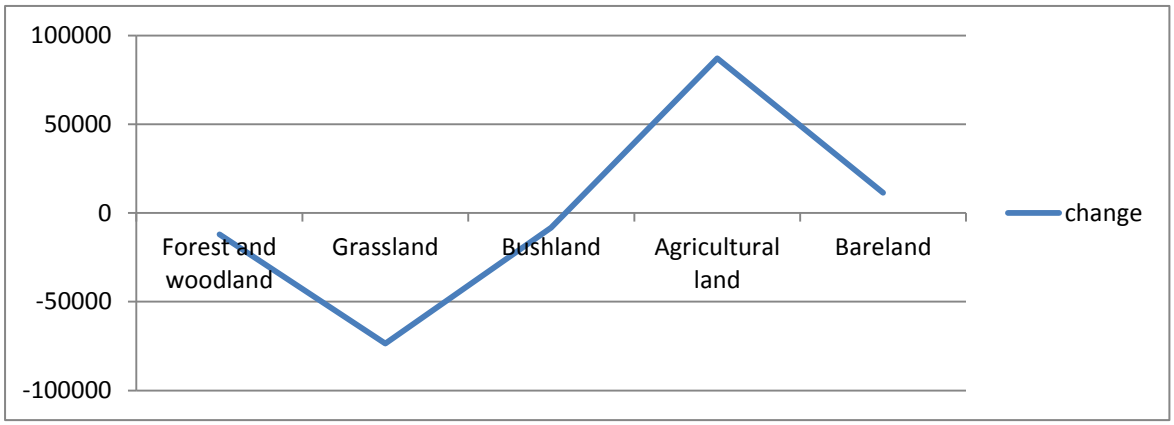


Figure 7.6. Gains and losses in major land use categories in Siti zone, 2003-2011



The status and trend of natural resources in Cluster 4, Liben zone

Similar to Afar and Siti, Liben is characterized by arid and semi-arid type of climate. Average temperatures exceed 30^{o} Celsius. The rainfall distribution is bimodal. The long rainy season, locally known as *gu*, is between April and June. It contributes to about two-thirds of the total annual rainfall. The short rainy season (known as *deyr)* is from October to November. The two dry seasons in between are referred to as *jilaal* (from December to March) and *haggaa* (from July to September). Rivers, dams and underground water are important water resources of the cluster. But irrigation based farming and fishery are still under developed. Its proximity to Kenya opens up opportunities for cross border trade but also for resource use related conflicts. The total population of Liben zone is projected to be 0.7 million by next year and

grows at a rate of 3.4% per annum. The average family size 6.5 (larger than the national average). Regarding ethnic group composition 97.2% of the population is Somali. The people in the zone manage 1.7 million livestock of which 0.25 million are cattle (CSA 2013).

With regard to LULCC over a decade, Figure 7.7 and Figure 7.8 of Dolo Odo woreda depicts a worrying trend of expansion of bare lands a significant decline of grass lands (over 150,000 hectares), and almost total loss of the remnant forests and woodlands. We also note that bush lands are taking over the patches of grass lands in western parts of the woreda. Thus land degradation and major undesirable land uses changes (bush encroachment for instance) are serious challenges of the woreda and hence likely to be the case for the cluster at large.

Figure 7.7. Land use land cover changes of Dolo Odo woreda between 2003 and 2013

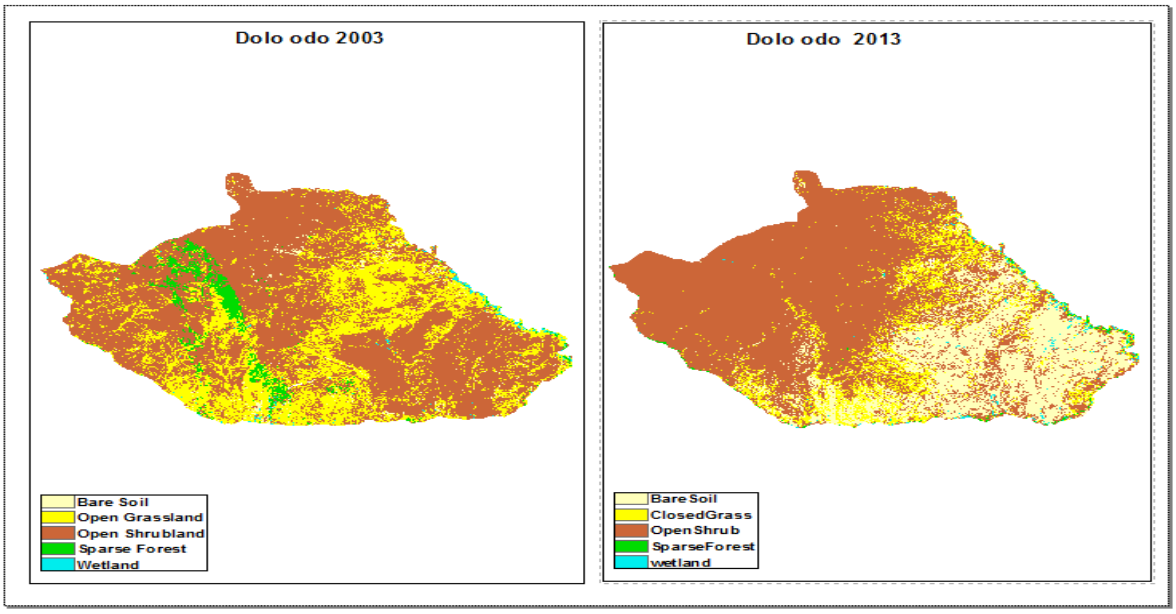
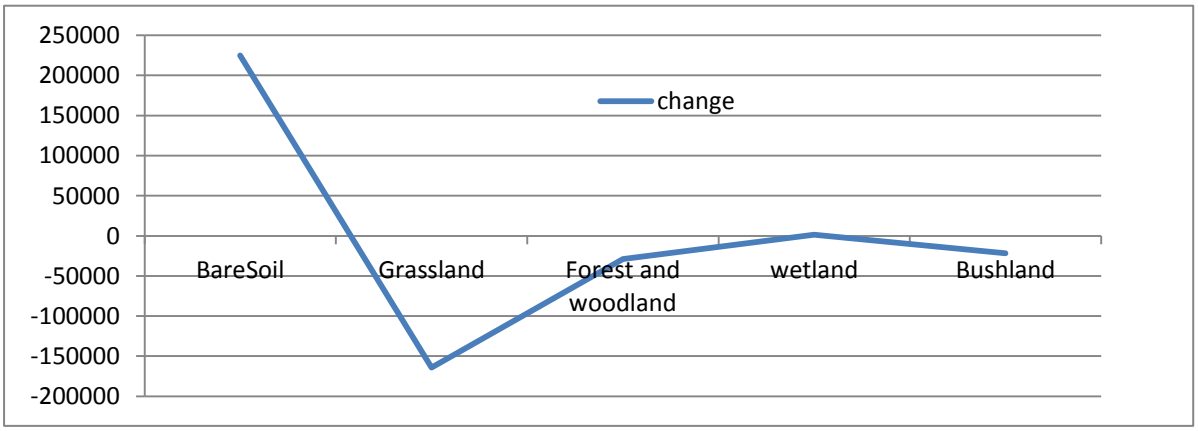


Figure 7.8. Gains and losses in major land use categories in Dolo Odo woreda, 2003-2011



The status and trend of natural resources in Cluster 5, Bale zone

The clusters in Bale is constituted by woredas that are in the lowlands of Bale zone. The woredas in the cluster receive rainfall that varies from about 500 to over 900 mm per annum. There are four seasons: *ganna* the long rainy season (March-May), *adolesa* the short dry season (September-November), *hageya* the short rainy season (June - August) and *bona* the long dry season (December- February). The population size of Bale zone will be over 1.8 million by 2017. Its population density is 37 persons per square km. Like in other clusters, the population grows at a rate of 3.4% per annum The zone is also home for over 3 million livestock of which 1.6 million are cattle and over 329,000 are equines, the highest number of equines in all of the clusters (CSA 2013). This may point out to strong need for animal power for rural transportation. The people in the cluster are dependent on pastoral and agro-pastoral production systems. The pastoral system dominates in the lowlands and cattle, sheep, goats and camel are the major livestock species. Agro-pastoral system is on the midlands where rained agriculture and livestock rearing are commonly practiced. The cluster is also known for its gums and resins production potential. Thus honey, gums and resins are collected for the forests and woodlands while looking after livestock. These products are sold in local markets, where traders bulk and transport them to main markets in the regional towns. Livestock and forest products are also known to have been traded across borders to Kenya and Somalia though actual figures and values are lacking.

With regard to LULCC over a decade, Figure 7.9 and Figure 7.10 of Dawekechen woreda depicts almost total loss of forests and woodlands (over 10,000 ha), and major changes of bush and shrub lands to grasslands (about 40,000 ha) and expansion to a certain extent of agricultural lands (under 10,000 ha). Like the situation in other clusters, this clearly indicates a worrying trend of depletion of the vegetation cover and the need to plan and engage in efforts to address this challenges in a coordinated and well thought manner. Again here too, satellite imagery data do not support woreda level figures of the existence of over 43,000 ha of forests in the woreda.

Figure 7.9. Land use land cover changes of Dawekechen woreda between 2003 and 2013

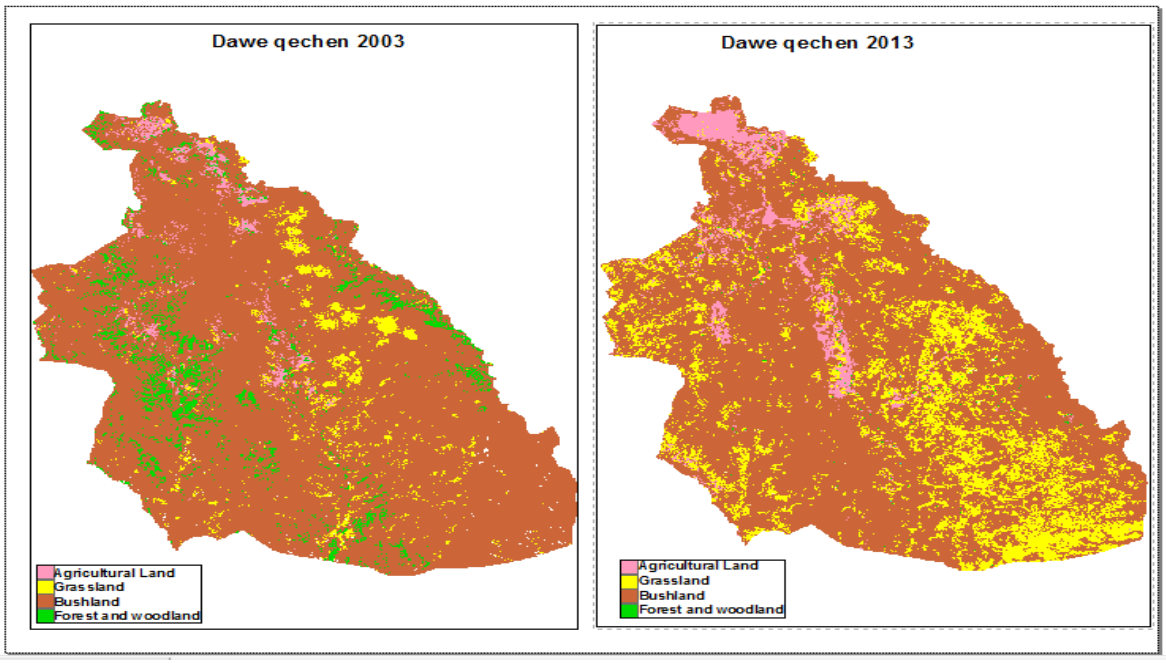
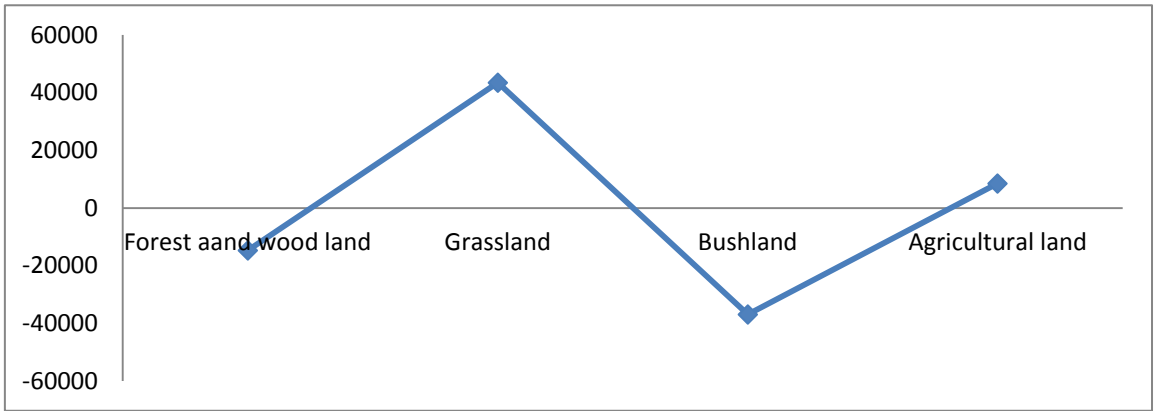


Figure 7.10. Gains and losses in major land use categories in Dawekechen woreda, 2003-2011



The status and trend of natural resources in Cluster 6, Borena zone

Borena zone is characterized by largely arid and semi-arid climate. Thus shrubs and rangelands dominate the landscape. Other natural resources include gums and incense producing Acacia, Boswellia and Commiphora species, and minerals (gold, gemstones, salt, etc.). Thus poor households also depend on collecting and marketing forest products and get employments in the nearby miming companies and towns. Wildlife is also important natural resource in the zone. Zebra, buffalo, giraffe, elephants, birds and other wild life species are known to exist, and trophy hunting practices have begun. The Oromia Forestry and Wild Life Enterprise recently established the Borena National Park and controlled hunting areas inside the park. The population of Borena zone is projected to be 1.26 million in 2017, and grows at

a rate of 3.4 % per annum Over 90% of population lives in rural areas. The population density of the zone is still low, low 24 persons per square kilometer as compared to over 400 in Wolayita zone (CSA 2013). The livestock population of the zone in 2015 is estimated to 2.5 million of which slightly over a million are cattle (CSA 2013). The vast majority of the people in Borena are pastoralists. The rest are agro-pastoralists engaged in crop production. The Borana-Guji pastoralists who are dependent mainly on cattle inhabit the lowland areas and agro-pastoralists who also produce a little bit of maize and haricot beans are in the midlands.

The LULCC in the cluster as assessed using the case of Meyo woreda shows that there is not that much of change in agricultural land. But we note decline in the area of forests and woodlands, but significant change of shrubs and bush lands to grasslands, and increase in the total area of bare lands (Figure 7.11 and Figure 7.12). The economic and ecological implication of decline in shrub and bush lands and rise in grasslands calls for closer investigation the vegetation dynamics on the ground, major drivers and their implications to propose appropriate interventions measures. It also indicates the need to study further the claim by many of bush encroachment on grasslands to better define its extent.

Figure 7.11. Land use land cover changes of Meyo woreda between 2003 and 2013

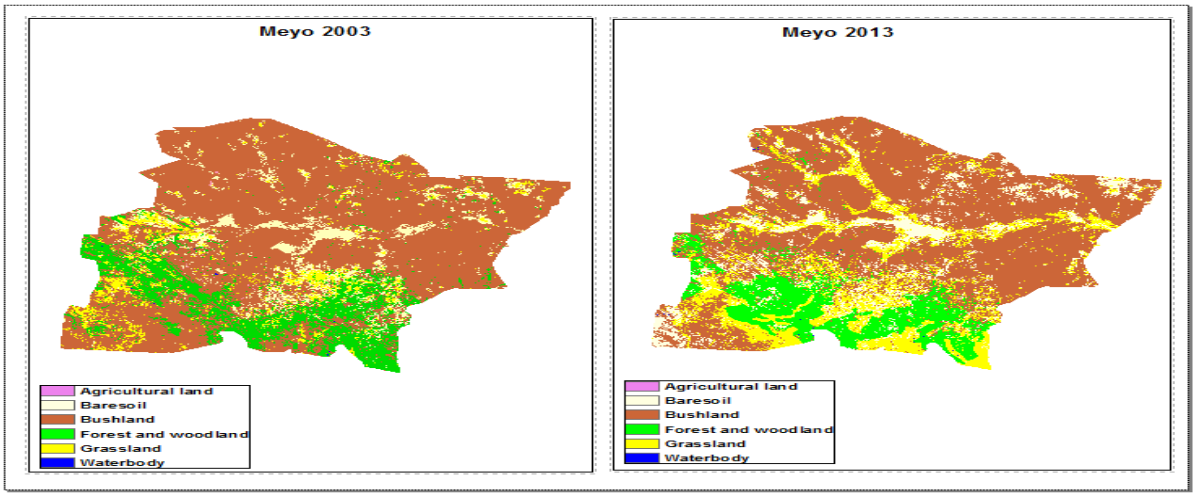
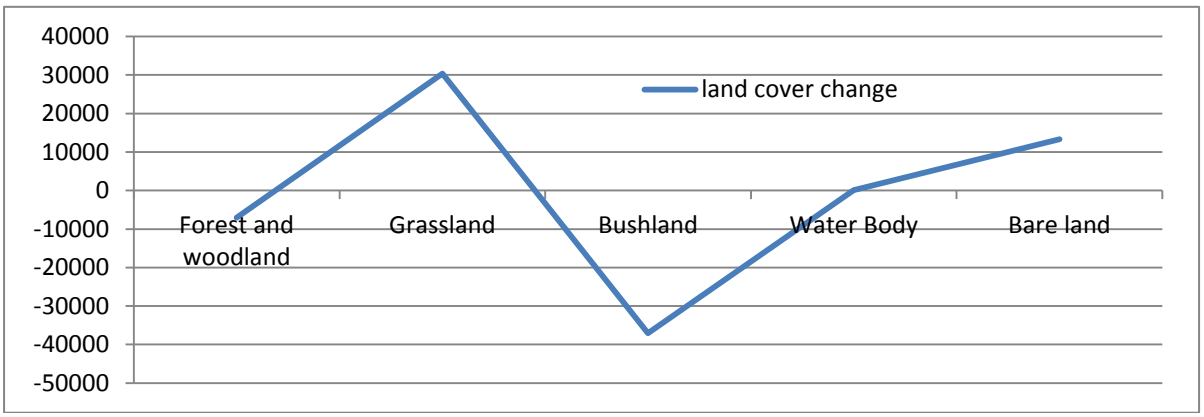


Figure 7.12. Gains and losses in major land use categories in Meyo woreda, 2003-2011



The status and trend of natural resources in Cluster 7, Wolayita zone

Wolayita zone is endowed with 14 rivers that could contribute to the development of irrigation based farming. But most have not yet been utilized for irrigation or other uses. Wolayita zone is the most densely populated zone of all of clusters. The population of the zone is projected to be 1.95 million in 2017. The population growth rate in the zone (3.4% per annum) is also much higher the national average of about 2.5%. The average population density of the zone is 415 persons per square km. It is worth noting that two of the woredas in this cluster, Damotfulase and Damotgale respectively have a population density of 734 and 695 persons per square km. According to one of the key informant experts the average land holding in Bolososore woreda is 0.25ha. This clearly illustrates the population pressure on the landscape.

Despite high human population density, the zone is also home for 1.2 million livestock of which 800,000 are cattle (CSA 2013). With regard to LULCC over a decade, Figure 7.13 and Figure 7.14 of Kindokoysha woreda depict a rapid change of grasslands and woodlands to agricultural fields. Given the population pressure in the cluster, this is not unexpected. But given the topography and susceptibility of the cluster to landslides, the implications of this rapid land use needs to be understood and mitigation measures needs to mitigate further degradation need to be identified. Similar to others, the satellite imagery data do not support woreda level figures of the existence of over 13,000 ha of forests in the woreda, as indicated in the field reports from the sample woreda.

Figure 7.13. Land use land cover changes of Kindokoysha woreda between 2003 and 2013

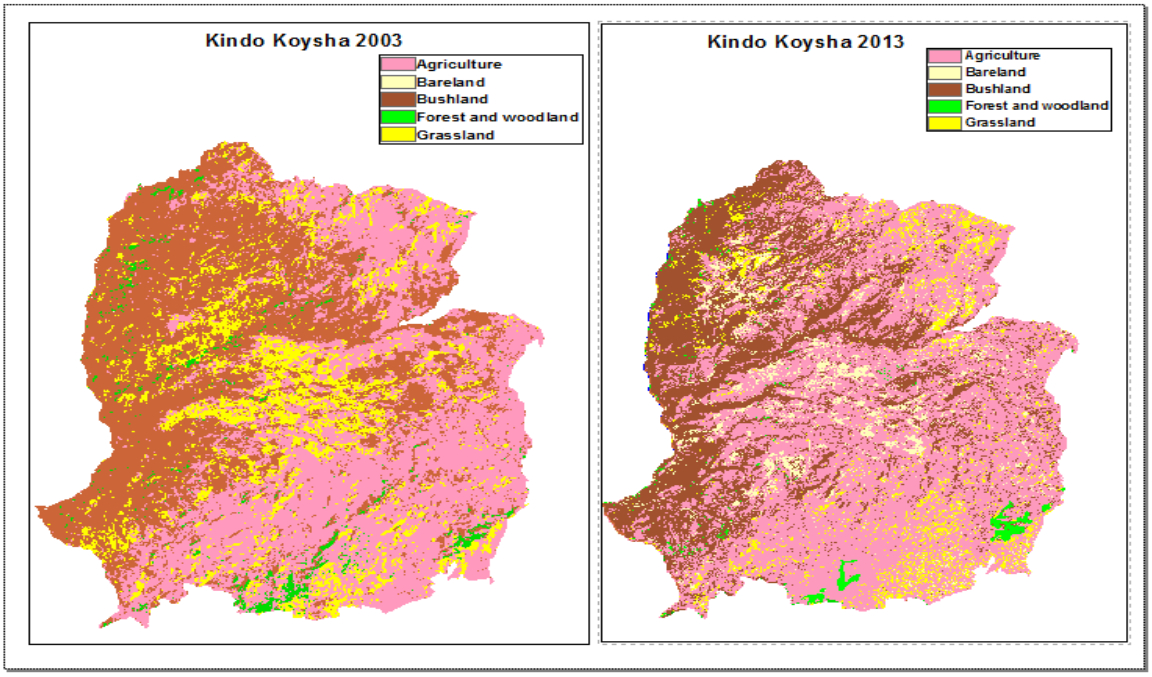
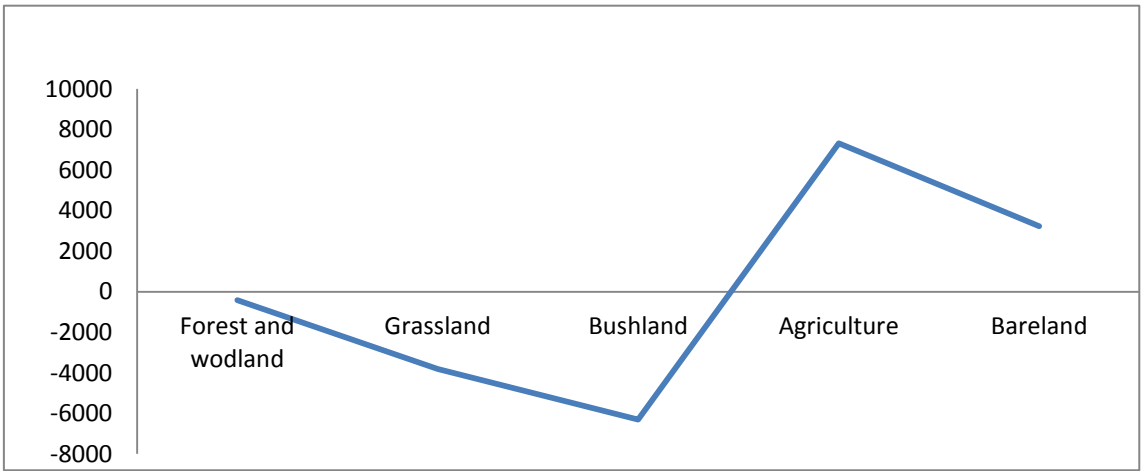


Figure 7.14. Gains and losses in major land use categories in Kindokoysha woreda, 2003-2011



The status and trend of natural resources in Cluster 8, South Omo zone

Livestock rearing is the main livelihood activity followed by crop production and bee keeping. Pastoral production system is practiced in the semi-arid rangelands. Goats, cattle and sheep are the major livestock species reared. Agro-pastoral production system dominates along the Omo River basin where crop (mainly on flooded plains and river banks) and livestock production are important economic activities. The crops grown are sorghum, maize, and teff. But there is still high dependence upon livestock and their products. Forests and most of the grazing land remains communal. There is a community forest called Buska forest. Elders and community leaders play important roles in ensuring that communal resources are responsibly

used. Elders also mobilize communities for collective actions in NRM and assert cultural laws and regulations to penalize illegal uses.

Experts pointed out that unlike other clusters where pastoral and agro-pastoral production systems dominate, in this cluster there is communal and private pasture land. Most households maintain their own private pasture land around their homesteads. This pastureland will be enclosed to serve as reserve fodder bank in times of shortage or during droughts. There is also private holding over important tree species such as Moringa. Moringa is an important food source (also known as cabbage tree). Other economically important fruit and fodder trees can also be privately owned. But privately managed farm plots and grazing lands have not been certified by the government.

The LULCC in the cluster as assessed using the case of Hamer woreda shows that there is a slight increase in the area of agricultural land. But we observe a drastic change of bush lands to grasslands (close to 200,000 ha), and rapid expansion of bare lands (over 50,000 ha), likely the previously grassland areas (Figure 7.15 and Figure 7.16). Preliminary information point to the incidence of frequent and widespread fire in the woreda. The major drivers of and the economic and ecological implication of this drastic land use deserve closer investigation in order to propose appropriate interventions measures.

Figure 7.15. Land use land cover changes of Hamer woreda between 2003 and 2013

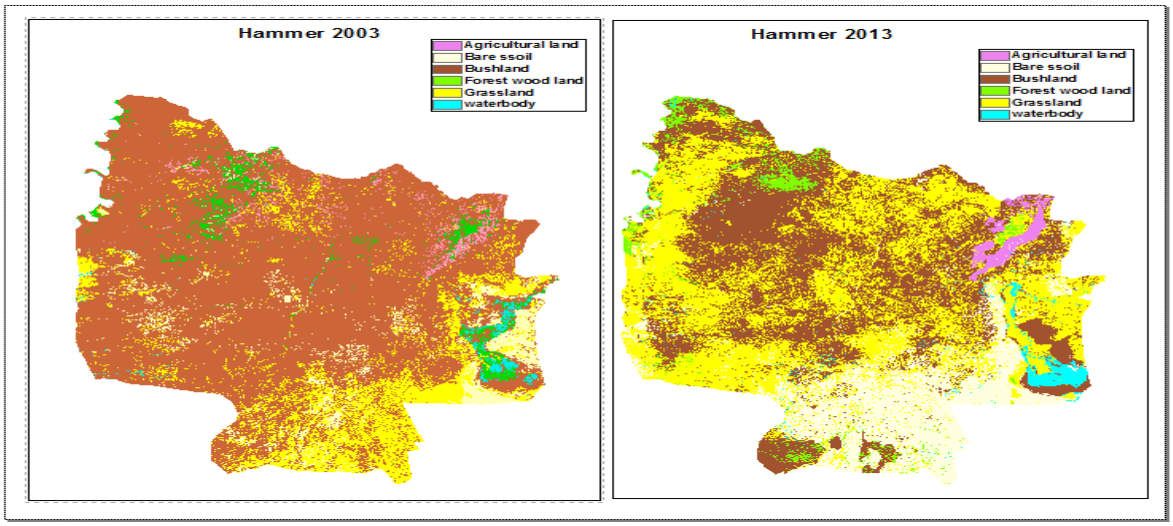
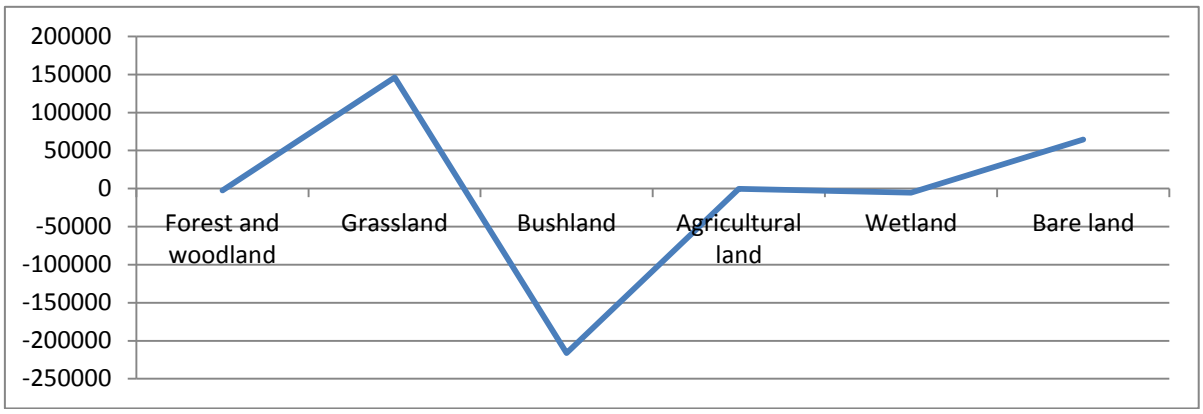


Figure 7.16. Gains and losses in major land use categories in Hamer woreda, 2003-2011



In all clusters we observe drastic changes in land use which indicate the need for working towards well thought land use planning in these areas. Areas that will be used for irrigation need to be defined and their uses assessed in view of their role in the overall pastoral and agro-pastoral livelihood systems. The farm by-products could provide feed sources and the farms could also create employment opportunities. By so doing they contribute to diversification of livelihood options as well. Thus it is helpful to consider option to ensure that such land use changes (grazing lands to irrigated fields) would not further squeeze mobility of pastoral and agro-pastoral communities. Instead the sites could be identified and production systems identified in such a way that these irrigated farms also complement or livestock production nearby. Estimating how much land can be irrigated and the implications of these on local livelihood requires more information and time to arrive at meaningful conclusions.

7.2. Dependence on and Access to Natural Resources

7.2.1. Dependence of communities on natural resources

Rural communities in all of the clusters depend on natural resources for their livelihoods. People use forests and non-agricultural landscapes to graze their livestock, to gather wood for various uses (household energy, constructing residences and fences, farm implements, water and milk containers, livestock feeders, etc.) wild foods and medicinal plants. Foods from forests – leaves, seeds, nuts, fruits, mushrooms, honey, insects and wild animals – are rich in micronutrients and make an important contribution to diet diversity and nutrition though globally they contribute only a small amount of caloric energy.

In pastoral and agro-pastoral areas wood and grasses are the primary materials used to make mobile homes and household furniture (e.g. milk containers, water containers, troughs, spoons, plates, stools, etc.). Many youngsters and women from poor households collect gums and resins from dry forests and rangelands while looking after livestock or collecting fuel

wood. The poorest segments of the community such as the landless and female-headed households in particular depend on income from sale of firewood, gums and resins, and fodder collected from forests in Liben, Bale and Borena zones. The majority of the rural people are dependent on rivers and streams for potable water and to water their livestock. Thus degradation of communally used natural resources will affect these segments of the society.

7.2.2. Community access to natural resources

Ensuring equitable access to communally used natural resources notably water points, farming and grazing lands, and forests is critical for rural communities. With regard to water points, shallow and small ponds are managed by the community members themselves (ideally through water users' association/committee) whereas large dams and bore holes/deep wells are owned and managed by the government. The administration of access to farming plots varies. In the highlands it is generally done by the relevant government institution through provision of land use certificates to households. In the pastoral and agro-pastoral areas however this is commonly done through existing traditional institutions. Communal lands and forests are also administered by the state in the highlands but mainly by traditional institutions in the lowlands.

In Waghimra, most households have received land use certificates from the government and individually manage their crop fields. On the other hand, livestock production is based on free grazing on communal lands. The same is largely true for Wolayita. No information was obtained as to the importance of traditional institutions in determining access to and use of communal resources in Waghimra and in Wolayita. Thus it appears that formal government agencies are in charge but local communities assume their *de facto* use rights. Respondents (experts and community members) seem in favour of administration of communal natural resources by formal institutions (governmental agencies) as demands on these resources is increasing over time due to human and livestock population pressure in these two clusters. In all other clusters, livelihood of communities is largely dependent on livestock production that graze or browse on communal lands. Thus mechanisms governing access to and use of these communal resources need to be understood adequately and be part of the process to identify interventions that would help build the resilience of communities and their ecosystems.

In Afar, the land is predominantly used for grazing and browsing as farming activities are minimal. Farm plots managed by individual households are accessed through clan leaders for land is communally owned and administered by them. Experts and respondent key informant community members believe that the traditional rules are effective and well-

respected and elders ensure equitable access and proper use of communal resources, notably grazing lands. The rules determine at a given time who will use a given resources and who is excluded from using it, and how to prevent conflicts and manage them when they happen. Some felt however that these traditional institutions are becoming weaker as the younger generations tend to challenge the authorities of clan leaders. Successive governments paid less attention to traditional systems of governance of common property resources in pastoral and agro-pastoral areas of the country (Bekele and Kassa 2014).

In Siti and Liben, grazing lands are managed by clan/sub-clan leaders and elders with known knowledge about the ecosystem and the distribution of browse and grass species preferred by livestock. The elders grant permission to graze, control distance and direction of different users. They enforce grazing controls, and determine timing and location of movements of livestock to minimize conflicts and over grazing of rangelands. Key informant community members and experts in GOs stress that they are working in a complementary manner with traditional institutions but would like to assert increased role for government agencies in administering communally used natural resources. They point out efforts the respective woreda offices are making to establish formally at kebele level committees that would oversee the use and management of communal natural resources by forming water, grazing land and other NR management committees.

These committees are expected to have representatives from kebele administration, community/religious leaders, women and youth associations, and elders. These committees are encouraged to manage, monitor, and report on the state of, access to and use of water points, farm and grazing lands, and woodlands and forests. Additional information could be obtained to verify this, and know the extent of their establishment (i.e. in all woredas and in all kebeles in each of the woredas). Little is also known about their operations, how they are supported and monitored by woreda and higher levels officials, and whether the work of these committees is complementary or competitive to the traditional institutions. These are questions that need to be addressed. The emergence of forest products based cooperatives in some of the cluster (e.g. gums and resins collection and marketing coops in Liben) has created an important institutional interface that could be used to introduce more responsible forest management. These cooperatives can be trained and monitored to introduce more responsible forest management. In Liben zone alone, 15 such cooperativess with more than 2000 members do collect and market gums and resins from dry forests and woodlands. Collected volume increases during dry season and in times of drought.

In Bale and Borena, the traditional *Geda* system plays important role in administering communal natural resources. In Oromia in general, the *Geda* system is still operational and well respected both by government authorities and by the communities, including the youth. The *Geda* system is believed to ensure that all community members have equal access to the natural resource and use it responsibly. The *Geda* system divides grazing lands into two – some are allocated for the dry season while others are grazed during the rainy season. By so doing each plot is allowed to rest and rehabilitate. People use the grazing lands according to the programs set by the *Geda* system. If anyone uses communal resources illegally, he will be punished by the respective *Geda* authority and according to well established traditions. Experts stress that government works through the *Geda* system to improve its capacity to govern access to and use of communally used natural resources. Some informants pointed out that in Borena zone the formal institutions (government agencies) can be functional only if it goes through *Geda* system as the field reports show.

In Wolayita, communal grazing lands are governed by the woreda land administration office in collaboration with kebele administration. These GOs at times sub-divide grazing lands and allocate it to landless youth to be used as farm lands (We were also informed that 2 ha of land is given to 10 landless youth as farm land, and the youth are not allowed to plant trees as they are expected to return the land for other youth after few years). For example, in Duginafango woreda alone, a total of 97 hectares of communal grazing land was allocated to landless youth in 2015. In South Omo, information on the role of traditional institutions in governing access to and use of common natural resources is scanty. However, reports from the field team indicate that land is not as scarce commodity and can be accessed easily by any one with the permission of elders as it is the elders who decide on the allocation of land.

7.2.3. Access to NR of women and youth

Most of the farmers in Waghimra and Wolayita have received first level land use certificate for the plots that they have been using for crop production. The land use certification program recognizes and asserts women's rights to land. But the number of landless youth continues to grow. The government has programs to train and support youth to engage themselves in various income generating activities. In some cases, groups of youth are allocated portion of grazing or rehabilitated lands and hillsides. This is particularly the case in Waghimra and in Wolayita. But in the other clusters landlessness does not appear to be a major issue for the youth as most lands are communally owned and used. Those who would like to be engaged

in farming can get access to plots through the existing traditional institutions, notably elders (e.g. in Siti, Borena and South Omo). With regard to women, given the religious orientation and cultural norms, most of the assets with major values are owned and administered by men, including privately managed lands. Thus a lot more time and effort is needed to empower women in the pastoral and agro-pastoral areas and assert their rights over resources notably land.

7.3. Underlying Drivers of Natural Resources Degradation

The underlying drivers for all cluster are (i) population pressure (increase in number of poor people that depend on NRs), (ii) dependence on individual use of communally owned and largely unmanaged NRs, (iii) lack of national land use plan to govern development options and land use changes, and (iv) institutional failures (e.g. lack of clear and effective tenure system for communal resources; weak role (absence or limited presence) of GOs in NR and DRM in the pastoral areas, failure to enforce existing rules and regulations), etc.

The immediate causes of NR degradation are: erratic rainfall and subsequent droughts, over grazing and excessive extraction of wood/tree cutting for energy (in all clusters), expansion of invasive bushes, weeds and toxic plants on rangelands (in Afar, Siti, Bale and Borena), and farming marginal lands and hillsides (in Waghimra and Wolayita).

Erratic rainfall and subsequent droughts – Rainfall distribution affects vegetation composition particularly in arid and semi-arid areas. Thus, more frequent droughts affect availability and distribution of water and grazing and browsing species on the landscape. It also indirectly affects degradation of NRs by forcing pastoral and agro-pastoral communities to stay on certain localities where these resources are available. This puts additional pressure on existing woodlands, grazing areas and water points.

Expansion of invasive bushes, weeds and toxic plants on rangelands – The encroachment of invasive bushes and shrubs such as *prosopis julifera* in Afar and Siti zones and Acacia species in Bale and Borena, invasive weeds (notably Parthenium weed in Afar and in Siti) and toxic plants is increasing. This significantly deteriorates the quality/productivity of grazing lands in the clusters.

Over grazing - Year-round free grazing by livestock aggravates land degradation. Livestock population also continues to increase, especially in Waghimra and Wolayita. This in turn increases the demand for livestock feed. Reports of Seqota woreda Office of Agriculture show that over the last five years the number of cattle has increased by about 8% and that of

sheep by 29.5%. In addition, farmers reported increasing shift towards goats to better adapt to the prevailing rainfall variability and feed scarcity in the cluster. There are no data to assess trends over livestock number in the lowlands. However this will not increase as high as the livestock population in the highlands due to periodic drought and disease incidences that significantly reduce livestock population.

Cutting trees for fuel wood and other uses – This is true for all clusters. In all pastoral and agro-pastoral areas, making and selling charcoal is a common practice. Sustainable harvest levels are not known and the general policy direction is to ban charcoal making. But its enforcement leaves much to be desired nor is an appropriate solution. The study team observed that selling charcoal was common even in Seqota town.

Farming hillsides and marginal lands – This factor is particularly important in Waghimra and Wolayita where crop production plays important role in local livelihoods. In Waghimra, the rate of soil erosion is reported to be high, in some cases reaching 100 tons per hectare per year though scientific evidences to back these figures are lacking. Land degradation is caused by expansion of farming on hill sides and marginal areas such as river banks.

Absence or weak representation of formal institutions on the ground (woreda and kebele levels) and lack of clear policy direction on the role of traditional institutions on the governance of communal resources – In most pastoral and agro-pastoral areas government institutions in charge of governing NRs are either absent or poorly represented. Traditional institutions have been in charge and the communities in most cases abide by these traditional institutions. At national level there is no clear policy guideline as to the role and functions of traditional institutions in governing access to and use of communally used natural resources. As a result confusion still exists on how to harmonize the roles of these two institutions – GOs and traditional institutions. There is little (e.g. in Oromia to work with the *Geda* system) or no (in other regions) to make formal and traditional institutions of resource governance complementary. This could lead to either institutional gap or overlap of responsibilities and hence confusion at local level that could aggravate NR degradation. In some areas, increasingly declining importance of traditional institutions in governing access to and use of rangelands is reported while formal institutions and legal mechanisms are still weak to assume full responsibilities. This also leads to further degradation of communal resources, notably forests and rangelands.

7.4. Adjusting Pressure to the Potential of NRs to Reduce NR Degradation

The concept of carrying capacity is often used to managing human and livestock pressure on NRs and thereby to reduce degradation. Carrying capacity is understood as the number of people, animals or crops a region or an area can support without suffering from environmental degradation. The concept of carrying capacity is widely used in areas where the primary production potential of the land can easily be estimated and where variations in such estimations are minimal, such as in primarily agricultural areas. In six of the eight clusters, pastoral and agro-pastoral production systems dominate. There have been attempts to estimate carrying capacity of pastoral and agro-pastoral areas. However various studies have pointed out the difficulties of using the conventional carrying capacity concept in such areas due to various technical and practical and knowledge related challenges. Our knowledge about the productivity levels of rangelands (and its variation over time and space) and the nutritional requirements our livestock breeds for subsistence and production functions remains minimal.

Also the concept is dependent on the vegetation condition and economic objectives we would like to attain and the production system we are following. For instance a private ranch managing cattle for been cannot have similar carrying capacity to a subsistence oriented pastoral production system on communally owned rangelands. Thus using a carrying capacity concept to determine the number of livestock or people that could be supported in the cluster areas may prove difficult. These areas are characterized by unpredictable and large inter- and intra-annual variations and greater spatial heterogeneity in primary (feed) production to allow meaningful carrying capacity estimation. Thus, using the carrying capacity concept in order to restore the equilibrium conditions (hoping to ensure sustainable resource use) by adjusting stocking density and grazing strategy in pastoral and agro-pastoral areas has been questioned. New understanding supports an alternative view which calls for opportunistic carrying capacity that allows stocking densities to vary overtime and space to make maximum use of vegetation without damaging resources and also accepting the periodic need to destock or suffer losses. In other words, recognizing efficiencies of existing practices and building upon them. To conclude, it will be more appropriate to adopt the concept of opportunistic carrying capacity **i**n pastoral and agro-pastoral areas**.**

7.5. Disaster Risk Management: Emphasis on Risks and Their Impacts

In all of the eight clusters, children, lactating mothers and pregnant women, elders and the poor are the most vulnerable to disasters. As they are physically weak to escape, they might

also get starved due to shortage of food during displacement. The youth and children are the most vulnerable during conflicts over resources as these are the ones who look after livestock and hence easily attacked by gun men or raiders from opponent clans or ethnic groups. Impacts on the youth affects households tremendously as this is the major labour force for agricultural operations (in Waghimra and in Wolayita in particular) and for ensuring mobility to other areas in search of pasture and water in other clusters.

The disaster risk management aspect in each of the clusters was assessed based on the disaster risk profile assessments made by Government and the reports of the field research team dispatched to each of the clusters by EDRI. None of the Woredas in Liben and in Wolayita had disaster risk profile assessment reports made publicly available (URL address: http://profile.dppc.gov.et/Pages/Woreda_Disaster_Risk_Profile_Indicator_Reports.aspx. Thus the reports below for these two cluster are dependent on the reports of the field teams. For the remaining six clusters, the disaster risk profiles are presented as follows focusing on disaster risks and causes, impacts and losses and vulnerability factors, and assuming that the disaster risk profile of one of the woredas in the cluster provides a more or less representative picture of the cluster at large. The definition adopted for the terms disaster, disaster, risk and disaster risk management (DRM) are also based on the definitions adopted in the National Policy and Strategy on Disaster Risk Management document issued by the Ethiopian government in 2013.

7.5.1. Disaster risks, impacts and vulnerability factors in the clusters

Below we will describe the disaster risks and causes, impacts, losses and vulnerability of each of the clusters based on officially available reports and reports of teams that visited the areas.

Disaster risk profile of Cluster 1, Waghimra zone

Disaster risks and causes – Disasters in Waghimra are hydro-metrological and biological in nature. The major disasters are drought, livestock disease, crop pests and diseases, flood and human diseases. Erratic rainfall results in frequent and more severe droughts in the cluster. Drought is the main cause for occurrences of livestock and human disease as well as for damage of crops and economic shocks. The frequency and magnitude of droughts are reported to have increased over time, but death due to the effect of drought have significantly decreased. Flash floods and over flow of Tekeze dam are affecting some of the kebeles by covering the land the community is using for grazing and crop production. Human and livestock population pressure are the root causes of degradation of NRs.

Impacts and losses – Proportion of households in Ziquala woreda that have been affected by disasters over the last five years, is 38% from drought, 26% from livestock disease and 17% from crop pests and diseases and 7% from floods. Losses due to disasters are said to be 52% in crop losses, 28% in livestock damage and 6% in loss of income (NDRMC 2016).

Vulnerability factors – These include population pressure; poor access to transport, markets, water, education, extension, credit, human and livestock health services; poor saving habits; poor agricultural practices, dependency on limited livelihood options, and weak coping capacity. Studies indicates that less than 20% of households in Ziquala woreda of Waghimra zone borrowed money in one year. Weak capacity to cope is also an important vulnerability factors, 70% of households in Ziquala woreda reported their inability to recover losses that they incurred in the previous any one disaster (NDRMC 2016).

Disaster risk profile of Cluster 2, Afar Zones, 1, 4 and 5

Disaster risks and causes - The disaster risk profile assessment reports of one of the woredas (Dewe) identified droughts, livestock diseases, human diseases, conflicts, economic shocks, floods, and heat waves as the major disasters in their descending order of importance in the cluster. Drought is mentioned as the main cause that results in the occurrence of other disasters: livestock disease, human disease, conflict and economic shocks. Drought leads to shortage of feed and water, and this encourages migration that in turn triggers conflicts over resources. The frequency and intensity of conflicts associated with communal natural resource vary, and tend to be more frequent in areas bordering other ethnic groups or clans. Conflicts often lead to loss of human life and livestock that in turn results in loss of food and income. Also poor access to markets and to veterinary and health services negatively affect the livelihoods and coping capacity of people in the cluster. Increasingly erratic rainfall patterns, deforestation, soil erosion, invasive weeds and bush encroachment of grazing lands, and extremely high temperatures (average temperature in excess of 30°c.) are reported to be the most important environmental problems that contribute to increased occurrences of disasters in the cluster. Dependence on use of communal resources and competition over them has been the major cause for most resource related conflicts.

Impacts and losses – Livestock damage, loss of access to grazing land, health problems, loss of income, loss of access to water sources and death of household members are the main loses households suffer due to these disasters. In Dewe Woreda of the cluster, 29% of the

households were affected by drought disasters, 27% by livestock diseases, and 16% by human diseases between 2010 and 2015 (NDRMC 2016)

Vulnerability factors – The vulnerabilities of the communities to these hazards is largely due to dependency largely on single livelihood option (livestock rearing – over 90% of households report rearing and selling animals as their first important source of livelihood), poor access to social services, low level of awareness on farming and other livelihood opportunities, human and livestock population increment, and unsustainable use and little or no investment in the management of communal resources.

Disaster risk profile of Cluster 3, Siti

Disaster risks and causes – The major disaster risks that households face are drought, followed by livestock diseases, conflicts with different clans/ethnic groups, price shocks, human diseases and crop pests. Drought (in the form of late on-set of rain and shortage of rainfall) is the major disaster risk in the woreda which results in shortage of pasture and water and occurrence of human and animal diseases thereby resulting in death of animals, shortage of food and migration of households. Drought drastically reduces the number of livestock, notably cattle and sheep. The tradition of livestock raiding prompts retaliatory raiding and induces larger conflicts. In addition, alternative livelihood activities are limited to selling firewood and charcoal and labour migration that in turn aggravates degradation of forest and vegetation cover. Expansion of crop farming especially along rivers and dry season grazing areas is an important element that undermines mobility map and migration patterns of agro-pastoral and pastoral communities. This also instigates conflicts between herders and farming communities. Intra- and inter-clan as well as inter-ethnic conflicts are becoming increasingly important. Initially, most of the conflicts were reported to be between the Issa and the Oromos on one hand, and the Issa and Afar on the other. Recently these conflicts have gained high level attention as they are involving regional governments to define boundaries and belongingness of some kebeles and towns to a given region.

Impacts and losses – Droughts reduce availability of pasture and water for livestock which in turn results in livestock death and loss of income. Livestock and crop disease also reduce availability of food and reduction in income. Conflicts and human diseases result in human life losses that affect the households more lastingly and significantly. In Miesso woreda of the cluster for instance, between 2010 and 2015, 31% of the households were affected by drought disasters, 21% by livestock diseases, 21% by conflicts, 10% by price shocks, and 10%

by human diseases. Losses incurred due to disaster were reported as livestock damage and loss (theft), loss of income and physical damage, and reduced access to water points, grazing lands and social services (NDRMC 2016).

Vulnerability factors – Low resilience capacity of the community is one factor. In Miesso woreda, about half 52% of households did not manage to recover from the disaster losses they recently suffered. Reduction in the number of livestock holding reduces households capacity to seasonally migrate to areas where there are pastures and water for livestock. This weak capacity to cope and adapt to disaster risks means the need to get support. The majority of households received food aid (81%) and participated in food-for-work projects (73%) in one year. Water shortage, poor crop production (due to limited experiences and support and lack of knowhow and inputs), poor access to infrastructure and social services (e.g. sanitation facilitations, clean drinking water, veterinary and human health services) are the major vulnerability factors. 93% of the households reported to have poor access to veterinary services and livestock drugs.

Disaster risk profile of Cluster 4, Liben zone

Disaster risks and causes – Published information about the disaster risk profile of the woredas in Liben zone is lacking. The information gathered by the field team from the sample woreda and kebele indicates that the major disaster risk in Liben zone is drought followed by human and livestock diseases, conflicts and floods. Erratic rainfall onsets and distribution patters, low exposure to improved farming and pest control practices, isolation and poor access to extension and credit services and marketing centres contribute to increasing vulnerability of communities to disaster risks. Key informants have pointed out that drought frequency has increased from every 8-10 years in the past to every 1 to 3 years at present. This trend was confirmed by the responses of experts and key informants. Flooding due to overflow of rivers such as Dawa is affecting farming fields, livestock and residences of growing number of households. Reports of Dollo Ado woreda indicate that in November 2013 alone 10 kebeles were affected by the flood. It totally displaced 912 households, and affected over 7500 households as they lost houses, crops, livestock, water pumps, dams, shallow wells, etc. In some woredas of the cluster such as Moyale that have regional and international borders, conflicts are important disaster risks. The major causes of such conflict are pasture land, water and agricultural land. We also learned that government agencies at different levels are working with elders from the different clans and ethnic groups to manage conflicts.

Impacts and vulnerability factors – Impacts and losses as well as vulnerability factors in this cluster are expected to be largely similar to those in Siti in particular and other clusters in general where pastoralism and agro-pastoralism is the dominant livelihood option.

Disaster risk profile of Cluster 5, Bale zone

Disaster risks and causes – Drought (the major cause), livestock diseases, pest infestation, human diseases, conflicts, and price shocks are the major disaster risks in Bale zone. Similar to Liben zone, erratic rainfall onsets and distribution patters, low exposure to improved adaptable improved farming and pest control practices, isolation and poor access to services increase vulnerability of communities to disaster risks. Deforestation and pest infestation are the major environmental problems. Poor access to agricultural inputs particularly pesticides and insecticides exposed households to damages created by crop pests. Lack of awareness, lack of family planning, high illiteracy level and poor conservation of natural resources further exposed households to disasters.

Impacts and losses – In Dawee woreda of Bale zone, 34% of the households were affected by drought disasters, 27% by crop pests and diseases, 17% by landslides, and 14% by livestock diseases between 2010 and 2015. Crop pests (notably army worm, cut worm and grasshopper) caused damage on crop fields and grazing lands. In terms of per cent age of households in the woreda suffering losses due to disaster, 39% suffered from crop damage, 33% from livestock damage, and 10% from illness and health related problems (NDRMC 2016).

Vulnerability factors – Most households depend on livestock production. Crop farming is still a marginal activity for the majority of households in the cluster. In a given year, one in four households in Dawee-kechen woreda of Bale zone migrated in search of pasture and water for livestock. Most households have weak resilience capacity. As a result, in Dewe Woreda of the cluster 54% have received food aid while 42% participated in food-for-work and cash-for-work projects in one year. More than 70% of the households reported to have poor access to veterinary service and livestock drugs (NDRMC 2016). Deforestation, outbreak of pests and diseases, lack of livelihood diversification options, lack of awareness, poor farming practices, lack of clean water, poor sanitation, lack of infrastructures (such as road, health post and veterinary centre) and poor natural resource conservation activity are identified as the major vulnerability factors.

Disaster risk profile of Cluster 6, Borena zone

Disaster risks and causes – Drought and conflict, which are hydro-metrological and social hazards, are the two major disaster risks for Borena zone. Drought, livestock diseases and conflicts are major disaster risks in pastoral areas where as crop pests (stalk borer, army worm, etc.), livestock diseases and conflicts are important in the agro-pastoral areas. Deforestation, soil erosion and deterioration of range lands due to bush encroachment as well as overgrazing are identified as important environmental problems. Resource scarcity (water and grazing land) induced migration exacerbates competition over communal resources. Migration and stealing of livestock or properties by members of either of neighbouring clans/sub-clans are the major causes of conflicts in pastoral and agro-pastoral communities of the cluster. Poor farm land management practices, overgrazing, deforestation and erratic rainfall patterns are identified as the major reasons for recurrent occurrence of drought that further weakness the resilience of socio-ecological systems in the cluster. Poor access to infrastructure, markets and social services, and high level of illiteracy undermine the coping and adaptive capacity of communities to climate variability and change.

Impacts and losses – In Arero woreda of the cluster, 35% of the households were affected by drought, 33% by conflicts, and 14% by livestock diseases between 2010 and 2015. Crop pests (army worm, cut worm and grasshopper) caused damage on crops and grasses. In terms of losses due to disaster, 36% of households suffered from livestock damage, 21% from physical damage on property, and 9 % from income loss (NDRMC 2016).

Vulnerability factors – The major vulnerability factors aggravating the recurrence of major disasters are: the nature of livelihood which is largely dependent on livestock and mobility; dependence on communal resources; poverty (as the poor have little no savings or livestock to use in cases of emergency and hence poor capacity to cope); poor access to infrastructures and social services; isolation and location of the area (bordering other region, Somali) who are also largely dependent on livestock and communal resources; aridity of the environment; and poor NRM management practices.

Disaster risk profile of Cluster 7, Wolayita zone

Disaster risks and causes – Published information about the disaster risk profile of the woredas in Wolayita is lacking. The scanty information gathered by the field team indicates that the major disaster risks in Wolayita are drought, flooding (due to over flow of rivers such as Bilate and Chereke), crop pests and livestock diseases in the lowland areas of the cluster,

and heavy rains coupled with hails and landslides in midlands. Rapid population growth (of people and livestock) increases demand for food, wood and fodder which in turn aggravates the pressure on the NR base. There is little evidence of coordinated efforts to rehabilitate NRs except tree planting activities by individual households and the less successful tree planting campaigns by the government. Thus population pressure and poverty seem to be the underlying causes of natural resources degradation that in turn lead to disaster risks in Wolayita zone.

Impacts and losses – Wolayita is the most densely populated clusters of all. Thus, when disaster occurs happen, the impacts are huge as they affect large number of households. When it happens drought affects tens of thousands of households in vulnerable woredas. Hundreds of households are affected by landslides almost every year. Heavy rains in the neighbouring Hadiya and Siti zones result in unexpected floods and landslides in Wolayita zone. In 2012/13 in one kebele alone landslides destroyed crop fields of 168 households. Crop pests, notably army worm infestation is said to happen almost every two years. But control measures are helping reduce its impact. Livestock diseases in the lowlands on the other hand are said to be poorly controlled and hence they continue to negatively impact the livelihoods of many households. As this cluster is very different from most clusters by its high population density, further studies are needed to better understand the disaster risk profile of each woreda and devise more robust DRM.

Disaster risk profile of Cluster 8, South Omo

Disaster risks and causes – Drought (the most important one), livestock diseases, crop pests and diseases are the major disaster risks in South Omo zone. These are followed by conflicts with different clans and ethnic groups over resources (land, pasture and water), human diseases (mainly malaria and water borne diseases), floods (due to overflow of rivers), limitations in the availability and quality livestock drugs, and invasion of grazing lands by noxious plants/weeds. Conflict have become the main reason for loss of life and assets of households. Floods and conflicts are forcing some communities to even change their residential locations. Taking revenges and looting to replace looted animals exacerbate conflicts and their impacts. Deforestation, soil erosion and range land degradation are the major NRM related problems in the cluster.

Table 7.1. Relative importance of disaster risks, impacts, and losses in the eight clusters

	Clusters							
Disaster risks and their importance (1=most important)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Drought	1	1	1	1	1	1	1	1

Livestock disease (due to drought, mobility, etc.)	2	2	2	2	2	3	5	2
Crop pests and diseases	3	-	6	-	5	4	3	3
Flood (due to NR degradation and heavy rainfalls)	4	6	-	5	3		2	6
Human diseases (following occurrence of disaster, …)	5	3	5	3	6			5
Economic shocks/price hikes (disaster, export ban, ..)	6	5	4	-	8			
Conflicts	-	4	3	4	7	2		4
Landslides					4		4	
Percentage of households affected by disaster over 5 years								
Drought	38	29	31	-	34	35	-	31
Livestock diseases	26	27	21	-	14	14	-	27
Crop pests and diseases	17			-	27		-	20
Flood	7			-			-	
Human diseases		16	10	-			-	11
Economic shocks/price hikes			10	-			-	
Conflicts			21	-		33	-	
Landslides				-	17		-	
Losses households incurred to disaster (in importance)								
Livestock damage	2	1	1	1	2	1	3	2
Crop loss	1			3	1		1	1
Income loss	3	4	2	2		3	2	
Loss of labor (disease, physical damage, or death)		3	3	4	3	2	4	3
Loss of/reduced access to water points and grazing land		2	4	5				
Vulnerability factors (occurrence)								
Poverty and weak capacity of households to cope and adapt	X	X	X	X	X	X	X	X
Dependence on single livelihood option (livestock rearing)		X	X	X	X	X	X	X
Reduced mobility due to poverty and conflicts		X	X	X	X	X		X
Declining access to grazing lands and water points	X	X	X	X		X	X	X
Expansion of crop farming in riversides, dry-season grazing areas			X	X	X			
Poor access to water, education and health services		X	X	X	X	X	X	X
Unsustainable use of and little investment in NRs	X	X	X	X	X	X	X	X
Population growth adding pressure on limited resources	X	X	X	X	X	X	X	X

Note: (i) **na** designates the lack of published or official report. (ii) clusters 1 to 8 respectively represent Waghimra, Afar, Siti, Liben, Bale, Borena, Wolayita and South Omo.
Source: Own survey.

Impacts and losses – In Hamer woreda of cluster 8, 31% of the households were affected by drought, 27% by livestock diseases, 20% by crop pests and diseases, and 11% by human diseases between 2010 and 2015. In terms of losses due to disaster, 43% of households suffered from crop damage, 32% from livestock damage, and 11% from human illnesses. Impacts suffered from disasters notably from flooding (loss of assets, crop damage and residences) are

said to be increasing over time, and in some cases lead to forced displacement of entire communities (NDRMC 2016).

Vulnerability factors – The dependence of most households on single enterprise (livestock), poor access to infrastructure and markets, focus on few non-cash crops (sorghum and maize), poor adoption of improved farming practices (such as use of improved/drought tolerant and early maturing varieties, fertilizer, pesticides) and under development of irrigation schemes and practices are key factors that increase the vulnerability of households in the cluster. 62% and 89% of the households in Hamer Woreda reported having received food aid and agricultural inputs in one year (NDRMC 2016), indicating low level of coping and adaptive capacity of the majority of households. The following table presents a summarised account of the relative importance of disaster risks, impacts & vulnerability aspects in the eight clusters, compiled based on information from website of NDRMC (2016).

7.5.2. Capacity at lower level to build on and implement national DRM plans

Federal level DRM agency reports indicate availability of documents in terms of (i) DR profile, (ii) DR reduction planning, and (ii) mainstreaming of DRM for a number of woredas that are prone to various forms of disaster risks. Table 7.2 below indicates the availability or not of such reports for each of the woredas in the eight clusters.

We need however to note that no woreda in Liben and Wolayita has DR profile prepared by the relevant federal agency. But most woredas in other cluster have their DR profile and DR planning done. None of the sample woredas visited reported using any one of reports prepared by the Federal DRM agency. Based on the discussions at the woreda and kebele level and the reports we could get from the relevant offices, we concluded that the capacity at Zonal and woreda level to translate DRM strategies and plans prepared by federal agencies is really low. Thus building capacity and follow remains critical to make use of these reports.

Table 7.2. Availability of DR profile, DRR planning and mainstreaming reports for woredas

Region	Clusters	Zone	Woreda	DRP work completed	DRR planning completed	Mainstreaming
Amhara	Cluster 1	Waghimra	Sekota	ND	ND	ND
			Ziquala	Y	Y	P
			Abergele	Y	Y	P
			Sahla	Y	Y	P
			Dehana	Y	Y	P
			Gaz Gibla	Y	Y	P
Afar	Cluster 2	Zone 1	Chifra	Y	Y	P
			Adar	Y	Y	P
			Aysaita	Y	P	P
			Elidar	Y	Y	P
			Afambo	Y	P	P
		Zone 4	Ewa	Y	Y	P
		Zone 5	Dewe	Y	Y	P
			Telalak	Y	Y	P
Somali	Cluster 3	Siti	Ayisha	Y	Y	P
			Miesso	Y	Y	P
			Afdem	Y	Y	P
			Erer	Y	Y	P
			Shinile	Y	Y	P
	Cluster 4	Liben	Dheka Suftu	P	p	P
			Mubarek	ND	ND	ND
			Dolo Odo	P	P	P
			Moyale (L)	P	P	P
Oromia	Cluster 5	Bale	Dawe Kachen	Y	P	P
			Gura Damole	Y	P	P
			Rayitu	Y	P	P
			Meda Wollabu	Y	Y	P
			Berbere	Y	P	P
	Cluster 6	Borena	Dillo	P	P	P
			Moyale (B)	Y	P	P
			Meyo	Y	P	P
			Dire	ND	ND	ND
			Dhas	Y	P	P
			Arero	Y	P	P
SNNPR	Cluster 7	Wolayita	Kindo Koysha	P	P	P
			Damot Pulasa	P	P	P
			Boloso sore	P	P	P
			Diguna Fango	P	P	P
	Cluster 8	South Omo	Hamer	Y	P	P
			Dasenech	Y	P	P
			Gnangatom	P	p	P

Note: Y= Yes; P= Pending, ND= No data
Source: Compiled based on information from the National DRM Commission website accessed on 15 September 2016. URL: http://profile.dppc.gov.et/Pages/Woreda_Disaster_Risk_Profile_Status.aspx

7.5.3. DRM strategies of communities

In the face of the above disaster risks, communities have been using various DRM strategies. Drought, livestock diseases and conflicts remain the three major disaster risks in most clusters. Communities with the support from GOs and NGOs construct small dams, wells and other structures to improve availability of water for people and livestock and also for irrigation. Communities rely on and respect the traditional institutions to minimize the chances of conflicts over the use of communal resources and to resolve them quickly when they happen. GOs and NGOs have been supporting communities and the traditional institutions in their peace-building efforts.

The DRM strategies of communities tend to be largely similar across crop-based livelihood systems of people in Waghimra and Wolayita and the largely livestock-production system based livelihood systems in the remaining six clusters. Below we present in some detail DRM strategies widely used by communities.

i. Tapping into the existing social network and support mechanisms. These include:
   a. Sending some of the children to stay with wealthier relatives
   b. Sending one or more of the children to work in towns/urban centres in order to increase remittances received (practiced mainly by the poor households)
   c. Borrowing cash, food grains, seeds, livestock, etc. from relatives and neighbours.
   d. Seeking social support to increase food stock, have inputs for framing, and to increase livestock number (restocking). Assistance can be received as food grains, cash, seeds, or livestock (be it cows for milk or oxen for ploughing or animals for transport, etc.) from relatives and clan members. This support is sought by poor households, or other households affected by drought, conflict, or livestock raiding. However, key informants noted that this is showing a declining trend as the number of people needing assistance increases and households who could support others are themselves severely affected by frequent droughts and conflicts.
   e. Seeking/receiving alms – it is a common practice to give alms amongst Muslims. In Dollo Addo woreda for example, it is said that a household that has 50 camels will give out at least three camels to poor households in the community in the form of *Zeka*.

ii. Taking household economy and labour management related measures:
   a. Reducing non-essential expenditures (e.g. feasts/ceremonies),

b. Rationing existing food and reducing food consumption (the number and portion/size of meals eaten in a day) and also in some cases relying on less preferred and less expensive foodstuff
c. Seeking additional jobs nearby or migrating out of the localities to search employment opportunities. For instance, in cluster 5 (Bale zone), it is a common practice for hundreds of male and female youth to migrate each year from their localities to neighbouring woredas and towns, (especially between February and March).
d. Migration to mining areas for traditional mining of gold and other minerals (in Cluster 6)
e. Increasing engagement in the collection and sale of fuel wood, fruits, other NTFPs (e.g. honey, gums and resins, mushrooms, vegetables, etc.) and charcoal making and selling
f. Adopting drought resistant varieties and crops – farmers in Filtu woreda of cluster 4 for example are now shifting towards sesame that can produce with less rainfall from maize, sorghum and haricot production
g. Buying and constructing houses in the nearby towns to get income from rent and diversify household income portfolios

iii. Adopting livestock management related measures:

a. Reducing livestock number through sales (prior to or during on-set of drought)
b. Diversifying the species and herd composition livestock reared and crops grown to better use of grazing and browsing resources on the landscape and to minimize production risks
c. Herd splitting - In the dry season, pastoralists divide the herd into smaller groups, with sheep and milking cows staying with the core family near villages, while the rest are moved to other areas with better availability of water and pasture.
d. Controlling breeding of livestock so that lambs, kids and calves will not be born during the dry season. If this happens, pastoralist could slaughter calves, kids and lambs in a struggle to save the mothers.
e. Increased surveying of pasture (locally known as *sahan* among Afar communities) to identify areas with better fodder and water availability and facilitate seasonal migration
f. Maximizing species and herd diversity. Species and herd diversity is another adaptive management for better resource utilization. This enables producers to make use of available pasture and browse species and to optimize total herd productivity. Pastoral and agro-pastoral communities in Siti in particular reportedly are increasing the number of goats and camels and reducing the number of cattle and sheep in response to growing

bush and weed encroachment of the grazing lands. Also diversity helps reduce incidence of major disease outbreak, and other production risks.

iv. Maintaining the capacity for mobility and being mobile

   a. Short term/seasonal migration to other areas in search of fodder and water is a common strategy. In Dewe woreda of the cluster, for instance, the percentages of households who migrated for a month or more in one year was 85%. This is strengthened by the fact that 91% of households have mobile homes. They use "*daggu*" information system to move to areas with better access to pasture and water (NDRMC 2016).

   b. Temporarily shifting residences - Temporary settling around river bank areas (during droughts) and on high grounds (when flooding occurs) is a common strategy especially among Afar communities.

v. Water harvesting - Communities with the support from GOs and NGOs construct small dams, wells and other structures to access and conserve water for use for people and livestock and also for irrigation.

vi. Peace building through strengthening traditional institutions to minimize risks of conflict, and to quickly resolve conflicts when they happen. For example, in almost all clusters, conflict resolution through traditional institutions (e.g. through the *Geda* system in clusters in Oromia, and negotiation through elders in Siti, Liben, Bale and South Omo) has been the major mechanism to manage conflicts.

7.6. Major Drivers of Change

The major drivers of change in all of the clusters are: climate variability and change leading to increased frequency and severity of drought and water shortages; poverty and weak coping capacity of communities; population expansion (human and livestock) that puts additional pressure on NRs; and government policy that still failed to clarify tenure and aims at improving access to social services while also encouraging crop-production based livelihood option in these areas.

Key challenges that constrain efforts in the clusters to build the resilience of communities and their production and livelihood systems to the impacts of climate variability and change are: dependency on communally owned but degrading natural resources (grazing lands and water points) leading to chronic water and livestock feed shortage; illiteracy and cultural values; living in climatically challenging environment and remote/isolated locations; poor access to extension, credits and markets; weak capacity of households and communities to cope

and adapt; less well thought development interventions; limited capacity of GOs and non-state actors to engage in long-term development interventions; poor coordination of actors; declining importance of traditional support systems; increased dependency on aid; degradation of rangelands; increased incidence and regionalization of conflicts; reduced mobility of particularly poor households; institutional gaps or overlaps in governing access to and use of NRs; unclear tenure on communal lands and resource; less emphasis on NRM at local level; inadequate efforts to promote collective action of communities in NRM, and little recognition by GOs to the need for rethinking and diversifying development pathways in pastoral and agro-pastoral areas.

Cluster specific challenges are: extremely high land degradation due to conversion of hillsides and shrub lands to agricultural lands in Waghimra and Wolayita, rapid decline in bush and shrub land areas in Afar, Borena, and South Omo, and decline in grassland area particularly in Siti, Bale and South Omo. Most worrying trend of rapid increase in the area of barren land is observed in 5 of the clusters, namely Afar, Liben, Borena, Wolayita and South Omo. This points to a major concern that requires the attention of all to be addressed

7.7. Areas of Emphasis to Strengthen NR and DRM and Use of Indicators

The following bullets present important aspects worth re-emphasising to strengthen NR and DRM undertakings in the clusters, and to further rethink and fine tune indicators being used:

- Most clusters are in areas to be affected most by the impacts of climate variability and change. Yet we observe alarming rates of NR degradation that needs to be addressed. Sadly, the level of awareness of communities and experts regarding the extent of LULCC and their implications for sustaining livelihoods appears to be low.
- The population growth in all clusters is much higher than the national average indicating that the degradation will be even more in the years to come unless mitigated.
- There is little evidence to support that DR profile and DR Reduction planning documents prepared for woredas are used in DR reduction plans and programs. Efforts to promote collective action in NRM and to develop appropriate tenure and governance systems that ensure sustainable use of NRs in pastoral and agro-pastoral areas remain limited. We also saw little evidence of learning from SLM in the highlands and from relief and development oriented investments in the lowlands in designing interventions in NR and DRM in the eight clusters. As a result, interventions in the clusters focus mainly on relief and improving

availability of services and local livelihoods. This implies that NRM has not been high on the agenda of most GOs and non-state actors operating in the clusters. Even in clusters with NR and DRM related interventions, the undertakings are limited to building capacity through training and supporting activities nurseries. As a result, more needs to be done to focus on NRM to build resilience of the ecological system.

- To do so understanding the current status and changes in the natural resource base, major disaster risks and their relative importance in each of the clusters, what is being done by GOs and non-state actors and the various strategies that communities use to cope with and adapt to climatic and socio-economic changes is critically important to identify more effective and efficient intervention options to build the resilience of communities and their ecosystems in each of the clusters and also to identify and use robust indicators to assess progress in NR and DRM.
- In designing programs and assessing their progress in NR and DRM the following indicators are proposed to be used to monitor progress and assess impact of interventions in building resilience of socio-ecological systems:
    - Number of woredas using DR Reduction planning report to plan interventions
    - Percentage of land, forest area, water points, etc. put under improved management
    - Area of desirable vegetation cover (in line with the prevailing land use system)
    - Proportion of households that are food secure
    - Proportion of food insecure households that have built asset and better coping capacity
    - Capacity built to better forecast and manage disaster, and to specifically plan, implement and evaluate programs in NR and DRs at different levels.

8. Policy, Programs and Institutional Analyses

This section discusses the policy, program interventions and the institutional analyses related to resilience. While the policy review is made at country level, the program interventions are reviewed at national, regional and cluster levels. The review on policy, strategy and program interventions is presented in subsection one. Subsection two presents program interventions and an institutional analysis of the different actors in resilience building at cluster levels.

8.1. Policy and Program Intervention on Resilience

This section highlights strategies, policies, and program interventions developed or being implemented in the country by the government of Ethiopia and development partners in building resilience. It also provides the various stakeholders working or responsible for each of the policy, strategy and/or program. The discussion in this section mainly focuses those developed by federal and/or regional levels and being implemented nationally. Those interventions being implemented in each of the eight EU RESET cluster areas are discussed in detail under each thematic area (agriculture, health and nutrition and natural resource and risk management) in their respective sections.

8.1.1. Review of policy

National policy and strategy on disaster risk management: Policy is the starting point for disaster risk reduction activities. Many regional, national, sectoral and cross cutting policy issues have direct or indirect relationship with resilience building efforts. Among these, the national policy and strategy on disaster risk management is one of the key policies that guide any disaster risk management as well as development programs that aim to build resilience for vulnerable individuals, households and communities.

The Government of Ethiopia has endorsed a comprehensive DRM policy and strategy, based on lessons learned from previous experience. These include the necessity of a multi-hazard approach grounded in a deep understanding of specific disaster risk, and its link to development and vulnerability; emphasis on prevention, mitigation, preparedness and post-disaster modalities and capacities; de-centralization of resources and structures; a clear determination of DRM responsibilities, supported by the capacity for legal enforcement and a high degree of accountability.

The DRM policy provides the direction for the kind of DRM system envisaged for Ethiopia in the future. It relies on organizational structures with appropriate and harmonized roles and responsibilities at federal, regional and woreda levels. Horizontal and vertical coordination among decision-making bodies and effective DRM systems, processes and procedures is envisaged. The system is based on an understanding of disaster risks; on effective and targeted information flows for decision making for communities and local authorities in DRM; on resources preparedness, ensuring appropriate and timely availability of resources; on effective implementation capacity, including resource delivery; and on mechanisms for learning lessons and feeding into planning and decision-making.

The strategy for the DRM is formulated based on the above outlined policy objectives, the following policy directions and strategies that give due attention to the participation of organized people are formulated with the view to reducing and eventually preventing disaster risk and vulnerability, building resilience to withstand impacts of hazards and related disasters, and, through provision of appropriate and timely response, minimizing potential losses from disasters by establishing a comprehensive and coordinated disaster risk management system that is in line with the Constitution of the Federal Democratic Republic of Ethiopia and its development policies and strategies, especially with that of Rural Development Policies and Strategies.

The DRM policy focuses on full DRM cycle including prevention, mitigation, preparedness, response, recovery and rehabilitation. It also gives due emphasise on proactive risk management; multi-hazard and multi-sector approach; informed decision making based on strong risk assessments and early warning system. Besides, it gives emphasis on a decentralized and community-based DRM System.

More importantly, the policy stated that disaster risk management activities need to be implemented as integral to development plan framework of the country. To facilitate the operationalization of the disaster risk management policy and its implementation strategies, a Disaster Risk Management Strategic Program and Investment Framework shall be developed on the basis of measures to be taken before, during, and after the disaster period and to serve as a guiding document for designing and implementing disaster risk management related plans and programmes in a coordinated manner and with the participation of all actors. Under its cross cutting issues, the policy stated that the disaster risk management shall give special attention to women, children, elderly, people with disability, and people living with HIV/AIDS sections of the community as well as to other social and environmental cross-cutting issues.

With regard to the administration of disaster risk management, the policy states that the required structure shall be established at federal, regional, zonal, woreda as well as in Addis Ababa and Dire Dawa City Administration levels for the implementation of disaster risk management policy and for providing support toward its implementation, monitoring and evaluation. With regard to the administration structure of the system, there shall be a Disaster Risk Management Council, a Disaster Risk Management Coordination as well as a Disaster Risk Management structure in those that will be designated as lead sectoral institutions and focal points in those institutions that have a role in disaster risk management.

With regard to monitoring and evaluation of the implementation of the National Disaster Risk Management Policy and Strategy, structures to be established at all levels for the implementation of the policy and strategy shall take and implement it as their main duty. Accordingly, the Disaster Risk Management Council to be established at all levels shall have an oversight responsibility regarding monitoring and evaluation of the execution of the policy and its implementation strategies. The councils perform their monitoring and evaluation activities mainly on the basis of information and reports provided by the disaster risk management coordination structures existing at all levels.

The government policies and strategies also focused on improving the management of natural resources, especially land. Over the past twenty years, the Ethiopian government has put in place several sectoral and cross-sectoral policies, strategies and programs that aim at improving NRM and their socioeconomic and environmental contributions. These include the 1997 Environmental Policy of Ethiopia, the 2001 Rural Development Policy and Strategy, the 2002 Environmental Impact Assessment Proclamation, the 2007 Forest Conservation and Utilization Policy and Strategy, the 2007 Federal Forest Law, the 2011 CRGE strategy and the GTP I and GTP II targets. Ethiopia's environmental policy aspires to conserve traditional resource management practices, and has provisions for: soil management and sustainable agriculture; forests and tree resource management; and genetic, species and ecosystem diversity conservation and management. These provisions play important roles in guiding NRM efforts.

The Rural Development Policy and Strategy document underlines the need to rehabilitate and restore the country's degraded natural resources. It emphasizes the integration of tree planting in agricultural landscapes and advocates for having clearly defined objectives for tree planting initiatives. The Environmental Impact Assessment Proclamation intends to harmonize environmental, economic, cultural and social considerations into a decision making process. It

aims to predict and manage negative environmental effects of proposed developmental activities. The Forest Conservation and Utilization Policy and Strategy stresses the importance of the economic contribution of the forest sector and reflects the government's commitment to enhancing the nation's forest resource base. The policy also encourages the engagement of the private sector and local communities in managing production and protection forests, and introduces an incentive mechanism in the form of reduced land taxes. GTP I stresses the need to strengthen natural resources conservation and management whereas GTP II has set the target to increase national forest cover and double the contribution of the forestry to the national GDP.

Other national and sectoral policies and strategies: Other national (e.g. population, women, youth, food security, etc.) and sectoral (education, health, water, etc.) policies and strategies not only have close linkages with building resilience in Ethiopia, but also they form the bases for mainstreaming development plans into the resilience building efforts of the DRM.

While the general policy of the health sector policy preventive system, the policy provides due emphasis to key priority areas that contributes to build the resilience of vulnerable communities. It emphases to the control of communicable diseases, epidemics and diseases related to malnutrition and poor living conditions; as well as the development of environmental health and appropriate health service management system. In relation to women and children health, the policy also provides special attention to the health needs of women and children. Towards the effective implementation of these key policy issues, the policy aims to strategically promote and strengthen inter – sectoral activities. The key strategies include enriching the practice of family planning, health education to change the attitude of communities and create awareness on communicable diseases and nutritional disease and towards a healthy life, promotion of preventive activities as well as availability of drugs, supplies and equipment.

A cross sectoral approach is key strategy that the policy promotes to accelerate the provision of safe and adequate water for urban and rural populations, family planning as well as formulating and implementing nutritional policy. With regard to health Service organization, the key strategy is to standardized approach to human resource, physical facilities and operational systems of the health units at all levels.

The National Women's Policy and the National Action Plan for Gender Equality provide the basis for mainstreaming gender in DRM. Likewise, the Food Security Strategy (FSS) to attempts to address vulnerabilities to drought and other natural calamities in the long and

medium term and emphasizes the need and plans activities to strengthen emergency response capabilities of the government, such as the early warning system and the quality of relief distribution. With a focus on pastoralists, it references the DRM policy in the component on Pastoral Disaster Risk Management.

International policy initiatives: The international communities are also kin to support the efforts of the GoE in its DRM. In this regard, the Hyogo Framework for Action (HFA) and the Africa Regional Strategy for Disaster Risk Reduction are important initiatives. The HFA serves as the primary international framework on DRM. It has five priority action areas. These are (i) to ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation; (ii) to identify, assess and monitor disaster risk and enhance early warning; (iii) to use knowledge, innovation and education to build a culture of safety and resilience at all levels; (iv) to reduce the underlying risk factors; and (v) to strengthen disaster preparedness for effective response at all levels. The Africa Regional Strategy for DRR is consistent with the HFA and transforms the strategic documents produced by the joint initiatives of the AU, NEPAD, and others into detailed actions for policy makers, decision makers, disaster managers, and development practitioners at sub-regional, national, and community levels. It points to the limited effectiveness of risk reduction policies and institutional mechanisms for DRR currently in place in Africa. The Stockholm Accord of 2007 stated that disasters and climate change are serious risks to economic growth and poverty reduction.

The Intergovernmental Authority on Development (IGAD) has worked with the GoE to draft a Country Programming Paper (CPP) entitled "To End Drought Emergencies in the Horn of Africa". IGAD aims to achieve regional food security and encourage and assist efforts of Member States to collectively combat drought and other natural and man-made disasters and their natural consequences. IGAD also reiterates the importance of integrating gender and youth in the regional responses through their gender policy and strategy, including disaster risk management.

Ethiopia is also a priority country for the Global Facility for Disaster Reduction and Recovery (GFDRR), an international partnership initiative to help developing countries reduce their vulnerability to natural hazards and adapt to climate change. The GFDRR aims to mainstream DRR measures in development and help countries achieve financial resilience to disasters. Finally, Ethiopia participates actively in DRM related African Union initiatives, such as the AU summits and the AU Technical Committee on DRR.

8.1.2. Review of programs and plans

National medium term program and plans: Previous and recent medium term development plans such as PASDEP, GTP I and GTP II have emphasized the importance of DRM. One of the strategic pillars in PASDEP was to achieve this was managing risk and volatility. Accordingly, the government has increased investments in poverty reduction programs, including food security and other programs. The GTP I emphasized the importance of strengthening the Early Warning System and the capacity to respond to disasters. Ensuring a timely response to disasters will be included as part of agricultural support and economic development strategies and programs. Preparedness will be improved by increasing food and non-food reserves.

The on-going medium plan, the second Growth and Transformation Plan (GTP II) is currently the highest level plan that defines the national development framework in Ethiopia. Its implementation started in 2016 and will be the next four years pillars to guide the DRM activities in the country. It has been designed to help realize Ethiopia's vision of becoming a lower-middle-income country by 2025 by achieving an annual average real GDP growth rate of 11 percent. The plan involves macroeconomic stabilization while pursuing rapid industrialization and structural transformation (National Planning Commission 2015). GTP-II defines strategic pillars for development and transformation in the country.

In relation to resilience building, the plan stipulated that agriculture and rural transformation is one of the key pillars for building resilience to any shocks. In this respect the strategic direction is that development of smallholder crop and pastoral agriculture will be further enhanced and hence will be the main source of growth and rural transformation during the plan period. The plan also stated that support to youth in terms of education will be key pillars so that the youth able to organize themselves and engage in agricultural investment. Besides, measures aimed at addressing constraints and challenges related to supply of agricultural inputs and utilization of agricultural technologies will also be the priority areas so as to improve crop and livestock productivity. Accordingly, due emphases is given for the expansion of agricultural extension system; improve livestock health and feed production as well as integrate the implementation of livestock value chain efficiency. With respect to improving productivity, the strategic direction is for the intervention to be identified based on agro-ecological zone as well as major livelihood strategy. The plan also targets to improve natural resource conservation and utilization with focusing on rural land administration,

watershed management and expansion of small scale irrigation, which are fundamental to build resilience in the EU RESET cluster areas.

Another important element of the GTP II relevant to resilience building is the food security, disaster prevention and preparedness component of the plan. It gives due emphasis to improve contingent food reserve, safety net programs specially to food insecure households not only to graduate from their food insecure status but also build assets through the provision of credit services. In addition, building contingent budget and preparing *woreda* risk vulnerability profile are the other strategy. Moreover, to ensure food security, strengthening resettlement programs and improving the credit system that enables to build household assets; establishing risk insurance system that contributes to building climate resilient green economy; making early warning system accessible and up-to-date; reducing the amount and frequency of disasters occurring due to climate change through improved participation of the private sector in the area of climate related risk insurance are the main implementation strategies during the period of GTP II.

In relation to infrastructure development, GTP II aims to links all rural kebeles to all-weather road and main road, which is an important strategy to build resilience to vulnerable communities. In this respect, the plan emphasizes to build the capacity of woreda road desks in road administration, maintenance works and ensuring the participation of the communities. In improving access to power, the Universal Electricity Access Program is one of the key strategies in the medium term plan. In this respect, the plan promotes a decentralized off-grid solar energy supply. Expansion of biomass energy is also strategic direction to reduce fuel wood consumption so as to reduce deforestation and protect desertification. This is an important measures in relation to addressing the challenges of the vulnerability of women and children to any shocks. It is not only benefiting the vulnerable communities in providing access to electricity for individual use and their basic social facilities, but also it reduces time of fetching fuel wood and enables using the time for productive activities and, while reducing health problems resulting from indoor pollution. Improving access to digital infrastructure such as internet is another important milestone of the GTP II that has relevance in building the resilience of the vulnerable communities in the RESET cluster areas. In this respect, the plan aims to improve the narrowband and coverage of postal services in rural kebeles. Besides, the plan aims to formulate strategies for rural kebeles to use broadband internet. It is well known that interventions in improving access to clean water supply and sanitation will have far reaching changes on health, productivity, and quality of life. In this respect, the EU RESET

cluster areas have very poor access to this basic social services. In relation to this, the medium term plan provides due emphasis to improve access to clean water supply and sanitation services.

In terms of improving the governance system in formulating, implementing and monitoring interventions that build resilience of vulnerable communities, the GTP II aims to strategically strengthening people's participation along all the political and development processes. In this respect, capacity building programs that build and enhance the capacity of woreda and kebele councils are given due emphasis. Special emphases on women and youth should be given so as to enhance their participation in the governance system so as to address their challenges to build their resilience. This will help to mainstream their own agendas in all resilience building programs including programs that aims to change the bad attitude and mind-set against women, youth and children particularly in some of the EU RESET cluster areas.

Finally, the plan also includes stunting reduction as a key indicator and emphasizes food security and nutrition as main priorities of economic development. The GTP II also fosters the development, conservation and utilization of forestry through education to create awareness. The plan also considers the need to balance demographic variables and social, economic and environmental aspects of development to build resilience of vulnerable communities.

Sectoral programs and plans related to resilience: the following sectoral plans and programs are worth mentioning to build resilience in the vulnerable communities of the EU RESET II cluster areas.

The Disaster Risk Management Strategic Programme and Investment Framework: The development of the Disaster Risk Management Strategic Programme and Investment Framework (DRM SPIF) is a testament to the commitment and dedication of the Early Warning and Response Directorate (EWRD) of the Disaster Risk Management and Food Security Sector (DRMFSS), federal government line agencies, regional governments, development partners, humanitarian organizations, and civil society organizations to the effort of operationalizing the new comprehensive DRM approach.

It is designed to operationalize the DRM policy by identifying priority investment areas with estimates of the financing needs to be provided by Government and its development partners. The SPIF is a strategic framework that outlines major areas of investment that can then be more fully fleshed out with development partners moving forward. The SPIF envisions a whole-of-Government initiative led by the DRMFSS that reflects the priorities of the

Government and a wide range of stakeholders. The SPIF is fully aligned with the Growth and Transformation Plan (GTP) which is a successor to the Plan for Accelerated and Sustained Development to End Poverty (PASDEP) and which realized for the country an average annual growth rate of 11 percent for the past five years. The GTP sets the vision for the country as a middle income, democratic and developmental state and a carbon neutral climate resilient economy by 2025.

SPIF recognizes the importance of strategic partnerships to maximize the DRM SPIF results. Such partnerships take into account the following existing international agreements and practices as well as national strategic investment frameworks and practices: (i) Paris Declaration on the Aid Effectiveness; (ii) Rome Declaration on Harmonization; (iii) the Growth and Transformation Plan (iv) the Agricultural Sector Policy and Investment Framework (PIF) 2010 – 2020 which identifies a number of common strategic objectives and investment platforms namely; (a) achieve universal food security and protect vulnerable households from natural disasters (PSNP, HABP) and (b) reduce degradation and improve productivity of natural resources (SLM-ESIF, PSNP, AGP, ELALUDEP) and; (iv) the Climate Resilient Green Economy (CRGE) and Programme of Adaptation to Climate Change (EPA-CC) which recognizes DRM as a key tenet towards reducing adverse effects of climate change. Accordingly, the SPIF has been developed through a collaborative process involving a wide range of stakeholders.

Looking more broadly at the policy context, disaster risk reduction, climate change adaptation and social protection all share a common goal – to manage risks to development from shocks while building resilient communities. However, significant overlaps exist in terms of conceptual understanding, policies, and programme implementation between these three conceptual frameworks. The risk is that separate processes and structures will be developed that will lead to duplication and the inefficient use of scarce resources. There have been important initiatives to bring these concepts together at the global level (e.g. the Stockholm Plan of Action, 2007) and at the national level (series of Ethiopian workshops and deliberations). Clearly structured coordination mechanisms are now required to ensure that a harmonised approach is developed around a common system with clear roles and responsibilities at institutional level. The SPIF is consistent with building synergies and reducing overlap between these frameworks to ensure new funding opportunities are maximized, and greater overall impact is achieved.

Agricultural programs related to resilience: The three programs closely related to the agriculture policies are the Agriculture Sector Policy and Investment Framework (PIF), Agricultural Growth Program (AGP) and The Productive Safety Net Programme (PSNP). PIF provide a strategic framework for the prioritization, and planning of investments that will drive Ethiopia's agricultural growth and development. It is a whole-of-government initiative led by the Ministry of Agriculture and Natural Resources (MoANR), and reflects the priorities of the government and a wide range of agriculture and rural development sector stakeholders. The PIF stresses that improving the capacity to manage risk with an emphasis on climate change is critical in overcoming poverty and food insecurity. While the need to increase the rate of graduation of the chronically food insecure is a key issue, the government must ensure that vulnerable households and communities do not lose their productive assets due to external shocks, and that other risk management initiatives are maintained such as early warning systems, strategic food reserves and emergency response capacity. The DRM-SPIF contributes to further detailing DRM interventions to fully support the PIF and ultimately the GTP agenda.

The Agricultural Growth Program (AGP-1I 2016–2020), the second generation of AGP I (2010–2015), is developed to address agricultural growth problems in areas well-endowed with natural resources, and aimed to contribute to the government's poverty reduction strategy and the MDGs. AGP II (2015–2020) builds on the successes of AGP I and aims to contribute to GTP II objectives by expanding its implementation areas beyond the beneficiaries of AGP I to 157 woredas. The program is based on the notion that it will not only increase the incomes and reduce the vulnerability of farm households but will promote rural diversification by creating jobs and stimulating small businesses. High agricultural growth tends to generate demand for farm labour and non-agricultural products and services, which may thus help to diversify the income base, even among poor households that do not participate in AGP. In support of this growth-based approach to poverty reduction, the AGP will directly generate employment along the value chains of different products. Higher agricultural production will also reduce food prices, which will benefit many poor people, especially urban consumers and net buyers of food in rural areas. It is also expected that the AGP will reduce farmers' exposure to unfavourable environmental conditions and associated risk. AGP is designed to complement programs that the government is already implementing and contributes to the ADLI strategy, and as such the higher-level goal of the AGP is to accelerate broad-based sustained agricultural growth that will create employment and reduce poverty and food insecurity.

Health and nutrition programs and plans related to resilience: Recognizing that sustainable economic growth cannot be achieved without addressing malnutrition, the Ethiopian government launched the Seqota Declaration to express its commitment to end child under nutrition by 2030. Additional components of the declaration include goals around sectors of social protection, education, WASH, and others. In terms of the health and nutrition-related activities for building resilience in the country, the following forms the bases.

First, the Health Sector Transformation Plan (HSTP 2015/16–2019/20), a five-year plan for implementation of health interventions and monitoring key indicators, including nutrition indicators, is under the purview of the Ministry of Health. While the country has so far been focusing on expanding the coverage of health services, the HSTP places more emphasis on quality and equity of services. The second plan is the Seqota Declaration, which forms the bases for building nutrition security. It will be implemented in three phases: an innovation phase of learning-by-doing (2016–2018), expansion phase to reach more vulnerable communities (2019–2020), a phase of national scale up (2020–2030)

Second, the National Nutrition Strategy (NNS), coordinated under the leadership of the Ministry of Health, was formulated during 2005–2006 based on an assessment that highlighted the importance of a multi-sectoral approach in addressing diverse factors related to health and nutrition. The strategy brings together isolated and uncoordinated interventions into one comprehensive sector wide approach, led by the government under one coordination framework. The overall goal of the National Nutrition Strategy is to ensure that all Ethiopians are able to achieve an adequate nutritional status in a sustainable manner.

Third, the National Nutrition Programme (NNP 2013–2015) was developed to implement the National Nutrition Strategy. It aims to ensure that all Ethiopians attain adequate nutritional status in a sustainable manner, which is an essential requirement for a healthy and productive life. The National Nutrition Programme was signed by sector stakeholders including the Ministry of Health, Ministry of Education, Ministry of Trade, Ministry of Agriculture, Ministry of Finance and Economic Development, Ministry of Industry, Ministry of Labour and Social Affairs, Ministry of Water and Energy, and Ministry of Women, Children and Youth Affairs. The program identifies the following strategic objectives: first, improve the nutritional status of women (15–49 years) and adolescents (10–19 years); second, improve the nutritional status of infants, youth, and children under five; third, improve the delivery of nutrition services for communicable and non-communicable or lifestyle related diseases (all age groups); fourth, strengthen implementation of nutrition-sensitive interventions across sectors and; fifth,

improve multi-sectoral coordination and capacity to ensure National Nutrition Programme implementation. Some initiatives and actions under the National Nutrition Programme have been rolled out widely. Others are still in pilot phase, and some planned actions have not yet been initiated.

Fourth, the *Nutrition Sensitive Agriculture Strategic Plan*, under the Ministry of Agriculture and Natural Resource (MoANR), has direct effects on food security and nutrition of households in Ethiopia. The strategic plan for Nutrition Sensitive Agriculture is to align MoANR activities along with the strategic objectives of the NNP, especially strategic objective 4, result 4.1: "Strengthening implementation of nutrition sensitive interventions in the agriculture sector" (MoANR 2015).

Fifth, the *National School Health and Nutrition Strategy (SHN)*, developed by the Ministry of Education, enables improved access to better health and nutrition services for millions of school-age children as well as hundreds of thousands of teachers throughout government and nongovernment schools. Schools promote quality health and nutrition services for school-age children and adolescents, who constitute 15 percent and 35 percent of the nation's total population, respectively (CSA 2007).

Natural resource management related to resilience: The following key programs form the bases for natural resource related to resilience building. *First, The Productive Safety Net Programme (PSNP)* was initiated with the objective of protecting and creating household assets for chronically food insecure households in rural Ethiopia. Activities comprise (i) safety-net grants which include: labour-intensive public works that provide transfers to able-bodied households; (ii) direct support that provides transfers to labour-poor households; iii) drought risk financing to provide timely resources for transitory food insecurity in response to shocks; (iv) capacity building to fill risk finance facility; (v) strengthening the delivery of demand-driven and market-oriented advice; and (vi) improving the efficiency and effectiveness of financial service delivery to food insecure households.

The above discussion is an overview of the different initiatives related to resilience building in the country. The next section reviews resilience program interventions and institutional mappings at cluster levels.

8.2. Mapping of Cluster Level Resilience Interventions and Institutions

8.2.1. Mapping of livelihood-focused intervention and institutions

In this sub-section we have tried to map on-going and planned interventions and actors in the cluster including the flagship programs, the EU partner NGOs and others resilience building related interventions. The following table presents non-governmental organisations which are active in supporting livelihood and related activities in the clusters with specific geographic areas.

As may be observed from the table, the distribution of NGOs in each cluster is not uniform. In some clusters there are concentration of NGOs and in some clusters the intervention of NGOs is limited. The number of NGOs active in the clusters ranges from two in Cluster 5 to twelv in Cluster 7. A detailed investigation of their synergies, integration, alignment and harmonization could not be done due to lack of information.

Table 8.1. Institutional mapping of development interventions

Cluster	Institutions	Intervention	Geographic area
Waghimra	Action for fame (ACF)	Agriculture, NRM, livelihood, health & nutrition	Seqota and Zequala
	ORDA	Health, facilitate saving and credit access, agriculture	Seqota and Zequala
	PLAN Ethiopia	Works in urban poverty	Seqota and Zequala
Afar	SDS	Agriculture	Chiffra and Dewe
	CARE	Agriculture and health	Chiffra and Dewe
	FAO	Agriculture and NRM	Chiffra and Dewe

Table 8.1. Institutional mapping of development interventions(*continued*)

Cluster	Institutions	Intervention	Geographic area
Siti	Save UK	Multi-sectoral (NRM, agriculture, nutrition, livelihood)	Most woredas
	Mercy Corps	Multi-sectoral (NRM, agriculture, nutrition, livelihood)	Erere, Meisso
	Islamic Relief	Multi-sectoral (NRM, agriculture, nutrition, livelihood)	Meisso
	UNDP	Agricultural and solar energy system	
	PCDP (Pastoral Community Development Project)	School construction, expansion and rehabilitation; construction of clinics; animal health services; income generation activity; expansion of water supply system	
	WFP (World Food Program)	General food distribution and food for the school feeding program	
	FAO	NRM, agriculture, nutrition, livelihood	
Liben	Save the Children	Health and food security	Moyale
	Filtu Food security project	Food security, NRM	Filtu
	ACCPA	Pastoral community mobilization on livelihood, agriculture and health	Filtu
Bale	PCDP	Health, food aid, water	Dawakachen
	Project Concern International	Resilience building	Dawakachen
Borena	Save the Children	Food aid, livelihood & health	Arero, Dhas, Moyale
	CARE	Nutrition, health, and livelihoods	Moyale, Dire, Miyo
	AFD	Gender, water, health, livelihood, & HIV	Yabello, Moyale town, Arero and Miyo
	SOS	Livelihood, social service delivery	Arero, Dire, Yabello
	GOAL	Integrated, drought	Dire, Dillo and Miyo
	Agri service Ethiopia	Integrated	Dillo and Dire
	World Vision	Children and water	Moyale
	ACORD	Natural resource, animal health, livelihood diversification, emergency, gender	Dire
	CIFA	Emergency livestock	Moyale and Miyo
	Save the Children	Food aid, livelihood, health	Arero, Dhas, Moyale

Source: Own construction from field reports

Table 8.1. Institutional mapping of development interventions(*continued*)

Cluster	Institutions	Intervention	Geographic area
Wolayita	Arbaminch Rehabilitation Centre (AMRC)	Livelihood	Soddo and Boditi
	IDE (Integrated Dev't Enterprise)	Livelihood	
	Centro AIUT PERL\ Ethiopia	Livelihood	All woredas
	Friends of Orphans & Vulnerable Children (FOV)	Livelihood	D/Pulasa
	KMG	Livelihood	Boloso Sore, B/bombe, D/sore, K/koysha & D/pulasa
	Initiative Africa	Livelihood	S/z,D/f,D.w woredas & Soddo
	IMCE	Health, livelihood	D/P & Boloso Sore
	Plan International Ethiopia	Livelihood	Boloso Sore
	Rural Comm. Based Dev't Integrated Ass.	Agriculture	D/sore, Boloso Sore, B/bombe, S/zuria
	Send a Cow	Agriculture	D/sore, Boloso Sore & S/zuria
	WODA	Livelihood	All woredas
	EKHC Dev't	Agriculture and marketing cooperative	Dasenech
South Omo	AFD	Agriculture education marketing and cooperative	Hamer
	Catholic	Integrated (agri, water, women and education)	Dasenech
	EPaRDA	Agriculture	Hamer and Dasenech
	ODWaCE	Health, water & agriculture	Dasenech
	GTLI	WCY, cooperative & agriculture	Hamer & Dasenech
		Health, education & agriculture	Dasenech & Bena Tsemay
		Health, water & agriculture	Hamer
	NLM	WCY, agriculture and marketing	Dasenech
	VSF-G	Agriculture & cooperative	Hamer & Dasenech
	Goal Ethiopia	Agriculture & cooperative	Bena Tsemay, Hamer, Male, Selamag
	Nutrition Plus Holistic	Health & agricultural	Dasenech

Source: Own construction from field reports

8.2.2. Mapping of health and nutrition related interventions and institutions

The mapping of program interventions and institutions working in the technical areas of health, nutrition and WASH helps to identify priority interventions in the geographical clusters and learn from the experiences of existing interventions in designing future interventions. It also helps to identify potential institutions that could collaborate in realization of interventions based on priority findings of the situation analysis. The program interventions and institutions identified are described for each cluster.

Table 8.2. Interventions in health and nutrition in 2016

Name of Institution	Types of intervention	Location of intervention
Woreda Health Office*	Health, WASH & nutrition	All woredas in the eight clusters
Water Office*	WASH	All woredas in the eight clusters
Women, Children & Youth Office*	Women, children & youth, gender	All woredas in the eight clusters
Save the Children	Health & nutrition	Waghimra: Seqota and Zequala Siti: Mieso Mulu, Erer Liben: Dollo Ado and Moyale Bale: Dawe Kachen Borena: Dhas, Moyale and Arero Wolayita: Kindo Koysaha, Diguna Fango South Omo: Dassenech, Hamer
Action for Fame (ACF)	Agriculture, NRM, livelihood, health & nutrition	Waghimra: Seqota and Zequala Borena: Dhas, Moyle and Myo
ORDA	Health, saving and credit, agriculture	Waghimra: Seqota and Zequala
PLAN Ethiopia	Works in urban poverty	Waghimra: Seqota and Zequala
SNV	Nutrition	Waghimra: Seqota and Zequala
Fre Selam	HIV/AIDS	Waghimra: Sekota
IFHP	Adolescent & reproductive health	Waghimra: Seqota and Zequala
CARE Ethiopia	Health and nutrition	Afar: Chifra and Dewe Borena: Moyale, Miyo, Dire
GIZ	Health	Afar: Chifra and Dewe
UNICEF	Nutrition	Afar: Chifra and Dewe Siti: Mieso Mulu
AMREF	Health and nutrition	Afar: Chifra and Dewe Wolayita: Dunga Pulasa, Dunga Fango, Boloso Sore South Omo: Dassenech,
CHAI	Health (vaccine)	Afar: Chifra
Mercy Corps	Health	Siti: Erer and Mieso

* Those marked are government organizations. The rest are NGOs or UN organizations.
Source: Field reports.

Table 8.2. Interventions in health and nutrition in 2016 (*continued*)

Name of Institution	Types of intervention	Location of intervention
Islamic Relief	Nutrition	Siti: Mieso
Pastoralist Community Development Project (PCDP)	Health, food aid and WASH	Siti Bale: Dawe kachen
Catholic Secretariat	Health	Siti: South Omo: Hamer
Handicap International	WASH	Siti
FAO	Nutrition	Siti
Medicine San Frontiers (MSF)	Health and nutrition	Siti Liben: Dolo Odo woreda
CCM	Health	Liben: Filtu woreda
ACCPA	Health	Liben: Filtu woreda
OXFAM	Health	Siti Liben: Dolo Odo Woreda
COOPI	Health and sanitation	Bale: Dawe Kachen Borena: Dire and Dillo woredas

Source: Field reports.

8.2.3. Mapping of programs and institutions focused on NR and DRM

The major institutions involved in NR and DRM in the eight clusters are governmental organizations (mandated to do so) and non-state actors, notably international and local NGOs and UN agencies.

Interventions by governmental agencies

The interventions by government agencies in the eight clusters can be viewed as those designed and financed by the Federal Government and those planned and implemented by regional governments. The major federal government programs cited by respondents are PSNP (that supports watershed development and area ex closure activities) and PCDP (that works to improve access to loans for vulnerable women in pastoral areas). These two programs are operational in the clusters. PSNP is more wide spread in coverage. In Liben, for example, about 46% of the total population has been benefiting from PSNP that has two main programs: direct support for less capable individuals like children, elderly, and disabled; and food for work program where each of the beneficiaries contribute labour and engage in public works and NRM activities to get food. They build and rehabilitate schools, health centres and health posts, roads, public halls, and other. In the clusters where it is active, the Pastoral Community Development Program (PCDP) organizes and supports self-help groups at the community level. Each of these self-help groups has one secretary and a chair lady. After training them,

these self-help groups are assisted to have access to credit as PCDP provides matching fund. Communities are expected to generate 15% as contribution (10% in kind be it in terms of material or in terms of labour, and 5% in cash). The PCDP also capacitates these groups by training them on book keeping, for example.

Various undertakings are planned and implemented by regional and woreda level authorities. The major activities are listed as follows.

- **Improving access to water, infrastructure, markets and social services** – A lot is being done in all of the clusters to improve access to water (for human and livestock consumption) and to promote irrigation based farming. The government is making considerable investment in **c**onstructing ponds, small ponds as well as shallow and deep wells to improve access to water. It is also engaged in the construction of large dams and for irrigation to facilitate voluntary based resettlement of households into irrigable areas or nearby rivers. The government and development partners are also working hard to improve access to roads, markets and health and education facilities.
- **Soil and water conservation works –** The government is mobilizing rural households and encouraging them to provide free labour for about three weeks per annum in rehabilitating degraded lands and constructing soil and water conservation measures mainly on communal lands. This is particularly true for clusters where farming dominates (Waghimra and Wolayita). Reports of the woreda agricultural offices in Waghimra and in Wolayita zones show that large areas of land are being put under improved land management each year. In Ziquala woreda, for example, up to the end of August 2015, terraces were maintained on 165,345 ha, 421 hectare of hillsides were conserved and gully rehabilitation work was undertaken on 150 hectares (Field Team Report). But there are little evidences of this government initiative taking place in pastoral and agro-pastoral areas. Only attempts to engage community leaders under the *Geda* system to mobilize communities for NRM work on communal lands (rangelands) was reported in Borena zone.
- **Establishing nurseries and producing seedlings –** In a number of clusters (Waghimra, Liben, and Wolayita) a number of nursery sites are established that produce large number of seedlings of local and exotic tree species for wood (energy, or timber), fodder and fruits trees to be distributed to households or institutions.
- **Promoting crop production based livelihoods -** The policy direction being followed in all clusters where pastoral and agro-pastoral production systems dominate is encouraging pastoralists and agro-pastoralists to be settled and engage in crop based farming system

(vegetables, fruits, etc.). For this plan the Siti zone alone is said to be preparing more than 4200 ha of irrigable land and constructing more than 1000 houses. In addition all its 7 woredas have received each 50 ha of land to be used for demonstrating how to produce vegetables and fruits and encourage pastoralists to lead sedentary life. Likewise, Borena zone is also reportedly preparing lands for irrigation and constructing several houses to encourage settlement.

- **Introducing improved farming methods –** In some clusters (e.g. Waghimra, Afar and Wolayita), attempts are being made to introduce drought tolerant crop varieties in collaboration with research and higher learning institutions. Though considered largely as failures by key informants (due to feed limitations and poor exposure to managing camels), there was also attempt to introduce Borena cattle and their crosses as well as camels to woredas in South Omo cluster.
- **Providing training, improving access to credits and supporting livelihood diversification:** Training is being provided in most of the clusters to encourage the poor, women and youth to engage themselves in businesses. To this end, saving and credit institutions are established and assisted to promote saving and make credits available for poor households in general and the youth and women in particular to help them engage in business and diversify their livelihood portfolios. Youth are also encouraged to be employed in various infrastructural projects.
- **Establishing peace and reconciliation committees –** In Siti in particular, efforts in this regard relate to creating awareness about conflict management and establishing peace committees at different levels by involving elders as well.
- **Establishing early warning and disaster reduction management taskforces/command posts at different levels** – In Afar in particular, this was reported as an important step being taken by the government. These committees are constituted by representatives of different sector offices, development actors (NGOs and aid agencies), teachers, women and youth associations and community leaders. In Bale zone, Climate Change Command Post was established this year. The structure goes from zonal to kebele levels. A total of 13 rural kebeles and two city administrations have established command posts. The members of the command post/committee are from different sectoral offices and security and political party leaders. The tasks of these command post at kebele level include: (i) identify, define and prioritize disasters and disaster risks in the kebele (e.g. drought, flood, disease outbreak, conflict); (ii) identify people or areas that need assistance and propose interventions options

(e.g. water, food, fodder, medical, shelter, medical assistance needed etc.); (iii) report events, local needs, and actions taken to authorities at different levels.

- **Providing emergency aid –** When disaster hits, government agencies provide aid (food, water, medical support, shelters, etc.). In recent years school feeding has also begun (e.g. in Seqota woreda of Waghimra). In some cases they also assist in making livestock feed available so that at least 10% of the breeding stocks are saved (in Borena), and in supporting households to have their own fodder banks (e.g. Afar). They also provide veterinary support in times of livestock disease outbreaks. In some case livestock restocking initiatives are done though limited to providing few animals (e.g. 3-5 shoats) per household on revolving credit scheme.
- **Other activities –** These include creating awareness at different levels on how to protect, manage and utilize communal natural resources and how to build capacity locally to better manage disaster risks; and establishing and supporting water and NRM committees at kebele level.

Interventions by non-state actors

Seven local and international NGOs operate in Waghimra. Their activities focus mainly on agriculture, health and nutrition, credit and saving, and capacity building aspects. ACF has a project on building resilience capacity of vulnerable communities whereas Helvetas Ethiopia, Tekeze Terari project, ACF and Save the Children support soil and water conservation works. In Afar, a dozen of UN agencies and international and local NGOs are running projects in agriculture, education, health and nutrition. Only FAO and Save the Children have some activities related to NRM such as controlling invasive species like *prosopis juliflora* and *parthenium* weeds, and building capacity through training of government experts and local administrators in DRM.

Close to twenty UN agencies and NGOs are active in Siti. The projects of these non-state actors focus on providing relief assistance, improving access to water and education, supporting agricultural production, and training experts to build capacity of government institutions. UNDP supports solar energy use. Only Save the Children, Mercy Corps and Islamic Relief have activities in NRM.

In particular Save the Children implemented a drought cycle management project that focused on improving the management and use of communally used rangelands. It worked with some 23 communities in Shinile and Dembel woredas of Siti zone. It engaged communities in

identifying challenges in natural resources and developing communally agreed upon action plans to tackle them. This process of identifying options to addressing the challenges attempted to combine scientific and local knowledge. Elected committee members in each community assisted with beneficiary selection, progress reporting, conflict resolution, and mobilizing community contributions. Save the Children worked with relevant government agencies and elected committee members to develop community skills and knowledge in NRM, to encourage experimentation in testing alternative options to address the challenges, and to promote active participation of communities in agreed upon NRM works. The prioritized works were carried out either through community labour contribution or through cash-for-work (CFW).

The development committees, local authorities and community members identified the beneficiaries of the CFW scheme using a community-based set of criteria. Project beneficiaries invested 10 days of work in NRM per beneficiary and the work was conducted at the beginning of the dry season (i.e., a low season for agricultural work and for mobility among pastoralists). For example, the effectiveness of six traditional ways of controlling *prosopis* was tested through simple trials, i.e., different removal methods. Other experimentation activities included fodder production in communities not previously familiar with its production. CFW schemes were conducted during the dry season, *jilaal*, which is the hunger gap period. The cash earned in CFW helped households to buy foodstuff and helped in protecting their asset base which is livestock. The timing of the transfer held more significance than the cash itself as it was during a period of low cash availability for households. Experts stressed that the lessons learnt from the work of Save the Children include embracing indigenous knowledge to find solutions to local problems in NRM and the active involvement of women, children and local officials throughout the process. This was said to be the key to its success, indicating that participatory, community-owned NRM projects can be planned and implemented in pastoral and agro-pastoral settings and have great potential for positive impacts on the resource base and also on local livelihoods.

In Liben, Save the Children, CCM, ACCPA, OXFAM, VCF, MSF and Filtu Food Security Project are the NGOs having several projects. Their focus areas are mainly health and food security/agriculture. Only OXFAM, VCF, and Filtu Food Security Project are engaged in NRM activities. They are engaged in training to raise awareness of local officials, experts and communities and in supporting nurseries to raise and distribute seedlings. NGOs that have been operating in Bale are Agri-service, Save the Children, COOPI, Lutheran World Federation and Project Concern International (PCI). Their projects focus on emergency aid delivery,

supporting credit and saving schemes, health, nutrition and sanitation. Only PCI is said to be engaged in activities that help build resilience of communities.

Close to 30 NGOs are active in the Borena zone implementing over 50 projects with a total budget of Birr 1.3 billion (about USD 64 million USD). Only few of them have activities in NRM in Borena cluster. Their activities involve mainly rangeland management. Likewise, over 20 international and local NGOs operate in Wolayita zone. Most focus on supporting health and educational programs. None of them have specific projects in NRM. Though some 20 non-state actors run various projects that focus on agriculture, health, water and education, none have projects in NRM.

Thus, we can conclude that NR and DRM has not been high on the agenda of most-non state actors operating in the clusters. Even the few that do have activities, their interventions are still limited to building capacity through training and supporting nurseries. Only Save the Children has attempted to be seriously engaged in improving the natural resource base by actively involving user communities and local authorities. Dozens of NGOs and other non-state actors are active in the clusters. Most are engaged in providing either relief aid or supporting education, water and health sectors. The conclusion was that NR and DRM has not been high on the agenda of most-non state actors operating in the clusters. Only a fraction of them have activities in NR and DRM. In this regard, the work of Save the Children has been cited as exemplary in its attempt to combine aid with long-term NRM work at community level in Siti and Bale. Its work demonstrated that participatory, community-owned NRM projects can be planned and implemented in pastoral and agro-pastoral settings with positive impacts on the resource base and also on local livelihoods.

Perceptions of key actors on effectiveness of interventions in NR and DRM

Key informants from community members in Waghimra and Wolayita clusters are of the opinion that currently the involvement of government agencies in ensuring appropriate access and proper use of communal natural resources is almost inexistent, as compared to rather more involvement in the past. They also believe that the biological aspects of soil and water conservation measures on communal lands were less successful. Trees planted annually on communal lands through mass mobilization are even less successful as follow up to increase the survival rates is inadequate, and the tenure rights remain unclear. They pointed out that more needs to be done to fine tune and improve appropriateness of soil and water conservation measures starting from site selection, specific physical measures to be applied, species to be

planted and ownership and use rights of the surrounding communities. They stress that the needs, knowledge and capabilities or resources of local communities needs to be properly considered during the planning stage and rigorous follow up should be put in place to make sure that community efforts are not wasted. In Agar cluster, the key informants have a more favourable view on the effectiveness of interventions to reduce disaster risks. They specifically identified activities to improve access to water as the most appropriate intervention. They also recognized the role of PSNP in protecting them from selling their assets.

The general points that came out from the FGDs and KIIs in all of the eight clusters can be summarized as follows:

- Emphasis on relief – The focus of GOs and non-state actors in development and DRM has been on emergency projects and not on long-term undertakings that will contribute to building resilience of socio-ecological system. Experts stress that there is little or no consultation with the community. Hence, most of interventions could not address priorities of the community or root cause of the problems in the area. This is despite the fact that NGO administrators thought that they undertake projects to promote resilience of the community like improving availability of water for people and livestock (wells, dams, etc.) and encouraging diversification of livelihoods. For example, in Dollo Ado woreda informants stated that there are large number of NGOs working in refugee camps, many of which are not even known by the surrounding communities.
- Top-down planning – A number of experts at woreda levels and key informant community members felt that interventions of GOs and NGOs are planned in a top-down and less participatory way. There is a wide spread concern that GOs and NGOs (except few) are not keen to genuinely engage communities in planning NR and DRM interventions. Actively engaging communities in planning interventions would enable GOs and NGOs to also mobilize communities and contribute their share in terms of knowledge, labour and other resources.
- Improvements in access to water but decline in vegetation cover – There is a unanimous recognition to improvements in access to water thanks to the efforts of GOs and NGOs. They also stressed that efforts to increase biomass/feed production and improve vegetation cover in the clusters were minimal.
- The role of traditional institutions – In all of the clusters, there is a concern that the role of traditional institutions has not been officially recognized and supported by GOs except in Borena and Wolayita clusters. There is a recognition by experts that these institutions do

well in terms of providing rules of resource usage between community members that ensure equal access to use of communal resources and in reducing conflicts over use of these resources. There is however a major concern that they do not have track records of mobilizing communities to invest labour and other resources in improving NR management. Most felt that mobilizing communities to invest in NRM is better done by GOs.

- Inadequate attempts to engage CBOs in NR and DRM – At local level there exist various CBOs (such as such as *iddir, senbete, quere*, and other forms of traditional support systems like *buusa* and *gonofa* in Borena cluster, youth and women associations, as well as various types of cooperatives). Respondents felt that CBOs have not been adequately involved in identifying interventions in NR and DRM. These institutions could play role in improving effectiveness and efficiency of NR and DRM.

Thus, experts and respondents from community members recognize the positive contribution of GOs and NGOs in providing emergency aid, but stressed the need for focusing on long-term development options to building the resilience of socio-ecological systems. To do so, GOs and NGOs should actively involve local administration and communities.

9. Gaps and Opportunities

The previous sections discussed trends and status of key components that are essential for building resilience of vulnerable communities including the livelihood, health and nutrition as well as the natural resource base and risk management aspects. Major drivers for the current status of these key components are also discussed. This section discusses the gaps and opportunities that are fundamental to build the resilience of vulnerable communities in the EU RESET cluster areas. These are identified by thematic areas, and are discussed in four subsections including gaps and opportunities in livelihood, health and nutrition, natural resource and risk management, and policy and institutions.

9.1. Livelihood Resilience

9.1.1. Gaps in livelihood resilience

Gaps in achieving enough food can be easily derived from the major drivers. Most clusters are suffering from several gaps to improve their food availability. Water, animal and plant health, animal fodder, veterinary facilities, agricultural inputs etc are major gaps. There is a need to tackle these gaps to improve food availability. Pastoralists and agro-pastoralists are entirely dependent on rainfall for their crops and livestock. Water is critical for both human and livestock. Irrigation facilities for crop production and making water available for livestock is very critical.

Gender is also another gap that calls for serious attention. Tackling gender gaps to improve food availability is important. As discussed in section 5.3, women are not empowered in accessing and decision making that involves household resources and marginalized in the discussion that matters to the community. The community's opinion is that '*someone has to own and decide'*. Both the culture and religion with the community prescribe 'woman has to obey her husband's idea'. But the role of women in tackling food shortage is critical. Women and men perceive climate change differently, and gender differences influence their ability to adapt[1]. Findings from different communities in different countries suggests that there are differences in how women and men perceived climatic changes, weather and events like flooding. Since the adaptation responses largely depend on individuals' perceptions,

[1] Elizabeth Bryan, Patti Kristjanson, and Claudia Ringler (12 November, 2015) Why paying attention to gender matters for climate change adaptation, IFPRI Blog.

differences in the perception of men and women can have profound effects on whether or not they adapt and, if so, which strategies they choose. These findings suggest that there is a need for integrating a gender perspective into any community development intervention and create awareness in the community on the role of gender in community development.

9.1.2. Opportunities for livelihood resilience

Each cluster has lots of activities to build a resilient community. Local government and different NGOs are trying their best (for NGOs see Table 8.1) to minimize the effect of drought, introducing diversification of livelihood and other related activities that build the resilience of the community. Each cluster has also potentials that can be tapped to deal with improving livelihood of the community. In what follows the details are presented.

Large stock of livestock: All clusters have a huge stock of livestock such as camel, cattle, goat, sheep, etc. In order to tap this development opportunity and improve the livelihood of the community, it requires a serious work on the quality of livestock. It requires veterinary infrastructure, providing improved livestock breed that resist animal disease. In some clusters like Cluster 4, there is an opportunity to export to Yemen and other Arab countries.

Crop production: Most clusters have arable land for crop production and in some cluster like Bale even potential for cotton, sugar cane, fruits, through irrigation. There are lots of rivers that flow throughout the year in most clusters. Rivers like Awash, Borkena, Dewe and Wederage in Afar cluster; Genale and Dawa in Liben cluster; Bilate and Chereke River in Wolayita cluster and Weyto and Omo rivers in South Omo cluster are all suitable for irrigation. There is also an ongoing effort by the government to resettle pastoralists so that they can integrate crop production with livestock raising. This is being practiced in Siti cluster by preparing more than 4200 ha of irrigation land (2100 ha in Shinle, 2000 ha in Hadigala and 100 ha in Dembel) and constructing more than 1000 houses. In addition to this, all the seven woredas in the cluster are developing 50ha of land for demonstration to show for the community that it is possible to combine crop production with livestock raising and improve livelihood. The same effort is going in Afar and Borena clusters. This, in addition to livestock, is another opportunity to improve the livelihood of the community and hence build resilient community.

To make both opportunities materialize, there is a need for different support from the government. Improving the knowledge and skills of pastorals on how to integrate crop production with livestock raising, making available different agricultural equipment and inputs,

enhance animal and plant disease protection facilities, and improving infrastructures for market accessibility and linkage, production of animal fodder, and the like.

Tourism: Borena and South Omo clusters are known for different wildlife with specific geographic space, different landscape, and several cultural and historical tourist attraction centres such as Gumi Goyo (Dire), ArdaJile (Miyo), and Galma Debayu (Areor). These are just potentials and not yet tapped.

Fishery: There are also opportunities that can change the livelihood of the community to a better level if the necessary support provided to the community. Different areas in Afar and South Omo clusters have fishing opportunity. Specially in South Omo, the potential in Omo river and Rudolf lake is immense. Tekeze dam has created fishing opportunity for people in living in Waghimra cluster.

Gum and incense: This is another potential for diversifying livelihood. People in Afar, Bale and Borena clusters has opportunities in engaging in production of gum and incense if they are supported with the required facilities.

Table 9.1. Opportunities for resilience

Opportunities	Clusters
Livestock	All clusters
Arable land for crop production and for irrigation	Afar (Awash, Borkena, Dewe, Wederage rivers), Siti and Liben (Genale and Dawa river), 5 (different rivers), Borena and Wolayita (Bilate and Chereke river), and South Omo (Omo, Keseke, and Weyto rivers)
Fishery	Waghimra, Afar and South Omo
Tourism	Borena and South Omo
Incense	Waghimra, Bale and Borena

9.2. Health and Nutrition

9.2.1. Gaps in health and nutrition

Inadequate access to primary healthcare facilities

Primary healthcare facilities provide essential healthcare package that should be accessible to all segments of the population. The population access to heath post at Afar, Siti and Liben clusters do not meet the standard defined by the Ethiopian healthcare tier system that recommends a health post to serve a population of 3000-5000 (Table 6.1). The findings further revealed the population access to health centres do not meet standards defined by the Ethiopian healthcare tier system for a health centre to serve a population of 15000-25000 at

Siti, Liben, Wolayita and South Omo where a health centre serve on average a population of 42,581, 33,733, 29,018 and 26,580 respectively in 2016. There is significant gap at Siti cluster of Afdem woreda where a health centre serve a population of 81,682 scattered in a large geographical areas. These results show a gap on access to primary healthcare facilities which is more evident at Siti and Liben clusters where the standards defined by Ethiopian healthcare tier system are not met for primary hospital, health centre and health post.

Health facilities inadequate access to basic infrastructure

The majority of health centres (64.3%) at the geographic clusters do not have access to potable water supply. As a result they utilize alternative sources of water including ponds, river, hand dug well, unprotected spring, etc. Health centres that use unprotected water source usually face a situation of scarcity whereby availability would depend on the season of the year. Similarly 17.1% of the health centres in the geographic clusters have no access to any power source while only 16.1% of the health centres get power source from the national electricity grid. The remaining use alternative source of electricity from generators and solar equipment that do not guarantee continuous electricity supply. Primary healthcare facilities' inadequate access to safe water supply and electricity would affect the quality of primary healthcare services provided at the facilities. As a result lack of access to safe water supply at most facilities and lack of electric power at some facilities is gap in the geographical clusters that could affect access and quality of primary healthcare services provided to the population.

Shortage of human resource for health

Human resource for health is an important element for health facilities to function properly and provide adequate and quality healthcare to the population. The human resource for health situation of the geographic clusters is characterized by critical shortages of pharmacy and laboratory professionals. In addition to pharmacy and laboratory professionals, there is high attrition of midwives and environmental science professionals leaving the clusters. The findings at the geographic clusters revealed that 22% of health centres have no pharmacy professional. To address this gap clinical nurses are assigned to provide pharmacy services. This would affect the quality of services as they are not trained as pharmacists and may not have adequate knowledge and skills on the concept of pharmaceutical supply system. Similarly 18.7% of the health centres located in the geographic clusters do not have laboratory professional and do not provide basic laboratory services. Availability and attrition of human

resource for health is again a major gap that could affect access and quality of primary healthcare services provided to the population of the clusters.

Stockout of essential drugs and supplies

Availability of essential drugs and supplies are necessary to provide quality primary healthcare services. The key informants at the geographical clusters and observations made by the field team revealed stockout of essential drugs, family planning commodities, tetanus toxoid and reagents for performing haemoglobin test, VDRL and AFB at health facilities of the geographical clusters. There is also inadequate implementation of Integrated Pharmaceutical Supply System (IPLS) particularly at 22% of health centres in the geographic cluster with no pharmacy professional. As a result stockout of essential drugs and supplies including laboratory reagents are identified as a major gaps in providing primary healthcare services to the population of the geographic cluster.

Low family planning utilization

The contraceptive acceptance rate in the geographical clusters is generally lower than the national average of 42% in 2014 except at Waghimra and Wolayita clusters. Based on the focus group discussion findings at predominantly pastoralist clusters there are gaps in the utilization of family planning services as a result of male dominance and religious condemnations. The participants at focus group discussion at Bale cluster stated that husbands prohibit women from seeking family planning services by saying to their wives "*you are going to make my family less in number than others"* as a result women are reluctant to go to health facilities to seek the family planning services. The key informants and focus group discussion participants revealed religious factors prohibit women from accessing family planning services at Afar, Siti, Liben and Bale clusters although the women have a desire to limit the number of children.

Low utilization of skilled birth attendant

There is a wide variation on the performance of skilled birth attendant at the geographical clusters in 2015, ranging from 9.3% at Liben cluster to 67.5% at Wolayita cluster. In 2014 Waghimra, Siti, Bale, Borena, Wolayita and South Omo clusters achieved better performance on skilled delivery compared to their respective regional average, while the Afar and Liben clusters achieved lower performance compared to their respective regional average. Generally there is low utilization of skilled delivery services at Afar, Siti, Liben, Borena and South Omo clusters; and better utilization of skilled delivery services at Waghimra, Bale and Wolayita clusters.

Among the gaps identified that contributed to the low performance on skilled birth attendant include:

- Shortage of midwives trained on Basic Emergency Obstetric and Newborn Care (BEmONC). Although there are efforts to provide BEmONC trainings to midwives across the clusters, training has not reached all midwives and there is attrition of experienced and BEmONC trained midwives.
- Lack of maternity waiting rooms at Afar and Liben clusters which was designed to create an enabling environment for pregnant women to get access to skilled delivery.
- The traditional birth attendants have maintained their role in the communities of Afar, Siti and Liben clusters in attending the majority of deliveries. The traditional birth attendants are also active at the other geographical clusters although their influence is decreasing.

Low immunization coverage at Siti and Liben clusters

Ethiopia achieved the target set for millennium development goal by reducing child mortality from 166/1000 live births in 2000 to 60/1000 live birth in 2014, earlier than the date set for MDG goals in 2015 (Assessment of Ethiopia's Progress towards MDGs, UNDP, 2014) This achievement is mainly attributed to the health extension program that improved coverage of child health services at the community level by providing services including routine immunization against vaccine preventable diseases and integrated community case management (ICCM). The coverage of fully immunized children in 2014 was higher at Waghimra, Afar, Borena and Wolayita clusters compared to their respective regional average. On the other hand, the coverage of fully immunized children in 2014 was lower at Liben, and South Omo clusters while it was same at Siti and Bale clusters compared to their respective regional average. The immunization coverage at the geographical clusters in 2015 was generally high except at Siti and Liben clusters which had immunization coverage of 33.8% and 23.3% respectively. These show that the majority of children at Siti and Liben are not fully vaccinated at the age of one year. The findings indicate the immunization coverage against vaccine preventable diseases is a gap at Siti and Liben clusters.

Low access to safe water supply

The geographical clusters which faced recurrent drought situations are particularly vulnerable to scarcity of water. The average time spent to fetch water in the geographical clusters vary from 1 hour to 8 hours. This clearly shows huge gap in accessing safe water supply

to the population of the cluster. Even some of the communities in the geographical clusters are dependent on water tracking (Liben and Bale clusters) during the dry season and to some communities access to safe water supply varies with the season of the year as some water sources diminish yielding during dry season. In general there is a huge gap across the geographic clusters in meeting demand of the population to safe water supply.

Low access to latrine facilities

Access to latrine facilities is generally very low at the predominantly pastoralist geographic clusters. Open defection free kebeles that ensured access to latrine facilities at household level are very low at Siti cluster (3%), Bale cluster (6.6%), Afar cluster (11.3%), South Omo cluster (11%), Borena cluster (26%) and no kebele has ensured access to latrine facilities at household level at Liben cluster. In the predominately agrarian Waghimra and Wolayita clusters, kebeles that ensured access to latrine facilities at household level are 45.5% and 50% respectively. These demonstrate that there is a huge gap in ensuring access to latrine facilities at household level at all geographical clusters which is a key in creating open defecation free kebeles which is one of the criteria for creating model kebeles under woreda transformation plan.

Food insecurity

The population in the geographic clusters generally are affected by recurrent drought cycles as a result they are exposed to chronic shortage of food. Even if food is available it is limited to few varieties of cereals and milk. Fruits and vegetables are major items of food that lack in the market of most of the geographic clusters according to the key informants and focus group discussion participants As a result, shortage of food and limited food diversification are huge gaps at the geographic clusters that could expose the most vulnerable segments of the population particularly women and children to a state of malnutrition.

Lack of focus to the nutritional needs of pregnant, lactating women and adolescent girls

The national nutrition program recommends adequate dietary intake and diversification during pregnancy and lactation and access to micro-nutrient services. The focus group discussion participants in almost all geographical clusters revealed pregnant women access similar type of meal with the remaining members of the family, however they have better access during the first forty days of postpartum period. On the other hand, pregnant women attending ANC have access to iron folate provided to prevent anaemia. There are no special consideration and interventions implemented at the geographical clusters to address the nutritional needs of

adolescent girls. These findings indicate lack of focus to the nutritional needs of pregnant, lactating women and adolescent girls at household level is a gap at the geographical clusters.

Acute malnutrition in children

The prevalence of acute malnutrition in under-five children based on regional figures was high at Afar, Siti and Liben clusters as compared to the national average in 2014 . The result give an indication that under-five children at Afar, Siti and Liben clusters more likely face acute shortages of food as compared to the other clusters. Similarly the facility-based severe acute malnutrition prevalence in under-five children at Afar, Siti, Liben and Bale clusters was relatively higher in 2015. These findings show acute malnutrition is a gap that needs to be addressed particularly at Afar, Siti and Liben clusters.

Chronic malnutrition

Stunting is an important indicator of chronic malnutrition in under-five children as a result of receiving inadequate nutrition in a long period of time. Stunting therefore reflects a long-term effects of malnutrition. In 2014, the prevalence of stunting was higher than the national average at Waghimra, Afar, Wolayita and South Omo clusters while it was lower at Siti, Liben, Bale and Borena clusters. The findings give an indication of under-five children at Waghimra, Afar, Wolayita and South Omo clusters more likely face long-term shortage of food compared to the other clusters.

Gender gap

Male dominance is evident at the geographical clusters in making decisions on healthcare seeking behaviour of women (wives). Religion at Afar, Siti, Liben and Bale clusters condemn family planning even though the Ethiopian constitution gives women the right to family planning. As there is water scarcity in the geographical clusters women and girls are responsible to fetch water for the consumption of the families and suffer most in spending 1-8 hours to fetch water from the available sources. There is a gap in the geographical clusters in eliminating gender based violence as there are still practises of wife beating, early marriage, female genital cutting and rape. The majority of women in the geographic clusters depend on incomes of their husband and have less power to use the household resources to make health and nutrition decisions. Respectful maternity care that provide dignified care based on women preference is not implemented at satisfactory level at the geographical clusters. Female genital cutting is still practised at Afar, Siti and Liben clusters. As a result the issue of gender equality in accessing health and nutrition services is major gap in the geographical clusters.

9.2.2. Opportunities in health and nutrition

Health Sector Transformation Plan (HSTP) and Woreda Transformation Plan

The Ethiopian Health Sector Transformation Plan which aims universal access of the population to healthcare through strengthening primary healthcare is an opportunity to improve the health and nutrition situations of the clusters. The HSTP aims to achieve equity and quality on healthcare delivery and utilization; create compassionate, respectful and caring health workforce; bring about information revolution; and transform the health sector at woreda level. The woreda transformation aims to create high performing health facilities in terms of health and nutrition interventions; creating model kebeles that ensured home delivery free and open defecation free; and enrolling 100% of the population into community based health insurance (CBHI). Therefore, the HSTP and woreda transformation initiatives would be an opportunity to improve access, utilization and outcome of health and nutrition services at the geographical clusters.

Health Extension Program and Health Development Army

The health extension program brings basic health services to the door steps of households and foster community ownership through mobilization of health development army to transform households in terms of positive practises in the areas of health, nutrition a WASH. Health Development Army (HDA), mostly women, scale up best practices at household level based on the experiences of health extension program to ensure better health and nutrition to families and communities. Therefore the health extension program and health development army (HDA) are opportunities to mobilize the community in the geographic clusters to improve access to basic health services, nutrition and hygiene and sanitation.

Maternal health initiatives

Maternity waiting areas at health centres for pregnant women to stay when the date of confinement approaches is an opportunity for communities with less transportation access to improve access of women to skilled delivery. Respectful maternity care that aims at providing dignified care to mothers that address their preference is an opportunity to improve women access to maternal health services including skilled delivery. Furthermore, the provision of maternal health services free of charge, including ambulance service, is another opportunity to improve maternal and newborn outcomes in an effort to reduce maternal and neonatal mortalities.

The integrated WASH framework

The integrated WASH framework, which focuses on integrated needs of individuals, communities, institutions to improve access to portable water supply and sanitation is an opportunity to improve WASH. The government of Ethiopia under GTP II aiming to improve access to safe water supply is an opportunity to improve access of the community and public institutions to adequate and safe water supply. The presence of rivers Tekeze in Waghimra cluster; Awash, Dewe, Wederage and Borkena in Afar cluster; Erer in Siti cluster; Dawa and Genale in Liben cluster; Blate and Chereke in Wolayita cluster; and Weyto and Omo in South Omo cluster are opportunities to develop safe water supply schemes. The woreda transformation initiative of creating open defecation free kebeles is an opportunity to improve sanitation at households and institutions in the community.

The national nutrition program

The national nutrition program aims at producing healthy and productive citizens by fulfilling their nutritional demand. The multi-sectoral approach strategy of the national nutrition program focusing on the most vulnerable segments of the population including young infants and children; pregnant and lactating mothers; adolescent girls; people exposed to chronic communicable diseases is an opportunity to address the nutritional needs of the population. Nutrition-sensitive agriculture, water and education interventions under the national nutrition program are opportunities to realize multi-sectoral approach in an effort to bring about sustainable improvements on nutrition at household level. The Productive Safety Net Program (PSNP) program is another opportunity in the geographical clusters that improves access to food.

Development partners

The presence of development partners on the ground at the geographical clusters working in the technical areas of health, nutrition and WASH is an opportunity as they have the technical expertise and the experience in resilience building interventions. They can also introduce innovations that can improve the access to basic services on health, nutrition and WASH.

Gender mainstreaming

The Ethiopian government gender policy with a main strategy of gender mainstreaming in sector and development programs is an opportunity to integrate gender issues to improving access to health, nutrition and WASH in the geographical clusters.

9.3. NR and DR Management

9.3.1. Gaps in NR and DR management

The situation analysis revealed that drought is the number one disaster risk in all of the eight clusters. This is followed by disease (especially of livestock, followed by human and crop), conflicts, economic shocks, floods and landslides. Thus assessment of the challenges in NR and DRM relates to these major disaster risks, and has identified the following as the key challenges in NR and DRM for all clusters.

Population expansion – Rapid human and livestock population growth in the cluster puts pressure on the existing NR base. CSA (2013) forecasted that by 2017 the eight zones where the eight clusters are located in will be home to close to 7.5 million people, and the population grows at a rate of 3.4% per annum, much faster than the national average. Likewise, the livestock population in the eight clusters remains high. Zonal level livestock population data are lacking. The 2016 CSA report indicates that Afar region alone is home for over 7 million livestock. The estimated number of livestock in the seven zones where the seven clusters are located is close to 19 million (CSA, 2016).

Degradation of rangelands – In all of the clusters, degradation in quality of grazing lands either due to more frequent and severe droughts and/or invasive species is reported. Invasive bushes and weeds are expanding widely particularly in Afar, Siti and Bale. In Siti alone, *prosopis julifera*, and several invasive species of *acacia* were identified as major encroaching woody species by some researchers as well (e.g. Kassahun 2006). This seriously undermines the quantity/area and productivity/quality of rangelands for grazing and browsing. Also, increased dependence on and over exploitation of the NR base by the community (e.g. for fuel wood and charcoal) negatively affects woodlands and rangelands. Cluster-specific degradation of NRS related challenges include extremely high land degradation due to conversion of hillsides and shrub lands to agricultural lands in Waghimra and Wolayita; rapid decline in bush and shrub land areas in Afar, Borena and South Omo; and decline in grassland area in Siti, Bale, and South Omo. Most worrying trend of rapid increase in the area of barren land is observed in five of the eight clusters – Afar, Liben, Borena, Wolayita and South Omo. This indicates a major concern that requires the attention of all.

Increased incidence and regionalization of conflicts – The mobile nature of communities, their dependence on communal natural resources make conflicts common phenomenon. More frequent drought forces pastoral and agro-pastoral households to migrate

more and further. This in turn increases the frequency and severity of conflicts that often results in loss of life and livestock and depletes labour and livestock assets of households. Districts and kebeles bordering other clans, ethnic groups or regional and international boundaries face more frequent conflicts due to resource scarcity. In some cases, conflicts take regional dimension and become increasingly difficult and costly to resolve as boundaries and towns are contested by different regional states (e.g. between Somali and Oromia Regions in Siti). Thus more resources are being allocated to settle such conflicts. Some key informants in Siti cluster pointed out that there is fear that conflict management could become a business by itself as more and more funds are now being allocated by the government and aid agencies to resolve conflicts. They pointed out that certain segments of the society are acting as mediators and they began to see this as a business opportunity. This claim needs to be substantiated and, if true, needs to be addressed with care. If not, it may lead to growing economic interest around conflict which, in certain circumstances, could create incentives for conflict to be reignited.

Reduced mobility and access to NRs – Pastoral and agro-pastoral livelihoods are dependent on mobility. Both poverty and conflicts reduce mobility of households. Increasing number of households are becoming less mobile because of conflicts, labour limitations or reduction in livestock numbers. This undermines the capacity of households to make effective use of seasonally available water and fodder resources. Reduced mobility makes households and their livestock stay longer than the normal period around water points. This in turn puts pressure on water resources and lead to overgrazing and subsequent degradation of areas around those water points. Access to grazing lands and water points continues to decline due to population growth/increased demand, major land use changes (desertification, agricultural expansion, bush encroachment, etc.)

Climate variability and change – Increasingly erratic rainfall and high average temperature influence vegetation cover and also availability of water on the landscape. This negatively affects resource potential of clusters to support growing human and livestock population.

Remote locations and challenging environment – Most of these clusters and in particular pastoral and agro-pastoral communities in these clusters inhabit very remote locations. The arid and semi-arid environment that characterize these areas limit the capacity of the ecosystems to produce biomass/feed and make water available for people and livestock. Because of remoteness, the provision of services in pastoralist areas will continue to be constrained by high transaction costs and hence high cost per person serviced. This undermines

their ability to access social services and marketing centres and severely limits their options to be engaged in additional or alternative employment.

Poor access to extension, credits and markets – In all clusters, extension services and credit schemes tailored to the needs and norms of pastoral and agro-pastoral communities are under developed. Also poor access to input and output markets continue to be important challenges for all clusters and for pastoral and agro-pastoral areas in particular.

Water shortage – Despite commendable job of GOs and NGOs to improve access to water, water shortage still continues to be a major challenge to communities in all clusters. More frequent and severe droughts and growing demand for water due to fast growing number of people and livestock exacerbates water shortage.

Illiteracy and cultural values – The level of education in pastoral and agro-pastoral communities is low, and this limits their exposure to other livelihood options such as farming. Thus, most continue to depend on livestock production as the most important source of household income. Also, the traditional value system among pastoral and agro-pastoral communities requires having large number of livestock to secure high social status. This adds to the grazing and browsing pressure on the already degrading rangelands. As the number of livestock per household increases, it increases not only demand for feed but also for water, creating additional burden on the existing water sources. In addition, the Afar people have strong cultural bounds among themselves and hardly mix with other ethnic groups that in turn limits opportunities to acquire additional skills for engaging in other livelihood options. Also, the mobile way of life discourages Afar communities from building up fixed assets like constructing houses, shops and other trade-related options.

Increased dependence of households on relief (aid dependency) – This is reported to be an important challenge and was cited by experts of GOs and NGOs. As most clusters have been receiving supports for years, and some for decades, it is not unexpected that aid dependency will set in. Some experts reported that some households do not want to build assets and in some cases may even tend to sell livestock as they prefer to continue to be in the list of aid receiving households. But unfortunately, no concrete examples of actions either in program design or implementation were reported as actions to combat aid dependency either by GOs or NGOs.

Weak capacity of communities to cope and adapt – Significant proportion of households in all of the eight clusters have a very low capacity to cope with and adapt to

disasters. This is evidenced by long period needed for them to recover from losses they incurred after disaster. As a result, large number of households depend on safety net support programs and on emergency aid.

Underdeveloped capacity of institutions and experts – Weak capacity of GOs and experts at woreda level. The situations of Waghimra and Borena are slightly better as these are primarily agricultural areas where government institutions of extension and credit service provision are better organized.

Lack of reliable data to inform planning – Lack of data on the socio-economic aspects as well as on the resource base of these clusters to inform planning and evaluation is a major problem.

Less well-thought development interventions – The interventions in agriculture and irrigation development need to consider the potential of the natural resource base and also off-site implications. The drive to expand irrigation based farming is leading towards the use of dry season grazing areas for crop production and the building of small dams and diversion weirs in many areas. It appears that in some cases irrigation development on upper streams is affecting water availability for households in the lower stream. This adds up to the existing difficulties and water shortages for the communities in the lower catchment areas. This was reported as a problem by respondents from clusters in Waghimra, Afar and Siti. Promoting high input/feed demanding livestock breeds in areas where the NR base is declining (e.g. in Waghimra, Wolayita and South Omo) requires either rethinking or it should be preceded with significant efforts to make sure that farmers are able to produce adequate amount of livestock feed.

In most clusters, it appears that the livestock-environment link is not adequately understood and hence poorly managed. NGOs and GOs are engaged in restocking programs. There are credit and support programs to assist farmers to have more number of livestock. This happens before improving the feed resource base. As the practice of free grazing continues unabated, this aggravates NR degradation. households want to increase their livestock numbers as grazing lands are used freely and communally. Some farmers in Waghimra for example are shifting to goats. A key informant in Seqota woreda stated that "… *we are shifting towards goats: as cattle suffer more from the effects of drought and their values in the markets drop quickly following on-set of droughts but goats resist better the impacts of droughts and their market values are not that much affected if we want to sell them…*". The implication of this

shift on the resource base for areas like Seqota where rainfall variability is high and vegetation cover continues to decline needs to be assessed and managed.

Declining importance of traditional support systems – More frequent droughts and conflicts reportedly reduce the capacity of relatively better-off households to support needy members of the community. On the other increased availability of emergency aid by GOs and NGOs is eroding this culture. Most however agree that the importance of traditional support systems in times of need is declining over time.

Reduced access to and control over resources of women – Evidence show that women in most clusters have little control over assets with major values, including privately managed lands. Thus a lot more time and effort is needed and options will have to be identified to empower women in the pastoral and agro-pastoral areas and assert their rights over resources notably land. There are lessons from land use certification process that we could learn, but the how and under what conditions are poorly understood

Addiction – Some experts and key informants indicated their worry on the increased use of c*hat* (*khata edulis*) by growing number of men and youth as this has a serious implication to household economy, particularly in Siti, Liben, and Bale clusters.

9.3.2. Gaps to be addressed in NR and DRM

Better understanding of the institutional and capacity related gaps in building resilience of communities and their ecosystem is critical to identify and implement effective and efficient NR and DRM interventions in the eight clusters. Unless the gaps are addressed, they will continue to undermine efforts to build resilience of the socio-ecological system in general and in improving NR and DRM in all clusters. In light of this, the following gaps are identified in relation to natural resource and risk management for building resilience in the cluster areas.

Limited capacity to make use of available capacities and information to improve planning and monitoring in NR and DRM – GOs and NGOs have not used the DRM profile and planning document prepared by the federal agency for some of the target woredas, existing potential in GIS and remote sensing to gather spatial and temporal data to allow for knowledge-based planning and informed decision making at different levels. Likewise, limitations in packaging and making existing knowledge persists. Experience gained from development efforts in the past in pastoral and agro-pastoral areas in general and in managing NR and DR

in particular have not been systematically documented to inform debates about development pathways in these areas.

Limited technical knowledge to improve productivity and build resilience in the pastoral and agro-pastoral systems – For various reasons research based knowledge on these productions systems remains limited. More needs to be done to address the lack of adequate knowledge on:

- on the status of NRs base in each woreda and on its trend and major threats;
- on the extent of land use changes and their implications to livelihoods;
- on options to better manage the NR-livestock link;
- on options to improve tenure security in the pastoral and agro-pastoral areas given the fact that most NRs are managed and used communally whereas there is growing trend of individualization of communal resources (e.g. grazing lands and woodlands) by individuals and the promotion of irrigation based farming in many areas that are used as dry season grazing fields;
- on how to provide complementary roles for GOs and traditional institutions in managing access to and use of NRs. Communal lands and forests are administered by the state in the highlands. They are managed mainly by traditional institutions in the lowlands; and
- on the role that traditional institutions could play in planning and implementing NRM works by mobilizing communities. Key informants feel that the traditional institutions are effective and well respected and elders ensure equitable access and proper use of communal resources. But experts are less convinced that these institutions could play better role than the government institutions (teams) to mobilize communities for NRM work.

Underdevelopment of capacity at regional and woreda levels – Climate variability and change is a reality as evidenced by high temperatures, erratic rainfall and more frequent and severe droughts. Hence the attempts to build DRM capacity at woreda and kebele level by the government remain inadequate and fragmented. At woreda level GOs and committees in charge of NR and DRM are being established and their capacity for early warning (droughts, floods), conflict, NR and DRM needs to be built systematically. At woreda level capacity for early warning and to ensure participation in project planning, implementation and evaluation is critical. Particular emphasis is needed to building further the capacity of GOs at woreda level in particular to better plan and implement activities that are geared towards improving access to water, infrastructure, markets and social services; mobilizing communities to be engaged in

soil and water conservation works; establishing nurseries and producing seedlings; promoting crop production based livelihoods; introducing improved farming and pest control methods; providing training, improving access to credits and supporting livelihood diversification; establishing peace and reconciliation committees; establishing early warning and disaster reduction management taskforces/command posts at different levels; and providing emergency aid.

Limited capacity of local GOs and NGOs to engage in long-term development interventions – Experts and key informants acknowledged the important role that NGOs are playing in providing emergency aid. Efforts of GOs and NGOs in improving access to water and social services as important development interventions are well recognized. Experts stress the growing tendency of communities and even administrators and NGO officials to increasingly depend on emergency and relief aid. They criticize GOs and NGOs for lack of willingness, human resource capacity and financial limitations to design and implement long-term development plans and programs that will significantly help in building the resilience of communities and their ecosystems. The focus has been on emergency aid, and little is being done to improve the management and use of NRs. Only few NGOs are recognized as being engaged in activities that combine development with emergency response that aim to mitigate disaster and vulnerability to major shocks associated with drought. As a result, long-term plans and programs that aim at building the resilience of communities and build up the natural resources base are rare if not absent in all clusters.

Inadequate emphasis given to improve the feed resource base – Informants pointed out that though much improvement has been made in improving access to water, little efforts have so far been made to improve livestock feed resources, desired vegetation cover on the landscapes, and the natural resource base at large notably on improving the management of rangelands.

Less emphasis on NRM at local level – Many pointed out the limited commitment of communities, administrators and NGOs to the conservation and responsible use of NRs (in all clusters) and poor survival rates of trees planted on rehabilitated communal lands (Waghimra and Wolayita clusters). Information regarding tree species that suit the sites/cluster and options to improve tree seedlings survival rates in the dry low land areas is scanty. There is also inadequate effort to promote use of alternative energy sources (solar for example) and reduce dependence of households on forests and rangelands for fuel wood for household energy and lights. Despite national level efforts to engage communities in NRM, success remains limited.

We need to improve the planning process as well as the effectiveness of SWC measures and survival rates of seedlings planted as well as range land improvement measures used (e.g. bush control methods). Respondents pointed out that more needs to be done to fine-tune and improve appropriateness of soil and water conservation measures starting from selecting sites to identifying specific physical measures to be applied, determining species to be planted, and defining ownership and use rights of the surrounding communities on trees planted and landscapes rehabilitated. They stress that the needs, knowledge and capabilities or resources of local communities need to be properly considered during the planning and implementation stages, and rigorous follow up should be put in place to make sure that community efforts and the resources of GOs and NGOs are not wasted.

Inadequate efforts to promote collective action of communities in NRM – GOs in the pastoral and agro-pastoral areas have not been that successful in mobilizing communities and engaging them in NRM work. The field study team did not come across any report from the clusters that indicate the role that traditional institutions played in mobilizing local communities to rehabilitate communally used natural resources. But key informants suggested that if mobilized local communities could be engaged in this process.

Poor coordination of actors - Almost every expert stressed poor coordination amongst NGOs on one hand and between GOs and NGOs on the other in addressing the root causes of weak capacity of communities in the cluster to cope with and adapt. Concerted efforts are required to improve coordination and ensure complementarities of activities of non-state actors and encouraging them to have NR and DRM components in their projects. A number of NGOs (in some clusters dozens) are active in the clusters. But NR and DRM have not been high on their agenda. Participatory, community-engaging NRM projects can be planned and implemented by non-state actors in pastoral and agro-pastoral settings with positive impacts on the resource base and also on local livelihoods as was demonstrated by the work of Save the Children in Siti.

Lack of clear use and responsibility rights/tenure on communal resources – Literature shows that the previously communally owned grazing lands in pastoral and agro-pastoral areas of Afar, Somalia and Oromia Regions are becoming increasingly under the control of individual households. Increased individualization of the common land will lead to expansion of privately enclosed grazing lands which in turn may increase competition for use of communal lands and aggravate conflicts. It may also further marginalize the poor segments of the community.

Institutional gaps or overlaps in governing access to and use of NRs - In all clusters except Waghimra, traditional institutions still play significant role in governing access to and use of communal resources. There is also a major concern that the role of traditional institutions has not been officially recognized and supported by GOs except in Afar, Bale, and Borena. But there is no clear policy direction and legal framework to define their authorities. It is only in Borena that we were told that GOs are working with traditional institutions to govern access to and use of communal resources. In other clusters the picture is unclear. Some respondents also reported that there is a consistent decline over time on the control over the use of communal resources by GOs (e.g. in Waghimra). In situations where neither GOs nor traditional institutions are asserting their power in governing access, the results are over exploitation of natural resources and even land use changes.

Successive governments in Ethiopia paid less attention to specifying the roles and responsibility of traditional institutions in the governance of common property resources in pastoral and agro-pastoral areas (Bekele and Kassa 2014). There is a recognition by experts that these institutions do well in terms of providing rules of resource usage between community members that ensure equal access to use of communal resources and in reducing conflicts over use of these resources. There is however a major concern that they do not have track records of mobilizing communities to invest labour and other resources in improving NR management. Most felt that mobilizing communities to invest in NRM is being done by GOs.

Little recognition to the need for rethinking and diversifying development pathways in pastoral and agro-pastoral areas - The development direction being followed by the government in most clusters continues to emphasize crop production and settlement over communal use of rangelands and mobility. It focuses on encouraging pastoral and agro-pastoral communities to settle and engage in (irrigated) farming. However, experiences in many other countries suggest the need to be very careful in these approaches as such transitions would not be easy and may not be suitable for all segments of the pastoral and agro-pastoral communities. Thus rethinking development pathways and identifying options that would work for different segments of the community (e.g. rich pastoralists that can effectively move around and those that are becoming poorer and cannot be mobile and hence are ready begin settled farming) is necessary. In other words, the government needs to devise new multi-faceted and well-tailored regional development strategy for pastoral and agro-pastoral areas that recognizes the capacity and specificity of the ecosystem and the needs and preferences of the community in view of maximizing benefits to all.

9.3.3. Opportunities in NR and RD management

In light of the key challenges and gaps discussed above, identifying major opportunities is necessary. The following are prevailing opportunities that need to be ceased as actors attempt to strengthen NR and DRM plans and programs for building resilience in the clusters:

- Government development strategy (e.g. CRGE strategy that aims at sustainably managing over 2 million ha of woodlands in the pastoral and agro-pastoral areas). The five year development plans (e.g. targets in the GTP II) and programs (e.g., PCDP, PSNP, Participatory Forest Management, SLM) create opportunities to support efforts in NR and DRM in the pastoral and agro-pastoral areas. From major national programs designed to develop pastoral and agro-pastoral areas, experiences could be drawn as we design projects in NR and DRM relevant to the agro-ecological and socio-economic settings of the clusters. It is equally important that NR and DRM projects in the cluster areas are linked with on-going government plans and programs for the pastoral and agro-pastoral areas such as PCDP and PSNP.
- The DRM strategy of the government provides platform for encouraging coordination among actors. Thus, this needs to be tested and adjusted to allow for genuine participation of actors (GOs, non-state actors, CBOs and traditional institutions of resources governance) to develop woreda level programs that combine short term livelihoods support/aids with long-term development needs/NRM work in each woreda. Also the DRM strategy lays the foundation for building capacity for early warning systems at lower levels of the government structure. Climate variability and change is a reality as evidenced by high temperatures, erratic rainfall and more frequent and severe droughts. To better cope with this growing threat, attempts by the government to build early warning and DRM capacity at woreda and kebele level needs to be strengthened further.
- Rivers and underground water potentials as well as labour to exploit opportunities for irrigation based farming for drop outs form pastoral and agro-pastoral systems. Examining the process and supporting this initiatives to better target users (e.g. drop outs of pastoral and agro-pastoral systems, the youth, etc.) and designing appropriate crop and livestock extension messages for settled framing in dry areas will certainly be helpful.
- The presence of traditional institutions that govern access to and use of natural resources that are used communally. These institutions can assist efforts in:
    - Mapping mobility patterns of pastoral and agro-pastoral communities to better inform the selection of lands for agriculture and thereby to minimize conflicts,

    - Mobilizing the communities to better manage their rangeland resources (e.g. in investing for controlling bush encroachment, over grazing, excessive tree cutting, ..) and in identifying areas as fodder banks, and
    - Creating mechanism to better target interventions to the needs of communities while also ensuring reducing dependency of aid.
- Increased presence of GOs and offices in charge of NR and DRM at Regional, Zonal and woreda levels and in some cases committees at kebele levels. We note availability of health, extension and credit service providing institutions closer to communities would particularly support agriculture and livelihood diversification efforts, and hence potentially reduce dependence on livestock production alone and on exploitation of NRs.
- Increased capacity to predict weather patterns and forecast drought and floods as well improved communication networks (e.g. mobile network coverage and use) that could be used to convey information to users quickly and cheaply.
- Improved understanding of the advantages and limitations and building on the strengths of DRM strategies communities. Communities use various DRM strategies that include: tapping into the existing social network and support mechanisms (to seek loans or supports/donations); reducing expenses and consumption; seeking employment and other income generating opportunities including seasonal migration to other areas; increasing dependence on income from wood (fuel wood, charcoal) and non-wood products (fodder, gums and resins, etc.); reducing livestock numbers through sales; increasing diversity of livestock species and herd structure; and mobility/migrating to areas where more pasture and water for livestock are available being informed by surveillance of rangelands and exchange of such information (particularly common among the Afar communities). Better understanding of these by GOs and NGOs would help them design more effective programs and plans.
- Growing knowledge base on the advantages and limitations of traditional institutions in conflict management though this needs to be further strengthened. Communities rely on and respect the traditional institutions to minimize the chances of conflicts over the use of communal resources and to resolve them quickly when they happen. GOs and NGOs have been supporting communities and the traditional institutions in their peace building efforts. In some areas there are worries that managing conflicts could become a business by itself. In others areas, there have been efforts to establish peace committee and in others to

actively engage elders and traditional institutions in conflict management. This is a good experience to build on.

- Building on national, regional and lower level efforts of:
  - Coordinating and ensuring complementarities of activities of non-state actors and encouraging them to have NR and DRM components in their projects. A number of NGOs (in some clusters dozens) are active in the clusters. But NR and DRM have not been high on their agenda. Participatory, community-engaging NRM projects can be planned and implemented by non-state actors in pastoral and agro-pastoral settings with positive impacts on the resource base and also on local livelihoods as was demonstrated by the work of Save the Children in Siti.
  - Improving the planning process as well as the effectiveness of SWC measures and survival rates of seedlings planted as well as range land improvement measures used (e.g. bush control methods). Respondents pointed out that more needs to be done to fine tune and improve appropriateness of soil and water conservation measures starting from selecting sites to identifying specific physical measures to be applied, determining species to be planted, and defining ownership and use rights of the surrounding communities on trees planted and landscapes rehabilitated. They stress that the needs, knowledge and capabilities or resources of local communities need to be properly considered during the planning and implementation stages, and rigorous follow up should be put in place to make sure that community efforts and the resources of GOs and NGOs are not wasted.
  - Building capacity of actors to better plan and implement activities that are geared towards improving access to water, infrastructure, markets and social services; mobilizing communities to be engaged in soil and water conservation works; establishing nurseries and producing seedlings; promoting crop production based livelihoods; introducing improved farming and pest control methods; providing training, improving access to credits and supporting livelihood diversification; establishing peace and reconciliation committees; establishing early warning and disaster reduction management taskforces/command posts at different levels; and providing emergency aid.
- Presence in the country of bilateral and multilateral development agencies and international research centres (CIFOR, ICRAF, ILRI, IWMI, IFPRI, …) and national institutes (EEFRI, EIAR, EDRI, Universities, …) that could support the efforts of GOs

and non-state actors in collating, building and sharing knowledge in NR and DRM, and some of these institutions have well developed capacities in GIS and remote sensing to monitor changes in land use land cover changes, as well as in supporting efforts to better manage communal resources and better produce and conserve more livestock feed. Engaging these research centres and academia will make interventions knowledge-based and facilitate the process of screening good practices for scaling up.

The discussions in this section focuses on thematic specific gaps and opportunities identified in the cluster areas. The following section will focus on policies, programs, institutional and organizational gaps and opportunities that cuts across the thematic areas for building resilience in the cluster areas.

9.4. Policy and Institutions

The entry point for any interventions that aim to build the resilience of vulnerable communities to any kind of shocks is the existence of favourable policies. Besides, reviewing the existing strategies and programs related to resilience building is an important step to identify interventions since it does not only avoids duplication of efforts but also it helps to use scarce resources in their maximum possible outcomes. The gaps and opportunities that are presented in the previous section focuses on specific thematic areas. There are also policies and institutions whose roles and relevance cross more than sector or thematic areas. In this respect, based on the review of policies, programs and institutions presented in previous section, the following policy and institutional gaps and opportunities that are deemed to have essential roles in building resilience efforts in the EU RESET II geographical cluster areas can be identified.

9.4.1. Policy and institutional gaps

The followings are important policy and program related gaps that constrain the resilience building efforts especially relevant in the geographical cluster areas.

- Lack of scientific based knowledge for policy priority for linking livelihood/agriculture and nutrition and health for resilience building based on country/region specific context;
- Lack of strategy to link food security programs (PSNP, HABP) with NRM;
- More sector specific programs that have specific targets of achieving development outcomes; limited complementarities among different sectoral programs;
- Lack of plans/programs designed based on agro-ecological and socio-economic settings of the clusters;

- Absence of targeted program coverage for integrating agricultural production for nutrition security especially for women and children that simultaneously improve the resilience of vulnerable communities;
- Perceived increased dependency of communities on food aid and relief oriented interventions of NGOs and top down planning of government structures;
- Weak coordination or Weak linkage among the different sectoral offices, which led to very loss linkage among livelihood strategy, nutrition and health programs due to weak linkage among the different sectors;
- Low capacity to harmonize and utilize existing opportunities in planning and implementing programs that have cross sectoral impact at local levels;
- Weak implementation capacity of programs at federal, regional and woreda levels in terms of qualified, skilled human resources, financial and material resources;
- Limited participation of local communities in problem identification, planning, implementation and monitoring;
- Lack of national research capacity on the link between resilience, on the one hand, and livelihood, health and nutrition, on the other hand; and
- Lack of national research capacity on the link among livelihood, health and nutrition on one hand and between livestock/agriculture and natural resources management particularly in the pastoral and agro-pastoral areas on the other hand.

9.4.2. Policy and institutional opportunities

Given the above policy and program related gaps, the followings are key opportunities that help to fill the existing gaps and thereby design relevant interventions that aims to build the resilience of the vulnerable communities in the geographical cluster areas.

- Agricultural Development led industrialization, a fundamental strategy for sectoral policies, strategies and programs;
- Well established system to formulate medium term plans that contains successive five years sectoral plans in the country;
- Sectoral policies and strategies encourages agro-ecological based plans and programs and emphasizes the need to be tailored to local context;
- There are many programs in Ethiopia that can be opportunities to take advantages of their presence to mainstream resilience building programs that requires multi-sectoral or cross-sectoral linkages;

- Government and donor commitments to formulate policies and strategies based on scientific evidences;
- Establishment of the National Disaster Risk Management and Food security Commission;
- Presence of National Planning Commission that sees cross sectoral programs and plans at federal levels;
- Political commitment from the government side to work with stakeholders;
- Willingness of the donor communities to support with technical and financial resources in eradicating poverty, implementing the Sustainable Development Agenda and any efforts that aim to build resilience of vulnerable communities;
- Presence of many Non-governmental organization willing to work in remote and with vulnerable communities;
- Presence of many government and non-government organizations working at local levels;
- Constitutional support for decentralization; Government Commitment to devolve decision making to local communities and High willingness and readiness of vulnerable communities to participate in local development activities; and
- Well established research institutions that conduct policy and strategy. Research institutions established in the regions and universities and mandates to work on issues affecting agriculture and NRM in dry lands in genera and in pastoral and agro-pastoral areas in particular.

10. References

Amaha Kassahun (2006), Characterization of the Rangeland Resources and Dynamics of the Pastoral Production Systems in the Somali Region of Ethiopia. PhD thesis, University of Free State, Bloemfontein.

Central Statistical Agency (2016), Agricultural Sample Survey 2015/2016 (2008 E.C.). Vol. II Report on Livestock and Livestock Characteristics. Private Peasant Holdings. STATISTICAL BULLETIN 583. June 2016. Central Statistical Agency, Federal Democratic Republic of Ethiopia. Addis Ababa. June 2016.

Central Statistical Agency (2014), Ethiopia Mini Demographic and Health Survey 2014, Central Statistics Agency, August 2014

Central Statistical Agency (2013), Population Projection of Ethiopia for All Regions at Wereda Level from 2014 – 2017. June 2015. Central Statistical Agency, Federal Democratic Republic of Ethiopia. Addis Ababa. August 2013. URL address: http://www.csa.gov.et/images/general/news/pop_pro_wer_2014-2017_final. Accessed July 6, 2016

Central Statistical Agency (2013), Ethiopian National Food Consumption Survey, Ethiopian Public Health Institute, Addis Ababa, Ethiopia, August 2013

Central Statistical Agency (2011), Ethiopia Demographic and Health Survey (2011), Central statistics Agency, March 2011

Central Statistical Agency (2007) Population and Housing Census 2007, Central Statistical Agency

Disaster Risk Management and Food Security Sector 'DISASTER RISK MANAGEMENT STRATEGIC PROGRAMME AND INVESTMENT FRAMEWORK, MINISTRY OF AGRICULTURE

Early Warning and Response Directorate DRMFSS, MoA 'Early Warning and Response Analysis' October 2012

EU (2016) EU Resilience Building Programme in Ethiopia (RESET II) January 2016 Map Map Doc.:23_23.2_ECHO_DEVCO_012216_A4, Prepared by:OCAHA Creation date: 22 Jan 2016

EU (2015) Resilience Building in Ethiopia (RESET): Map of EU Resilience Clusters and Sectoral Interventions (ECHO + DEVCO) March 2015

EU RESET Programme EU (2014), Linking EU's humanitarian and development interventions in the context of resilience building (Concept Note: EU- Resilience Building in Ethiopia): The case of Ethiopia, (EU - Resilience Building in Ethiopia), draft 29 October, 2014

Federal Democratic Republic of Ethiopia, MINISTRY OF WATER RESOURCES ETHIOPIAN WATER SECTOR POLICY 2001

Federal Democratic Republic of Ethiopia, MINISTRY OF WATER RESOURCES 'ETHIOPIAN WATER SECTOR STRATEGY' 2001

Federal Democratic Republic of Ethiopia, MINISTRY OF WATER RESOURCES 'WATER SECTOR DEVELOPMENT PROGRAM MAIN REPORT VOLUME I' OCTOBER 2002

Federal Democratic Republic of Ethiopia, MINISTRY OF WATER RESOURCES 'WATER SECTOR DEVELOPMENT PROGRAM MAIN REPORT VOLUME II' OCTOBER 2002

Federal Democratic Republic of Ethiopia Sustainable Land Management Project II 'Revised Final Draft Document on Environmental and Social Management Framework (ESMF)' September 2013 Addis Ababa

Federal Democratic Republic of Ethiopia Ministry of Agriculture 'Regional Pastoral Livelihoods Resilience Project (RPLRP)' Environmental and Social Management Framework (ESMF) October, 2013 Addis Ababa

Federal Democratic Republic of Ethiopia Ministry of Agriculture 'Regional Pastoral Livelihoods Resilience Project (RPLRP) Environmental and Social Management Framework (ESMF)' October, 2013 Addis Ababa

Federal Democratic Republic of Ethiopia Ministry of Agriculture 'Regional Pastoral Livelihoods Resilience Project (RPLRP) RESETTLEMENT POLICY FRAMEWORK (FINAL REVISED)' November, 2013 Addis Ababa

Federal Democratic Republic of Ethiopia Ministry of Agriculture 'Regional Pastoral Livelihoods Resilience Project (RPLRP) Integrated Pest Management Framework' July 2014 Addis Ababa

Federal Democratic Republic of Ethiopia (2011), ETHIOPIA DISASTER RISK MANAGEMENT COUNTRY 'PLAN PROJECT, PHASE I: ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)' Disaster Risk Management and Food Security Sector 14 June 2011

Federal Democratic Republic of Ethiopia (2013), 'National Policy and Strategy on Disaster Risk Management' JULY 2013 ADDIS ABABA

Federal Democratic Republic of Ethiopia (2015), Health Sector Transformation Plan, August 2015

Global Health Workforce Alliance (2014), World Health Organization, 2014

Government of the Federal Democratic 'Republic of Ethiopia National Nutrition Programme' June 2013 – June 2015

The Health Workforce in Ethiopia, Addressing the remaining challenges, Washington DC, World Bank, 2012

Melaku Bekele and Habtemariam Kassa. 2014. Governance challenges of dry woodlands. In: Reflections on Development in Ethiopia: New Trends, Sustainability and Challenges. Dessalegne Rahmato, Mehret Ayenew, Asnake Kifle and Birgit Habrermann (eds.) Pp. 269-285. ISBN: 978-99944-50-52-7.

Ministry of Agriculture (2013), Sustainable Land Management Project Phase – II: settlement Policy Framework (RPF) Final (Revised_final), August 28, 2013 Addis Ababa

Ministry of Agriculture (2013) Sustainable Land Management Project Phase – II: Social Assessment Report (Final) August 18, 2013 Addis Ababa

Ministry of Finance and Economic Development (MoFED) (2006), Ethiopia: Building on Progress A Plan for Accelerated and Sustained Development to End Poverty (PASDEP) (2005/06-2009/10) Volume I: Main Text September, 2006 Addis Ababa

Ministry of Finance and Economic Development (MoFED) (2010), Growth and Transformation Plan I (GTP I) (2015/16-2019/20) Volume I: Main Text, Federal Democratic Republic of Ethiopia, May 2010. Addis Ababa

Ministry of Finance and Economic Development Economic Policy and Planning 'RURAL DEVELOPMENT POLICY AND STRATEGIES' Addis Ababa April, 2003

National Planning Commission (2016) Growth and Transformation Plan II (GTP II) (2015/16-2019/20) Volume I: Main Text, Federal Democratic Republic of Ethiopia, May 2016. Addis Ababa

National Planning Commission and the United Nations in Ethiopia (2015), MDG Report 2014 Ethiopia, Assessment of Ethiopia's Progress towards MDG's, 2015.

National Nutrition Program June 2013-June 2015, Federal Democratic Republic of Ethiopia

NDRMC (National Disaster Risk Management Commission). 2016. Woreda disaster risk profile reports. FDRE, Addis Ababa. Available at http://profile.dppc.gov.et/Pages/Wereda_Disaster_Risk_Profile_Indicator_Reports.aspx. Accessed 15 September 2016.

Respectful Maternity Care: The universal Rights of Childbearing women, The White Ribbon Alliance for Safe Motherhood

WASH implementation framework, Federal Democratic Republic of Ethiopia, August 2011

World Malaria Report (2015), World Health Organization Global malaria Program, 2016

የኢትዮጵያ ፌዴራላዊ ዴሞክራሲያዊ ሪፐብሊክ (2005) ብሔራዊ የአደጋ ክስተት ስጋት ሥራ አመራር ፖሊሲና ስትራቴጂ ሐምሌ 2005 ዓ/ም አዲስ አበባ

11. Annexes

11.1. Volume I: Situation Analyses of the Eight Geographical Clusters under the EU Resilience Building Program in Ethiopia (Executive Summary)

11.2. Volume III: Annexes to Basic Context, Policy Review and Disaster Risk Planning

11.3. Volume IV: Profile of Agricultural Production System in the Eight Geographical Clusters under the EU Resilience Building Program in Ethiopia

11.4. Volume V: Spatial Distribution and Accessibility to Rural Facilities Maps in the Eight Geographical Clusters under the EU Resilience Building Program in Ethiopia