Small ruminants value chain development in Ethiopia: Review of policies and institutions—1990 to 2016

ILRI/ICARDA PROJECT REPORT

Small ruminants value chain development in Ethiopia: Review of policies and institutions—1990 to 2016

Feinstein International Center/ Tufts University Africa Regional Office in collaboration with the International Center for Agricultural Research in the Dry Areas (ICARDA)

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Abbreviations and acronyms

ACC	Agricultural commercialization cluster
ADLI	Agriculture development led industrialization
ADPLAC	Agricultural Development Partners Linkage Advisory Council
AGDP	Agricultural gross domestic product
AGP	Agricultural Growth Programme
AGTP	Agricultural Growth and Transformation Plan
AI	Artificial insemination
AILAA	Agricultural Investment Land Administration Agency
ATA	Agricultural Transformation Agency
ATAg	Agricultural Transformation Agenda
ATVET	Agricultural technical, vocational, education and training
AU	African Union
BoA	Bureau of agriculture
BoLF	Bureau of livestock and fisheries
CAADP	Comprehensive Africa Agriculture Development Programme
CBOs	Community-based organizations
CRGE	Climate Resilient Green Economy
CSA	Central Statistical Agency
DAs	Development agents
DAIs	Directorates, agencies and institutes
DAG	Development assistants group
DF	Demonstration fields/farms
DPs	Development partners
EAAP	Ethiopian Association of Agricultural Professionals
EARC	Ethiopian Agricultural Research Council
EARO	Ethiopian Agricultural Research Organization
EAS	Ethiopian Academy of Sciences
EIAR	Ethiopian Institute of Agricultural Research
EPRDF	Ethiopian People's Revolutionary Democratic Front
EWS	Early warning system
FDRE	Federal Democratic Republic of Ethiopia
FCA	Federal Cooperative Agency
FDI	Foreign direct investment
FREGs	Farmers research and extension groups
FSS	Food security strategy
FSS	Forum for Social Studies
FTCs/PTCs	Farmers/pastoralists training centres
GDP	Gross domestic product
GO	Government organization

GoE	Government of Ethiopia
GTP	Growth and Transformation Plan|
ha	hectare
HLIs	Higher learning institutes
IAR	Institute of Agricultural Research
ICARDA	International Center for Agricultural Research in the Dry Areas
IFAD	International Food and Agriculture Development
LDMPS	Livestock Development Master Plan Study
LMP	Livestock master plan
MDGs	Millennium Development Goals
M&E	Monitoring and evaluation
MFI	Micro finance institutes
MoA	Ministry of Agriculture
MoANR	Ministry of Agriculture and Natural Resources
MoARD	Ministry of Agriculture and Rural Development
MoE	Ministry of Education
MoFEC	Ministry of Finance and Economic Cooperation
MOFED	Ministry of Finance and Economic Development
MoFPDA	Ministry of Federal and Pastoral Development Affairs
MoH	Ministry of Health
MoI	Ministry of Industry
MoLF	Ministry of Livestock and Fisheries
MoPE	Ministry of Public Enterprises
MoT	Ministry of Trade
MoWIE	Ministry of Water, Irrigation and Electricity
MPC	Multi-purpose cooperative
NARS	National Agricultural Research System
NEPAD	New Partnership for Africa's Development
NGO	Non-government organization
NRM	Natural resources management
PAP	Pastoral and agro-pastoral
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
PIF	Policy and investment framework
PM&E	Planning, monitoring and evaluation
PRSP	Poverty Reduction Strategy Paper/Program
PSNP	Productive Safety Net Programme
RARI	Regional agricultural research institute
RCBP	Rural Capacity Building Project
RDPS	Rural development policies and strategies
RED&FS	Rural Economic Development and Food Security
RUSACCOs	Rural saving and credit cooperatives
SCFs	Small commercial farmers
SDGs	Sustainable Development Goals
SDPRP	Sustainable Development and Poverty Reduction Program
SLMP	Sustainable Land Management Programme
SNNPR	Southern Nation and Nationalities Peoples Region
SR	Small ruminant
SWGs	Sector working groups
SWOT	Strengthes, weaknesses, opportunities and threats
t	tonne
ToR	Terms of reference

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Executive summary

This review desk study was designed to contribute to the understanding of the major policy, regulatory and institutional issues and challenges facing the small ruminants (SR) sector of Ethiopia. The specific objectives are to identify and synthesise key policy documents and regulatory frameworks, analyse the policy and regulatory gaps, investigate the alignment between institutions and policies, strategies and regulatory frameworks, record the stakeholders/institutional actors in providing livestock extension and other services to smallholders, and provide policy and strategic interventions to improve production and productivity of the SR subsector.

The methodology used in this review exercise includes review of relevant documents, secondary data and information collection and analysis, semi-structured discussion with targeted key informants, as well as use of techniques like triangulation and strength, weakness, opportunities and threats (SWOT) analysis. Prior to the discussions appropriate definition and conceptual understanding of key terms such as policy, strategy, regulation, institution and value-chain was established. The assessments and findings are reported with few sections and several subsections covering background, sector-wide (crop and livestock) policy, regulatory and strategy review: 1991–2016; livestock and related resources development policies and strategies; the livestock sector institutional dynamics; policy, strategy and institutional gaps and challenges of the livestock sector at large and the small ruminants subsector specifically.

It was hardly possible to get documents specifically written to address SR production to consumption policy and strategy issues. The same is true in the case of institutions analysis. For decades, institutional arrangements at federal and regional levels have had no specific unit to address the SR subsector. The situation is better in research institutes compared with extension and development. Such a gap exists in spite of the fact that the SRs subsector specifically sheep and goats having significant contribution to Ethiopia's economy in the live animal, meat, skin and leather and leather products industry at large as well as in terms of ensuring food security and reducing poverty at grassroots rural agricultural and pastoral households level.

Ethiopia is known for its livestock population. As of 2015/16 it had 57 million, 28 million and 25.6 million cattle, sheep and goats, respectively. The per capita production of cattle, sheep and goats has increased substantially in 20 years period. The per capita production increase of goat, which is about 65% between 1995 and 2015, is the highest compared with cattle and sheep. Sheep and goats are mainly used for meat and in some communities for milk. They also have tremendous contribution to the country's foreign exchange earnings. They are exported as live animals or by their product mostly in the form of meat and value added skin products.

Excluding the illicit trade, in the last 15 years, sheep and goats export volume increased in thousand percentage points. Meat and live animals export volume and value increase was 1,375% and 1,423% from 2000 to 2015, respectively. Though the above production and trade figures seem encouraging, Ethiopia's share in the international market is still insignificant and needs attention from various perspectives: policy, strategy and institutional.

Broader policies and strategic directives have been leading the country's livestock resources development since the Imperial period. The practice continued during the former Derg regime and the present Ethiopian People's Revolutionary Democratic Front's (EPRDF) period of governance. The EPRDF regime since 1991 has embarked on various policy and strategy formulation and implementation including the Transition Policy, the agriculture

development led industrialization (ADLI) strategy, Rural Development Policies Strategies (RDPS 2003) and the subsequent policy and strategies made in the successive five year development plans, specifically the Plan for Accelerated and Sustainable Development to End Poverty (PASDEP 2005/06–2009/10) and the two growth and transformation plans (GTP I: 2010/11 to 2014/15, GTP II: 2015/16 to 2019/20).

RDPS covers agriculture, both crop and livestock, natural resources, specifically land, water and forest as well as rural social and economic infrastructures development policies, strategies and instruments. The successive five-year development plan documents also include policy, strategy and institutional review results. These documents have been instruments for policy and strategy changes of the EPRDF regime. Particularly, PASDEP and the two growth and transformation plans, GTP I and GTP II, incorporated policy and strategy reviews influencing the activities and operations of the agriculture sector at large and in some instances crop and livestock subsectors specifically.

In between, studies such as the Livestock Development Master Plan of 2007, the Comprehensive African Agricultural Development Programme (CAADP) Ethiopia study of 2009, the agriculture sector Policy and Investment Framework (PIF) study of 2010 (Chanyalew et al. 2010) and the recent Ethiopia livestock master plan (MoA 2015) have also availed of opportunities to review policy/regulatory, strategy and institutional arrangements and show gaps and challenges. At the beginning of GTP I implementation, the FDRE government launched the Climate Resilient Green Economy (CRGE) strategy of 2011 (FDRE 2011). This strategy contained several issues leading to the different sectors, including agricultural reforms. The agriculture sector reform was a necessity since three out of four major pillars of CRGE are directly or indirectly anchored on the agriculture and allied sector.

Institutions are key elements of a policy formulation and implementation process. Institutions can be seen from the aspects of organizational setup at village level up to national public and private bodies and linkages and relationships among organizations. The transition and later the EPRDF government agriculture public goods and services providing institutions are arranged at federal, regional states, zone and woreda levels.

The institutions include ministries, bureaus, offices and desks. Ministries and bureaus have institutional arrangements organized in Departments, Directorates, Agencies and Institutes (DAIs) with stand-alone or cross-cutting development programs and projects of government and non-government institutions. The non-governmental organizations (NGOs); mass and community-based organizations (CBOs); private institutions; professional and trade associations; development partners: bilateral/multilateral institutions including CGIAR are also part of the broad sector-wide institutional arrangement.

From 1991 until the establishment of Ministry of Livestock and Fisheries (MoLF) at federal government-level livestock research, extension, development and marketing programs/projects have been institutionalized within the Ministry of Agriculture (MoA) as one of the DAIs. Similar portfolios with minor variations also existed at regional states level, often led by Bureaus of Agriculture (BoA) or recently Bureaus of Livestock and Fisheries (BoLF). Livestock DAIs, being part of MoA set-up, were also equally exposed to change when the MoA became a target of government sectoral restructuring. MoA has experienced changes more than 15 times in the last two decades including the sweeping arrangement from MoA to Ministry of Agriculture and Rural Development (MoARD) during the PASDEP period and back to MoA during the GTP I period.

During the current GTP II period, DAIs of MoA have been reconfigured in three core ministries: Ministry of Agriculture and Natural Resources (MoANR), Ministry of Livestock and Fisheries (MoLF) and Ministry of Public Enterprises (MoPE). Similar changes have also taken place at regional levels.

The livestock sector activities and the results to be achieved are not dependent only on the capacity, capability and competence or the integration and linkage of these three ministries and the corresponding BoAs/BoLFs at regional level but also the DAIs in the Ministry of Water, Irrigation and Electric (MoWIE), Ministry of Trade (MoT), Ministry of Industry (MoI), Ministry of Education (MoE), Ministry of Transport, and Ministry of Health (MoH), specifically in the context of the emerging nutrition sensitive agriculture strategy and the implementation of the strategy's action plan. Ministry of Federal and Pastoral Affairs (MoFPA) also works in livestock resources development programs

and projects mostly in selected pastoral woredas. At the beginning of GTP I implementation the Agricultural Transformation Agency (ATA) was established. During the last part of the GTP II preparation period, ATA announced that it established a directorate dealing with livestock programs and projects.

Following the methodical review of existing policy/regulatory, strategy and institutions, gaps and challenges were identified and SWOT analysis done. The analysis gave detailed information and explanation about the gaps and challenges in the broad livestock sector as well as those affecting the small ruminants' value chain development in Ethiopia. The results of SWOT contained several policies, regulatory, as well as strategy and institutional gaps and challenges. Selected issues and topics were accorded detailed explanations. This are listed in the table below.

List of elaborated policy/regulatory, strategy and institutional gap or challenge issues/topics

Policy/regulatory	Strategy	Institutional
Land use policy	Modernization and commercialization	The structure of MoLF
Livestock policy	The strategy and principle of integration—MoLF with MoANR	Intra-sector coordination and linkage
Small ruminant value chain policy	The strategy and principle of integration—MoLF with the manufacturing sector	Inter-sectoral coordination and linkage
The continuous neglect of the livestock sector in the policy review processes	Livestock extension	MoLF and ATA
NGO and CSO written vs. actual implementation policy	Strengthening FTCs/PTCs	The commercialization and commodity cluster approach
Policy neglect of real transforming agents—SCFs	Livestock marketing and cooperatives	FRGs and ADPLACs
Policy for structural shift	Agricultural finance—MPCs, RUSACCOs and MFIs	Research system linkage and coordination
The policy of attracting FDI and finance	Private large-scale production, marketing and processing	Research and extension linkage
Interface policy	Public–private partnership	Projects alignment and harmonization
	Livestock and nutrition security	Capacity to use project finance
		Woreda dichotomization
		Coordinating DPs and NGOs resources

Overall, the review assessments and findings revealed the following.

- It is hardly possible to get specific document addressing policy and strategy issues of SRs.
- There have not been specific institutional arrangements to lead and coordinate SRs value chain development in Ethiopia since 1991, even before that, except the presence of specific research centres dealing with sheep and goats productivity and production problems.
- The absence of articulated, clear and explicit policy document is not only for the SRs subsector but also for the livestock sector at large.
- There have been policy statements contained in documents such as RDPS, PASDEP and GTPs. The policies and strategies reflected in such documents are too general and with several gaps to address the complex livestock breeding, feed, animal health, as well as production, value addition/processing, marketing and trade issues.
- The policy, strategy, and institutional gaps and challenges are vividly noticeable when the value chain is examined from systems approach: linkages and coordination among research, extension, farming systems and elements and implements in the system from federal up to grassroots kebele FTCs/PTCs levels.
- In recent years, several policy and regulatory frameworks have been drafted to address the gaps and challenges the sector and subsectors face but not approved for official use. Particularly the SRs subsector has received insignificant attention in the institutional arrangements the livestock sector has had for decades. Even today after the establishment of MoLF, the small ruminants' value chain development efforts are dwindling having no specific institutional arrangement but treated in the DAIs addressing commodities such as meat and milk.

In order to rectify the problems of paucity of policy and regulatory frameworks and appropriate institutional arrangements in the livestock sector at large and the small ruminants subsector specifically the following need urgent consideration.

i. Finalize and approve the draft livestock and specific value chain/commodity as well as thematic, such as veterinary services, marketing and export policy and regulatory frameworks. The present MoLF has to take the lead in this regard. It can do so by mobilizing domestically available public and private sector resources as well as the resources that can be obtained from development partners. Members of the CGIAR and other DP agencies may avail technical assistance and financial support to undertake such activities with the ownership and leadership of MoLF.

ii. MoLF has to start putting together the scattered sectoral and subsector policies and prepare one consolidated livestock sector policy and strategy document. Currently the country is implementing its second Growth and Transformation Plan (GTP II) without a consolidated livestock and fishery resources development policy. The consolidated document shall contain different resources and issues of the livestock sector so that it can be easily referred by the different actors when needed.

iii. Policies and legal frameworks shall also be formulated to facilitate and enhance the linkage and coordination of livestock sector government, public, private and donor actors. Within the government and public sector, the linkages and coordination among ministries, bureaus and agencies, higher learning institutions, specifically universities, federal and regional research institutes have to be improved.

iv. Refine the many strategies documented in RDPS, successive five-year plans and other related documents, and map the strategies with existing development programs and DAIs.

v. Revisit the institutional arrangements within the livestock sector, i.e. within MoLF and at regional bureaus and agencies. On both sides, an urgent assessment of the livestock extension system institutional arrangement need to be done and appropriate improvements enacted.

vi. Devise institutionalized and in-built systems within the sector to advise top management and policymakers in the identification of gaps and challenges that require review of policy, strategy, institutions and regulatory frameworks and continuously refining provisions and practices of the whole enabling environment.

vii. MoLF has to work closely and in partnership with other ministries including MoANR, MoI, MoT, MoE and MoFPA. However, the partnership needs pragmatic institutional arrangements. It is known that there are steering committees and similar inter-ministerial arrangements. All need a revisit in the context of executing GTP II planned activities in the areas of meat, milk, honey as well as hides and skins production and processing spread across different sectors. Besides MoLF has to set a clear functional relationship with ATA. Overall it is time that existing inter-ministerial cooperation and institutional arrangements reviewed to establish pragmatic institutional arrangement which create conducive environment for all actors dealing with meat, milk, leather and leather products production to consumption systems.

viii. Establish workable planning, monitoring and evaluation (PM&E) system that brings both treasury budgeted and externally financed programs and projects in a functional, efficient and effective coordination, alignment and harmonized framework.

1. Introduction[1]

The International Center for Agricultural Research in the Dry Areas (ICARDA) undertakes applied research on small ruminants, in addition to crop based research programs relevant for dry land areas. Through ICARDA Ethiopia has been a beneficiary from the IFAD project entitled 'Improving the performance of pro-poor sheep and goat value chains for enhanced livelihoods, food and nutrition security in Ethiopia'. One of the components of this project is 'Analysis of sheep and goat value chain performance, governance and institutional frameworks'. This review work is commissioned by ICARDA as part of this component in order to analyse policy, strategy, regulatory and institutional issues and frameworks relevant to the small ruminants (sheep and goat) subsector of Ethiopia.

The main objective of this review study is to contribute to the understanding of the major policy, regulatory and institutional issues and challenges facing the small ruminants (SR) sector of Ethiopia, focusing on the 1991–2016 period, from the perspective of promoting market-led quality SR production as part of the country's food security ensuring initiatives.

The specific objectives of the review exercise are identifying and synthesising key policy documents and regulatory frameworks, analysing the policy and regulatory gaps, investigating the alignment between institutions and policies, strategies and regulatory frameworks, mapping the stakeholders/institutional actors in providing livestock extension and other services to smallholders, and providing policy and strategic interventions to improve production and productivity of the SR subsector.

This review report is organized in eight sections and several subsections. The next two sections cover the background, definitions, conceptual framework and methodology. Section four presents the agriculture (crop and livestock) policy, regulatory and strategy review: 1991–20162.This is the period the present government, led by the EPRDF, has been in power. This is followed by a section dealing with specific livestock sector policies and strategies. Section six reflects on the livestock sector institutional dynamics. Section seven presents the gaps and challenges the livestock sector at large and the SR subsector specifically have faced in the areas of policy, strategy and institutions. Finally concluding remarks and way forward statements are presented.

1 Prepared by Demese Chanyalew, independent consultant and general manager of DeMarEthio-Afric Plc.

2 In this review when the Ethiopian calendar year is referred it is accompanied with E.C. Otherwise the year in reference is according to the Gregorian calendar.

2. Background

Ethiopia is known for its livestock population. As of 2015/16 it had 57 million, 28 million and 25.6 million cattle, sheep and goats, respectively (Table 1). Its human population by 2015/16 was 92.5 million, and the present estimated population size is about 100 million. The per capita production of cattle, sheep and goats has increased substantially in 20 years period. The per capita production increase of goat, which is about 65% between 1995 and 2015, is the highest compared with cattle and sheep (Table 2). Camel production increased substantially since 1995, registering a 450% increase by 2010. Production increased with low productivity. Recent study indicated the productivity of Ethiopian sheep is low; they grow slowly and kid mortality is high (Legese, et al. 2014).3

Table 1. Trends in human population and animal production

Year	Human population in millions	Animal production in millions[3]						
		Cattle	Sheep	Goats	Camels	Equines	Beehives	Poultry
1995/06	57.2	31.7	12.7	9.9	0.2	4.1	3.5	33.3
2000/01	66	35.3	11.4	9.6	0.3	4.9	3.3	37.7
2005/06	73	40.3	20.7	16.3	0.4	6.2	4.0	32.2
2010/11	82.1	52.1	24.2	22.6	1.1	8.1	4.9	49.3
2015/16	92.2	57	28	25.5	NA	NA	NA	NA

Source: CSA statistical bulletins and annual reports, various years.

Table 2. Per capita animal production and % changes from 1995 to 2015

Species	Per capita production		
	1995/96	2015/16	% change
Cattle	0.55	0.62	12.73
Sheep	0.22	0.30	36.36
Goats	0.17	0.28	64.7

Source: Computed from Table 1.

Cattle are used for milk, meat and draught power while sheep and goats (the small ruminants) are mainly used for meat and in some communities for milk. The different livestock species, in addition to their contribution to domestic food consumption, domestic transportation and source of draught power have tremendous contribution to the country's foreign exchange earnings. They are exported as live animals or by their product mostly in the form of meat, hides and skins.

Annexes 1 and 2 present the volume and value of exported commodities through proper export market channels. There are reports that huge amount of such commodities is also exported illegally via illicit trading. Informal trade is a serious problem. An estimated 2 million cattle, 7 million shoats (sheep and goats) and 300,000 camels have been

3 It is important to note here the statistics reported from CSA is lower compared with other studies that took different approaches. For example, Legese et al. 2014, reported, using Negassa et al. 2011 report, that sheep and goats' population of Ethiopia, including expert estimates of the pastoral areas, is 66 million head of which some 35 million are sheep.

exported illegally crossing the border in the last 30 years. As a result, the country lost over USD160 million (AGP–LMD, USAID 2013).

Excluding the illicit trade, the sheep and goats export volume increased in thousand percentage points over the last 15 years. Meat and live animals export volume and value increase was 1,375% and 1,423% from 2000 to 2015, respectively (Annex 1). Such a huge increase started long before 2000 and it was reported by Legese et al. 2014. They reported that meat export performance has increased from 870 t in 1991 to 18,000 t in 2011/12. The hides and skins export volume and value declined by thousand percentage points for the same period, mainly due to government policy change which restricts the raw skin export. The policy was designed with an objective to increase Ethiopia's gain from value added leather products by the emerging leather and leather products industries using domestically produced hides and skins.

Though the above production and trade figures seem encouraging, Ethiopia's share in the international market is still insignificant and needs attention from various perspectives: policy, strategy and institutional. Ethiopia, in terms of livestock population, rank sixth in the world and first in Africa (Oqubay 2015, 196). Despite this, the country's current share in the global export market for meat is quite small. In 2011, the volume of global meat exports was estimated at USD 105 billion, and Ethiopia accounted for less than 1% of this total (0.75% or USD 79 million), of which most was low-value, chilled sheep and goat carcasses. This ranked Ethiopia as the 43rd meat exporter (AGP–LMD, USAID 2013).

3. Definition, conceptual framework and methodology

3.1 Definition

The focus of this review assignment is on policy, strategy, regulation, institution and value chain. These words require clear definitional and conceptual underpinning. The consultant prepared checklist to be used as a guide for a discussion with the selected key informants.[4]The first issue in the checklist was to inquire the respondents understanding of these terms. Based on their responses and the consultant's knowledge, the definition and conceptual underpinnings of these terms as used in this report are explained below.

Policy

Almost all respondents said that policy is a framework set in broad to direct the economic, technological, social and cultural, political and religious affairs of a country in focus. Some relate it with rules and laws. All agreed that a given policy shall have a goal/objective to attain to. The attainment of the goal is dependent on the resources availed and the institutions set for. This is more or less in line with the writings of academicians and researchers in policy areas. For example, in the field of agricultural sciences, specifically agricultural economics, policy has been defined as a deliberate course of action, as contrasted with a haphazard or capricious type of activity followed by a public body (Halcraw 1984).

Specifically, economic policy, according to Knutson et al. (1995), is a course of action pursued by a government in the management of national economic affairs. Of course the explanation that policy is also about rules and laws is not without international recognition. For example, in today's electronic information exchange the Wikipedia[5] explains agricultural policy as 'a set of laws relating to domestic agriculture and imports of foreign agricultural products'. Governments usually implement agricultural policies with the goal of achieving a specific outcome in the domestic agricultural product markets'.

The above sets the broader view of what policy is. In most academic works and research undertakings policy analyses often revolve around evaluation and gap analysis of proclamations and regulations. Similarly, in Ethiopia policymakers and practitioners recognize that a policy framework includes position statements contained in the federal and state constitutions, proclamations, regulations, policies, five year plans, executive directives, annual plans and budgets, ministerial directives, as well as operational guidelines and manuals (Oqubay 2015, 82).

In this review study policy means a statement of course of action set by the governments' in the management of agricultural development affairs. It could be a generalized statement or specific statements contained in rules, regulations, directives or guidelines. Governments in Ethiopia refer to federal, regional, zonal, *woreda* or *kebele* level governments. Depending on the rights accorded by the constitution and the derived laws of the country, these

4 Annex 9 presents list of key informants.

5 https://en.wikipedia.org/wiki/Agricultural_Policy

governments may formulate and implement policies for purposes of tapping the resources in their custody via existing or to be established institutions.

Strategy and programs

Strategy is conceived as a bridge between policy goals and programs and in turn to program derived implementable activities of action plans. It describes the route to achieve the goals via specific elaborations of the resources to be mobilized (means) the institutions which will activate and control the means, and the conditions and situations which may constrain their use in a given development plan. This concept of a strategy is also implicitly contained in the strategies the EPRDF government set. A program is a framework emanating from the policy and strategy and contains similar activities designed to bring developmental changes (result-based) and enhance growth with a continuous resource allocation from internal and external sources. A program may have subprograms and further embodies development projects financed solely or partly by government.

Institution

To assess the efficacy of existing policies, one should also put in perspective issues of institutions and institutional arrangements. Institutional issues are not only issues of organizational setup but relationships or linkages among existing or emerging organizations either in the private or public sector. Institutions can emanate from policies and strategies or in turn they can be influential in the review and formulation of policies and strategies of a sector or subsector.

The agriculture and allied sector of Ethiopia encompasses crop and livestock farm and non-farm but agricultural enterprises as well as natural resources such as the soil, agricultural water and agroforestry. The sector is complex and, at least, affixed seven complex systems. These are agricultural research, extension, inputs development and multiplication, farming, marketing and trade, agro-processing and consumption (Chanyalew 2004).

Section six of this report deals with institutional issues. Here, it is relevant to give a glimpse of the recent organizational rearrangements made in the agriculture sector. By the time the ongoing growth and transformation plan (GTP II: 2015/16 to 2019/20) was at the preparation stage the agriculture sector of Ethiopia comprised one ministry (MoA) at federal level, BoA at regional level, and several directorates, agencies and institutes (DAIs) within these two and outside. At present the sector has three core ministries, Ministry of Agriculture (*Y-Ersha*) and Natural Resources (MoANR), Ministry of Livestock and Fisheries (MoLF) and Ministry of Public Enterprises (MoPE). MoPE includes the key corporation of the agriculture sector with the seed, agricultural mechanization and machinery services enterprises, among others. The above point out that Ethiopia's agriculture sector activities has been implemented using various institutional arrangements. The institutional arrangements can be changed following both domestic and international economic, trade, and sometimes development support politics change.

Sector and subsector: Agriculture vs. livestock

By the time this review was done there was confusion about the notion of a 'sector', i.e. whether there are two sectors, namely, agriculture and livestock or not. Clearing this confusion was essential in order to assess and discuss past and present policy, strategy and institutional issues.

It is important to record the distinction in the use of the English word 'agriculture' in the context of the Amharic explanations of the sector's activities: *Ersha* versus *Gibrena*. In the former MoA, agriculture encompasses both crop and livestock and hence the Amharic expression of agriculture in this sense was and still is '*Gibrena*'. *Gibrena* includes both crop and livestock. This being the case, at the start of the GTP II implementation when the MoA is divided into MoANR and MoLF confusion on the use of the English term '*agriculture*' emerged. There are those who used agriculture to refer to crop related practices, as well as policy and strategy issues.

Dictionary defines[6] agriculture as *the science, art and business of cultivating the soil, producing crops and raising livestock*. Some dictionaries also extend[7] the sector's role in varying degrees to prepare these products for *man's use and their disposal (as by marketing)*. In the broad policy and strategy statements contained in rural development policies and strategies (MoFED 2003), the first comprehensive policy document of EPRDF, agriculture is both crop and livestock. In this study agriculture encompasses both crop and livestock too. When specificity is needed, the discussion and explanation explicitly mention livestock in general or the species base such as sheep and goat.

The use of terms such as sector and subsector is also confusing when one looks at documents containing the policies, strategies and institutional affairs of livestock in Ethiopia. For example, there are several instances where small ruminants are considered as sector while some discussing them as subsectors. This is further marred with the notion of value chains and sub-value chains. In this review livestock is considered as a sector while cattle, camel, sheep and goat, fishery, poultry, apiculture as subsectors. Milk, meat, egg, honey as primary products and hides and skins as by-products. Both products and by-products become commodities in the marketing and trade explanations. Additional explanations on these, in view of the concept of value-chain, are presented below.

3.2 Conceptual framework

Value, market and supply chain

Value chain analysis in the livestock sector may take a species or a product/a commodity or a system approach. Different studies and plan documents, however, used the phrase in different connotations. For example, the Ethiopia LMP (MoA 2015) used the phrases value chain and sub-value chain. Though not explicit the uses of such phrases seem to address the milk, meat and poultry/egg value chains. Sheep and goats were mentioned in the analysis and productivity and production projections of the meat value chain. Means sheep and goats are not considered as value chain in the LMP, but perhaps indirectly considered as sub-value chain in the meat value chain.

It is also common to come across explanations that the notion of value chain varies from market chain since the former focuses on value added instead of flow of commodities through market channels in the hands of various actors. Of course in several commodity value chain studies the discussion revolves around the use of inputs in the production of certain commodities and the flow of such commodities to final users by procuring the same with a price that is formed by additions of values for the services or commodity content and packing changes till the final consumer/buyer buy.

While some studies focus on the supply chain others include the production backward and forward linkages and the flow of products from production to consumption (Legese et al. 2008). Overall, the key in the concept of value chain is, according to Legese et al. 2014, the idea of value addition. This is what distinguishes the value chain from market chains or supply chains. They argued that value chain analysis normally identifies many potential upgrading strategies. Using this explanation Legese et al. 2014 identified the core functions, activities and actors along the sheep and goats value chain using the following diagrammatic illustration. Readers may refer to their publication to see the details of each value chain segments.

Figure 1. Sheep and goats value chain as conceptualized by Legese et al. 2014.

6 For example, the 2nd college edition of The American Heritage Dictionary.

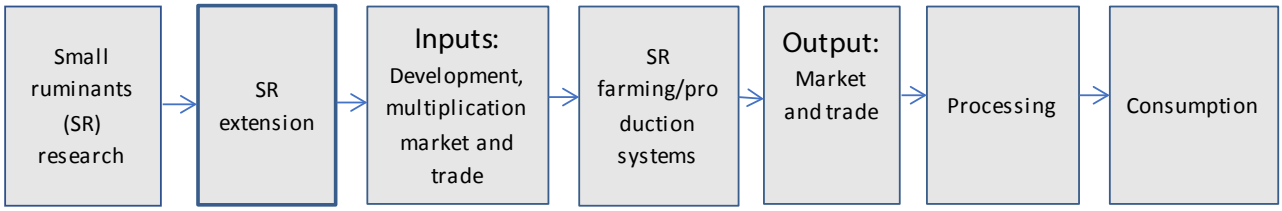
7 For example, see Webster's Ninth New Collegiate Dictionary.

Systems value chain

Cognizant of the above mentioned concepts of value chain, in this study, for search of existing policy and institutional arrangements strength and weakness or gaps and challenges on the SRs value chain development and analysis in Ethiopia, a systems value chain approach is used.

Systems analysis in value chain links the efforts of technology generation (species improvement through breeding and improved husbandry) to the adoption and diffusion of such technologies through prudent extension system, the multiplication of the same and use of such technologies in the farming system, predominantly in smallholder farmers dominated mixed farming systems, to enhance productivity and production of live animals, meat, hides and skin and the selling of such products and by-products with appropriate values added to intermediate or final consumers or users. For the purpose of this desk study, the author of this report, based on his previous work (Chanyalew 2004) depicted SRs systems based value chain by the following flow diagram.

Figure 2. Conceptual framework for small ruminants' system based value chain development policy and institutional analysis.



As shown in Figure 2, the review of relevant policies and strategies in the small ruminants' value chain development in Ethiopia necessitates the understanding and place of the small ruminants in the agriculture research and extension systems of Ethiopia. These systems are also the core areas of the country's agricultural (crop and livestock) policy, strategy as well as institutions formations. The development and multiplication of technologies generated from research systems, domestic or international based, is also another area of interest in the SR value chain policy and institutional issues and challenges study. The farming/production system and the flow of products and by-products to output markets and the subsequent value additions and gain of farm level producers from processors and consumers prices are also interest areas of the SR value chain development policy and institutional reviews.

It is on the basis of this system based value chain conceptual framework the reviewer searched for information to examine the strength, weakness, opportunities and treats (SWOT) associated with the value chain policy/regulatory, strategy and institutional issues. Such a framework required two things. First is the subject of analysis in this review, it is small ruminants' value chain. Anything outside this value chain is considered as external in the SWOT analysis identification of opportunities and threats. Secondly, the SWOT analysis in the context of this study required an understanding and use of the 84 analytical boxes as shown in Annex 1. Cognizant of the depth and width of the analysis to be done, for the purpose of this review, the reviewer presented the findings focusing on a two-dimension consolidated matrix using the three variables, policy/regulatory, strategy, and institutions on the rows and the four aspects of the SWOT technique in the columns. The findings are presented in the gaps and challenges section of this report.

3.3 Methodology

In addition to the above conceptual framework and use of the SWOT technique, the methodology used in this review exercise includes thorough review of relevant documents, with a particular emphasis for policy, regulatory, strategy and institutional issues covering the period since 1991, i.e. the period of the present EPRDF regime. Secondary data and information is collected from relevant sources to provide appropriate background to the sector and the subsector, small ruminants, as well as support some of the findings with evidences.

It is important to note that the author of this review published a book which covers the indigenous policies and strategies of the agriculture, pastoral and rural development sector of Ethiopia (Chanyalew 2015).[8] He also contributed a chapter to a book published in 2016 covering the principle of 'a foot on the ground' in Ethiopia's agriculture sector policies and strategies formulation (Chanyalew 2016). Besides he has a draft of a book which is to be delivered to publishers soon, again covering issues of agricultural and allied sector policies, strategies and institutions. These publications have been key sources of information for the various tables reported in sections four and five of this report.

In addition to these, recent sector-wide studies such as CAADP-Ethiopia (Chanyalew et al. 2009), the agriculture sector policy and investment framework study for the period 2010–20 (Chanyalew et al. 2010), the LMP (MoA 2015) and the second growth and transformation plan (GTP II) were important sources of data and information. There is also several research, study and plan documents which are referred and appropriate references are accorded where used. Notwithstanding these sources, the author has made additional documentation reviews and discussions with key informants to meet the specific requirements of this assignment as listed in the terms of reference (ToR).

Purposely targeted key informants[9] were also used to get primary information on what has happened for failing to have a consolidated sector specific policy and strategy documents for decades, including the period since the launch of rural development policies strategies (RDPS) in 2001.10 It is important to underline that in a situation that the livestock sector at large have not had policy attention, it is to be too naive to expect several policy and strategy documents or institutional arrangements addressing the small ruminants' subsector of Ethiopia. SRs subsector often is encompassed in the broad livestock sector breeding, feed and health policy and strategy statements. Institutional arrangements at federal and regional development DAIs have had no specific unit to address the subsector too. The situation is better in research institutes. This is what was found out in the process of undertaking this review assignment. That is why the reporting of this review finding is presented in the manner set in the sections to follow.

3.4 Reporting

It was hardly possible to get documents specifically written to address SR production to consumption policy and strategy issues. Hence, the documentation review findings reported in this desk review report are mainly based on the few explicit policy and strategy statements referring to sheep and goat contained in the RDPS (MoFED 2003) and successive five year development plan documents such as PASDEP and GTPs I and II.11 The next two sections deal with an assumption that broad livestock sector breeding, feed, and animal health services policies and strategies do also govern the policy and strategy issues of small ruminants value chain development in Ethiopia. The same is true in the case of institutions analysis, except this aspect is relatively specific in the formulation and use of institutions for small ruminants' research, extension package formulation, marketing and market infrastructure set-up, export trade facilities and trade associations.

8 Part II of this book has detailed coverage on resources and sector specific policies and strategies till 2015. Chapter eleven of the book specifically shares out the livestock policies and strategies. Part III of the book covers pastoral and agro-pastoral (PAP) areas policies, strategies and development.

9 List of key informants is given in Annex 9.

10 The EPRDF regime launched the Amharic version rural development policies strategies and instruments document in 2001 (1994 E.C.) and the 2003 English version (MoFED 2003).

11 The Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) (2005/06–2009/10) and the two growth and transformation plans (GTP I: 2010/11 to 2014/15 and GTP II: 2015/16 to 2019/20).

4. Sector-wide policies, strategies and regulations: 1990–2016

Sector-wide in this section means the agriculture and allied sector. As explained in the previous section, agriculture encompasses both crop and livestock. However, as we proceed we will notice a relaxed use of the term sector or subsector. Livestock will be affixed with the sector span and within it several subsectors, including the small ruminant subsector, mainly covering sheep and goats.

4.1 Diverging views on the existence of livestock policy

During the review process it was hardly possible to get policy statements and documents specifically addressing the small ruminants' value chain development in Ethiopia. For that matter even the presence of an explicit and consolidated policy document for Ethiopia's livestock resources development was controversial. On the other hand, there were diverging views on this concern among the key informants.

Broadly the diverging views are categorized into two. There were those who argued that not alone the small ruminants' subsector, even the livestock sector resources development has not been led by sector specific policy to date. Others argued that the country has had livestock resources development policies since the days of the Imperial regime but not compiled and put together in a single sector specific document.

Some key informants explained that mostly policy positions that are presented in broader statements covering issues of breeding, feed and animal health services serve most of the animal species policy concerns. Hence, it should not be expected to have separate policy and strategy documents specific to sheep and goats (small ruminants). Of course in few areas, for example, in marketing and trade, there could be specific regulations and directives covering small ruminants or the products and by-products such as milk, meat, hides and skins. The documents reviewed and the findings reported in the next subsection mostly address livestock because of the above reason and secondly the ToR also entails the review of policies/regulatory and strategies of the livestock sector at large.

4.2 Trends in policy and strategy formulation

Broad policies and strategies

Broader policies and strategic directives have been leading the countries livestock resources development since the Imperial period. The practice continued during the Derg and the present EPRDF regime. The EPRDF regime launched the Amharic version rural development policies, strategies and instruments document in 2001 (1994 E.C.) and the 2003 English version RDPS (MoFED 2003). This document covers agriculture, both crop and livestock, natural resources, specifically land, water and forest as well as rural social and economic infrastructures development policies, strategies and instruments. The document did not follow a conventional policy and strategy writing format. Policy, strategy, and instruments were mingled without proper flow (Chanyalew 2001).

The successive five-year development plan documents also include policy, strategy and institutional reviews. These documents have been instruments for policy and strategy changes of the EPRDF regime. The Sustainable Development and Poverty Reduction Program (SDPRP 2000/01–2004/05) was prepared and launched at the same time with that of RDPS and hence it was not specifically reviewed. The Plan for Accelerated and Sustainable Development to End Poverty (PASDEP 2005/06–2009/10) and the two growth and transformation plans (GTP I: 2010/11 to 2014/15 and GTP II: 2015/16 to 2019/20) incorporated policy and strategy reviews influencing the activities and operations of the agriculture sector at large and in some instances crop and livestock subsectors specifically.

In between studies such as the Livestock Development Master Plan (GoE, LDMPS)12 of 2007, the Comprehensive African Agricultural Development Programme (CAADP)-Ethiopia study of 2009, the agriculture sector Policy and Investment Framework (PIF) study (Chanyalew et al. 2010) as well as the recent LMP (MoA 2015) have also availed opportunities to review policy/regulatory, strategy and institutional arrangements and show gaps and challenges. MoA 2015 is not a policy document. It is a master plan with a road map to implement planned and projected activities for the period 2015–20, the GTP II period, for selected value chains and subchains, including sheep and goats in the meat value chain. There was also a study that recognized the improvements made since the launch of RDPS to give attention to the livestock sector policy needs but at the same time calling for the development of effective policy implementation strategies (Kumsa et al. 2008).

The 2007 master plan and the policy and strategy review

Before the recent Ethiopia LMP (LMP) of 2014, there was a Livestock Development Master Plan study, referred as LDMP (MoARD 2007b). In this study report, specifically the volume which dealt with policy and institutional issues, an attempt has been made to review the policies, strategies and institutions since the Imperial regime. Highlighting the policy change during the Derg regime (1974–1991) LDMP (MoARD 2007b) gave a review of the EPRDF regime: 1991–2007.

LDMP reported that the Derg made a policy change that weakened the private sector and the agriculture (crop and livestock). The policy of controlled product prices and delivery of agricultural commodities using a quota system, and the restrictive access of individuals to resources (inputs, fertilizer, land and extension services) were parts of the policy issues discussed in this document. The study pointed out that till the preparation of the 1992 draft agriculture policy of the then Ministry of Agriculture (MoA)[13] there existed no official specific agricultural or livestock development policy. In the November 1994 E.C. (November 2001) agriculture policy draft[14] of the MoA, livestock resources development policy was one of the seven subsector policies. In general, the LDMP reported that: '*the national or the broader rural sector policy has guided livestock development and therefore the development of the livestock sector under this policy was totally project oriented, driven to short-lived objectives and thus most of the projects benefits and activities were failed to sustain and unable to transform the livestock economy. Most projects were responses to availability of external assistance, and were not thought and articulated with less participatory involvement at all levels.*'

The LDMP study also stated that the national and sectoral policies related to livestock are the (MoARD 2007b):

- Agricultural Development Led Industrialization (ADLI);
- Poverty Reduction Strategy Paper (PRSP);
- Food Security Strategy (FSS);

12 Government of Ethiopia, The Ministry of Agriculture and Rural Development, Livestock Development Master Plan Study, Phase I Report—Data Collection and Analysis, Volume T: Policy and Institutions, GRM International BV, March 2007.

13 The author of this review had an opportunity to read and give written comments and suggestions on the draft which was issued in Amharic in 1994 E.C. (2001), in his capacity as the then President of the Agricultural Economics Society of Ethiopia. It was not possible to confirm whether the LDMP referred 1992 policy document is the same as the 1994 E.C. one, in which case there were drafts prepared even in 1992 E.C. The EPRDF launched a Transition Policy in 1991, which also includes agriculture (crop and livestock) policy issues.

14 The remaining six were: rural land use and administration policy; soil and water conservation and development policy; forest policy; wild animal conservation and development policy; and crop development and protection policy.

- Rural Development Policy and Strategies (RDPS);
- Capacity Building Strategy and Program (CBSP) and
- Agricultural Marketing Strategies (AMS).

Indeed, by then and even today, these documents are key sources for the livestock sector policy and strategy reviews. The reviewer of this paper also used them. But there is a need to refine the focus of the review by clarifying, for example, that ADLI which the report referred as policy, has never been a policy and neither is there an official document to claim it is. Besides policy reviews and refinements were made during the preparation of the Revolutionary Democracy document (EPRDF 1999), which eventually also gave way for the emergence and adoption of democratic developmental state as internal and external political and economic dynamics (Zenawi 2012; Oqubay 2015) of Ethiopia's agriculture and allied sector policies and strategies, as well as during the preparations of successive five year PRSP plans.

Furthermore, efforts were made to bring sector and subsector specific policies and strategies together using the opportunities created by the African heads of state agreement that each member state conduct a Comprehensive African Agricultural Development Programme (CAADP)[15] study as well as the recent Malabo Declaration.[16]

In the next subsection, highlights of ADLI, RDPS, successive five-year development plans are presented. It is followed by a discussion of the Climate Resilient Green Economy (CRGE) strategy and other related studies.

4.3 ADLI and RDPS linkage

Since 1991 the EPRDF has embarked on various policy and strategy formulation and implementation including the Transition Policy,[17] the Agriculture Development Led Industrialization (ADLI) strategy, RDPS and the subsequent policy and strategies made in the successive PRSPs, specifically PASDEP, GTP I and GTP II. At the beginning of GTP I implementation the FDRE government launched the CRGE strategy document in November 2011. This strategy contained several issues leading to the different sectors, including agriculture reforms. The agriculture sector reform was a necessity since three out of four major pillars of CRGE are directly or indirectly anchored on the agriculture and allied (crop, livestock and natural resources) sector.

The ADLI strategy was the first comprehensive strategy launched by the EPRDF government and it continued to influence the formulation of successive policy, strategy, and plan documents such as the Revolutionary Democracy, RDPS, the Industrial Development Strategy as well as the four consecutive development plans. The major strategy of the agriculture sector, according to RDPS, however, is the agriculture-centred rural development (ACRD), more specifically referred to as the agriculture-led development (ALD) strategy. Again, it is important to stress that ADLI is not a strategy for the agriculture sector. The strategy for the agriculture sector is ACRD or ALD.

ADLI has been explained as a pro-poor growth strategy (Manyazewal 2002). Manyazewal (2002) argued that, as a pro-poor growth strategy, ADLI provided long-term framework for economic transformation and poverty reduction, and it is not exclusively about agriculture. According to Manyazewal (2002), far from this, first and foremost, ADLI is about an industrialization strategy—using agriculture as a springboard. It is not also sequential to say: first develop agriculture and then industry. ADLI is a strategy which promotes a strong agriculture–industry linkage. The linkage among ADLI and sector-wide policies and strategies is anchored on the basic objective of the nation's economic development undertakings, which the FDRE government explicitly established, in the front, in the RDPS document.

15 The African Union's New Partnership for Africa's Development (AU/NEPAD) vision and strategic framework led to the CAADP study by outlining Africa's pledge to pursue its commitment and duty to eradicate hunger and poverty and place the continent, at all levels, on a path for sustainable socio-economic growth.

16 Malabo Declaration on accelerated agricultural growth and transformation for shared prosperity and improved livelihoods Malabo, Equatorial Guinea, 26–27 June 2014.

17 Ethiopia's economic policy during the transition period (1991).

The basic objective ADLI is set for is to **build a market economy** in which:

i. a broad spectrum of the Ethiopian people are beneficiaries;

ii. dependences on food aid is eliminated; and

iii. rapid economic growth is assured.

The ALD strategy, as an outshot of ADLI, is not set solely to lead the agriculture (crop and livestock) farming undertakings but also the formulation and implementation of policies and strategies related to human and natural resources as well as research, marketing and trade, food security and nutrition issues (Chanyalew 2015). The ALD strategy is also a strategy to create enabling environment for the accelerated and sustainable development of the non-agricultural sectors, particularly the processing and manufacturing industry.

The creation of enabling environment for the industry sector has been advanced with a belief that it is the growth in the agriculture sector that will enhance the supply of raw materials, creating opportunities for capital accumulation and enhancing domestic market for other sectors. Put differently it was believed that through agriculture-led and rural-centred development, trade and industry will be directed to grow faster following and in alliance with agriculture.

In addition to giving explanations about ACRD/ALD, the RDPS document also went into detail on the five basic principles that govern agricultural development policy formulation in Ethiopia. These are:

- The labour-intensive strategy
- Proper utilization of agricultural land
- A foot on the ground
- Taking different agro-ecological zones into account
- An integrated development path.

These principles have been used pragmatically as it is verified by policy and strategy revisions made during successive five-year development plans.[18] The very basic principles of Ethiopia's agricultural policy development, specifically the principle of a '*foot on the ground*' has substantial contributions to the growth registered in the sector thus far (Chanyalew 2016). It is not the rightness of the policies and strategies but their indigenous nature[19] and as deemed necessary the conditionality of policies and strategies formulated, implemented and when necessary reviewed that make Ethiopia develop with agriculture.

4.4 PRSPs: SDPRP, PASDEP, GTP I and GTP II

SDPRP and PASDEP

On the basis of the economy-wide ADLI strategy and the sector-wide strategy of ACRD/ALD, as well as the policies and strategies enclosed in RDPS, the preparation and implementations of successive PRSPs[20] were made with reviews of policies and strategies if needed. Considerable policy and strategy reviews were made during the preparation of

18 Chanyalew 2015 has a relatively detailed explanation of these principles.

19 Indigenous policymaking encompasses the notion of policy independence Oqubay (2015, 286). According to Oqubay, 'Policy independence above all means the right, and political space, to make policy choices free of political pressures or, at any rate, without succumbing to particular interests. From a slightly more unusual perspective, it means reserving the right to make mistakes and, in the process, to learn from them. Policy independence also means the freedom to make major policy decisions that entail risks and bold experiments. Without this dimension, policy decisions will only sustain the status quo'.

20 The issuance of RDPS was concomitant with the preparation of the successive PRSPs. The first Amharic version RDPS was launched in November 2001, and has provided general direction and strategies for agricultural development with a more action-oriented and structured SDPRP and PASDEP. It has also remained the core reference document in the GTP I and GTP II preparations.

PASDEP. Changes were also made during the preparation of the first and the second growth and transformation plans: GTP I and GTP II.

RDPS and hence the details of ADL were not put in place by the time SDPRP was prepared. This may not exclude an assumption that both were under preparation concurrently. The RDPS Amharic version was issued at the beginning of the SDPRP period. It was first issued in Amharic in November 2001 while the English version was produced in 2003. SDPRP implementation started in 2000/01. Although RDPS came after the launch of SDPRP, it can be said that SDPRP period was a testing period for the workability of the RDPS five basic principles highlighted above and the implications of the principles and lessons learnt for the formulation of successive development plans.

The agricultural (crop and livestock) development policy formulation principles initially set in RDPS have been used to broaden the scope and depth of the agriculture policies and strategies in the PASDEP and GTPs. The subjects that have come up in in-depth explanations during PASDEP and GTPs include the:

- Extensive use of human labour;
- Proper use and management of land, water and other natural resources;
- Agro-ecology-based development approach;
- Integrated approach to development;
- Targeted interventions for drought-prone and food-insecure areas;
- Encouragement and support to private sector development;
- Refinement of targets such as enhancing the benefits of the working people; and
- Enhanced use of agricultural, technical and vocational training.

In particular, the preparation of PASDEP has embarked on improved and new strategic directions that can accelerate the overall economic growth and the growth of the agriculture sector specifically.

Chapter seven of the PASDEP document is titled 'Sectoral policies, strategies and programs of the PASDEP'. It has broad economy wide policy and strategy review results as well as sector specific ones. Six fundamental agricultural development strategies were explicitly listed in this chapter. These were:

a. adequately strengthening human resource capacity and its effective utilization;
b. ensuring prudent allocation and use of existing land;
c. enabling adaptation of development paths compatible with different agro-ecological zones;
d. specializing, diversifying and commercializing agricultural production;
e. integrating development activities with other sectors; and
f. establishing effective agricultural marketing system.

This review exercise revealed that the gaps and challenges the livestock sector is facing are because the implementation of these strategy via setting appropriate programs and institutions has not been successful. The assessments and findings on these are reported in section 7: Gaps and challenges, as well as in the SWOT table (Annex 8).

The strategy of *enabling adaptation of development path compatible with different agro-ecological zones* shows the refinement of the strategy set in RDPS and witnessed in the implementation of SDPRP. Of course agro-ecology based research and development approaches in Ethiopia started several decades ago (Woldu 1999; MoA 2000; Mengistu

2006). Ethiopia has been classified from five traditional classifications21 up to 18 major and 49 sub-agro-ecologies. This was consolidated to 32 major agro-ecologies in late 1990s (Mersha 2001). Some studies use two broad classifications. For example, in the recent Ethiopian Panel on Climate Change first assessment report (EAS 2015), two agro-ecology resources are recognized: The mid and high altitude agro-ecologies and the low altitude areas mainly suited to pastoral and agro-pastoral activities.

The current five-year development plan known as GTP II (2015/16 to 2019/20) is using three zones and these were specifically mentioned in the section dealing with the livestock sector. These are the highland/mid altitude agro-pastoral with adequate moisture, the highland/mid altitude agro-pastoral with moisture stress, and the lowland pastoral and semi-pastoral agro-ecological zones.

It is also important to note here that the major inclusion in the PASDEP document, as compared with the five basic principles listed in RDPS, is the recognition of focus on the strategy of *specialization, diversification and commercialization of agriculture*. This strategy also gives prominence for targeted interventions for drought-prone and food-insecure areas. Erratic rainfall, soil degradation, and low per capita availability of farmlands characterize these areas. In these areas, the major agricultural development activity to be undertaken is aimed at increasing the income of farmers and pastoralists. The activities were well thought out to enhance food security through measures to reduce the volatility of production (for example, through irrigation where feasible), and to increase off-farm income opportunities. As deemed necessary, voluntary resettlement to more productive areas were also considered.

PASDEP's chapter seven has a separate subsection addressing the livestock development and animal health services. This subsection includes the following statement:

'Small ruminant production (including sheep, goats and chicken) will receive special attention in areas characterized by high population, fragmented land holdings, land degradation and arid climate.'

On genetic improvement, in the same subsection, the following is also stated:

'Genetic improvement of large and small ruminants mainly focuses on the improvement of indigenous species in their local breeding areas using selective breeding for pure breed improvement, and crossbreeding with known exotic breeds to improve productivity of meat and milk. Other intervention areas to be undertaken include:

- Selecting four indigenous sheep breeds to produce male sheep for strengthening the genetic base of indigenous sheep through establishing centres for semen production;
- Importation of exotic improved sheep and goat breeds to increase productivity of meat and milk through crossbreeding and establishment of breeding centres.'

In addition to the above, the PASDEP has policy and strategy statements covering issues of animal feed, and health services improvement, including a statement about measures to be taken to strengthen the quarantine and inspection services. The subsection which addresses the pastoralists' livelihood and development issues clearly stated that:

'Policies and programs have overlooked pastoralists' way of life and living conditions, and until recently they have experienced decades of socio-political exclusion…. Because of these concerns, and recognizing the unique lifestyle and needs of the pastoralist population, PASDEP involves a range of tailored program and policy responses that are specific to pastoralist areas and the people.'

Based on the above policy direction, for pastoral areas, 47 strategies addressing issues of livestock resources development, infrastructure, education and health, gender and land tenure were included in the PASDEP document.

21 As reported in Mengistu 2006, the multitude of agro-ecological zones (AEZs) is traditionally classified into five categories with traditional names assigned to each zone, based on altitude and temperature: Bereha, kola, weinadega, dega and wurch.

GTPs I and II

In the agriculture sector GTP I (AGTP I), similar to the PASDEP period, small farmers were given the leading role to execute the AGTP. AGTP I included two major pillars and associated strategic components. The first pillar focuses on smallholders' production and the second on the support for private investment. In the first pillar, three directives/ strategic areas were considered to promote agriculture development. These are:

- The scaling up of the best practices and technologies;
- The promotion of natural resource conservation and improved irrigation; and
- The encouragement of the commercialization, production and marketing of high-value agricultural commodities.

According to the second major pillar, the private sector investment is to be supported via two key strategies:

- Using labour-extensive approach on limited land size and producing high value products, and
- Producing with labour-intensive interventions in large-scale ventures. This is expected to be practiced in lowland areas where there is ample arable land and where farmers can integrate with other agricultural activities. In this connection, the identification and use of land bank is expected to serve as a key instrument.

GTP II part two, section one (1.2–i) 'Major departures of the second growth and transformation plan' presents GTP II's distinguishing features including the following:

'In GTP II period, agriculture will remain the main driver of the rapid and inclusive economic growth and development. It is also expected to be the main source of growth for the *modern*[22] productive sectors. … Designing and providing support schemes to smallholder farmers where peasants and pastoralists are the main actors in the production process; and f*acilitating a joint participation of educated young farmers and private investors* in the sector are strategic directions that will be pursued during the plan period. …'

In subsection 1.4.1 it is reaffirmed that '*During GTP II period, agriculture and particularly smallholder agriculture will remain the single most important source of economic growth*'. Further in 1.4.2 in order to render the agricultural sector efficient and enable it to reach its production possibility frontier, enhancing the productivity of smallholder farms (the main source of growth in the sector) will be given priority. The core strategies to reach this goal are highlighted below:

- The enhancement of productivity and quality in production of strategic food crops;
- The proper development and dissemination of available technologies to facilitate competitiveness, quality and productivity enhancement schemes;
- The implementation of an extension system focused on the scaling up of best practices of model smallholder farmers within the developmental army framework;
- The tackling of the challenges which constrained the achievement of potential production capacity, and improving the efficiency of the sector;
- The implementation of the private sector development and transformation agenda through well-designed support provisions selectively for those enterprises participating in the productive (agriculture and manufacturing) and ICT sectors, with transparent and predictable incentive packages;
- The facilitation and strengthening of rural–urban linkages;
- The establishment and support of institutions that innovate and invent technology and conduct research and development;
- The promotion of indigenous knowledge, experience and skill to copy, adopt, utilize and manage technology transformation;

22 Underlined by the author for purpose of emphasis.

- The undertaking of focused interventions on agricultural production and productivity growth in high value exportable products;
- The enhancement of production capacity;
- The increasing of both domestic and foreign direct investment in the manufacturing and horticulture subsectors; and
- In light of the increased agricultural production, the increasing of the food security reserve by the end of the plan period through purchasing from farmers.

GTP II came up with the dictum of modernizing and commercializing the agriculture sector. It incorporates some strategic changes including the strategy that link farmers, the educated but jobless youth, and private investors for the emergence and expansion of modern and commercial agriculture. GTP II also usher a strategic move which give space for the likely but gradual shift of capital use in the agriculture sector without abandoning the strategy of using abundant labour and land as explained in the RDPS document.

Part II section 4 of the GTP II document covers economic development sector and starts with subsection 4.1 on Agriculture and rural transformation. It starts with a highlight of the strategic directions. These include:

i. Enhancing the development of smallholder crop and pastoral agriculture and maintaining it as the main source of growth and rural transformation during the GTP II period;

ii. Providing all rounded support to educated youth to enable them to organize and engage in agricultural investment;

iii. Enhancing provision of the necessary support for domestic and selected foreign investors taking their capacity into consideration to enable them participate in transformative agriculture subsectors such as crop, flower, vegetables and fruits and livestock development;

iv. Further pursuing implementation of the scaling up strategy as suitable to the various agro-ecological development zones; and

v. Pursuing holistic measures aimed at addressing constraints and challenges related to supply of agricultural inputs and utilization of agricultural technologies.

Subsection 4.1 also lists and discusses the implementation strategies. Summary of this is provided in Annex 4. The strategies listed in Annex 4 include elements of capacity building, agricultural marketing, input supply and utilization, agricultural extension and investment. All are directly or indirectly applicable for both the crop and livestock sectors of agriculture. Item 3 of Annex 4 is explicitly addressing the livestock sector strategies. These are

- Improving the genetics of livestock,
- Expanding livestock health coverage,
- Enhancing service quality and control,
- Improving supply of livestock feed, and
- Integrating implementation of livestock value chain efficiency.

4.5 CRGE and related studies

CRGE implications for policy and strategy review

In recent years the environment policy and strategy; the strategy for conservation and use of forest products; the water sector policy and strategy; economic growth corridors;[23] and the national nutrition strategy have been instruments for policy and strategy review for the livestock sector development. The climate change policy and strategy, the disaster risk management strategic programme and investment framework (DRM–SPIF), including its early warning system (EWS) as well as Ethiopia's Climate Resilient Green Economy (CRGE) strategy have also been key strategic initiative that has put pressure for the review of existing sectoral strategies. CRGE has a 20 year strategy and investment requirements.24

The FDRE government launched the CRGE strategy in November 2011,[25] in first year of GTP I implementation. According to this strategy, the GoE is committed to becoming a carbon-neutral climate-resilient economy by 2030. The strategy is based on the following four pillars:

- Improving crop and livestock production practices for higher food security and farmer income while reducing emissions;
- Protecting and re-establishing forests for their economic and ecosystem services, including as carbon stocks;
- Expanding electricity generation from renewable sources of energy for domestic and regional markets; and
- Leapfrogging to modern and energy-efficient technologies in transport, industrial sectors and buildings.

The CRGE strategy has been one major occurrence that made the GTP I implementation different from the previous five-year development plans. During the preparation of GTP II it is cited and linked to almost all sectoral plans. The GTP II part two, section one (1.2) after stating that the plan has been formulated to carry forward the basis, objectives and strategic directions of GTP I, it presents GTP II's own distinguishing features including the major emphasis given to building a climate resilient green economy in the context of sustainable development and realizing the vision of becoming a lower middle-income country by 2025.

The GTP II section 8.2: Environment and climate resilient green economy strategic directions states that 'During the second Growth and Transformation Plan (GTP II) period, creating an organizational structure which helps realize the stated goals of the sector, mobilizing human and financial resources including technological capabilities for climate resilient green economy are priorities of the sector.' The strategy reaffirms that the country plans to achieve both greenness and middle-income status by 2025. It states that the initiative should be integrated/mainstreamed into the agriculture and allied sector GTP activities.

Practically, the launch of CRGE has made influence on the review of strategies in the agriculture and allied sector due to its focus on the mitigation side of climate change effects. Because of this the agro-ecology oriented research system adaptation focused strategy and the resilience oriented extension/development undertakings of the different government and public institutions were subjected to additional task of reviews in the areas of programmed activities or project based interventions. Still the interfaces among the mitigation, adaptation and resilience based strategies needs further refinement in the context of climate change, climate resilient as well as climate smart agriculture (crop and livestock) research and development interventions by GO and NGO actors in different parts of the country.

23 As of 2008, an initial 55 economic growth corridors had been identified by regional Bureaus of Finance and Economic Development, all of them driven by export-centred economic growth promotion.

24 As indicated in the CRGE strategy document (November 2011), developing green economy will require an estimated expenditure of around USD 150 billion over the coming 20 years, around USD 80 billion of which is capital investment and the remaining USD 70 billion operating and program expenses. Of the total expenditure, almost USD 30 billion is projected to occur in the short-term up to 2015, with almost USD 22 billion of this being capital expenditure.

25 According to this document, Ethiopia while contributing to reaching economic and social development targets, with a domestic potential to contribute to the global effort by abetting around 250 t CO_2e in 2030 as compared to conventional development practices—this equals a decrease in GHG emissions of up to 64% compared to business as usual in 2030.

The 2014 master plan and related studies policy and strategy review

The LMP (MoA 2015) is used during the preparation of the livestock sector GTP II. Although the LMP is a series of 5-year development implementation plans or 'roadmaps' to be used to implement GTP II, it is also prepared with an ex-ante impact assessment of the potential impacts of technology and policy interventions projected over 15–20 years. Besides LMP value chains and subchains included many points of complementary policy and strategy review issues.

Other recent studies important in the livestock sector policy and strategy identification and review process are those related with the studies of drought resilience and sustainable livelihood programme (DRSLP) and integrated agro-industrial parks (IAIP)[26] (PIF MTR 2015).

The Intergovernmental Authority for Development (IGAD) heads of state 2010/11 initiative to address pastoral and agro-pastoral problems was instrumental in the study and launch of DRSLP. In addition to this, in Ethiopia, several policies, strategies/initiatives, and programs have been introduced newly or as a result of review process based on national and international emerging issues and agreements. These include the Millennium Development Goals (MDGs) and its present expression, the Sustainable Development Goals (SDGs), the CAADP and the Agriculture Sector Policy and Investment Framework (PIF, 2010–2020), as well as the Malabo Declaration[27] of African heads of state.

In the UN-SDGs document, it is clearly stated that SDGs implementation and success will rely on countries' own sustainable development policies, plans and programs and will be led by countries. The Sustainable Development Goals (SDGs) will be a compass for aligning countries' plans with their global commitments.[28]

CAADP is the AU/NEPAD initiative. Its implementation was anchored on country specific studies and compact signing. The CAADP-Ethiopia study has significant contribution in Ethiopia's agriculture sector policies and strategies review. From the very begging of the launch of CAADP, Ethiopia institutionalized CAADP as its agriculture sector policy-, strategy- and program-formulation framework. This was easy to do because CAADP also embraced the principle of agriculture-led growth, which is similar to ADLI, as a main strategy to achieve Millennium Development Goals (MDGs). CAADP sets principles and targets to guide national sector strategies including the principles of policy efficiency, dialogue, review and accountability.[29] Its pillars and those of Ethiopia's agriculture and related natural resource sectors were practically identical. The PIF preparation and design followed soon after operationalization of the CAADP Compact. For GoE, PIF[30] was the ultimate practical evidence of its determination to link with the all-Africa CAADP process and guide development partners support for incremental investment to tackle problems of poverty and hunger.

In the Malabo Declaration various commitments, the African heads of state did implicitly and when necessary explicitly indicate the sovereign state positioning of members when it comes to policy and strategy setting and reviews. Importantly, the Declaration includes what the GoE GTP II policy and strategies have addressed. In the third commitment they adopt to create and enhance the necessary appropriate policy and institutional conditions and support systems to facilitate: sustainable and reliable production and access to quality and affordable inputs (for crops,

26 The agriculture sector ministries are represented by top management member on the MoI-based steering committee of IAIP, which highlights the central importance given by the sector to the IAIP process. IAIP could serve as a driver of agricultural modernization through industrialization; it could usefully interface with the government's agricultural growth program (AGP), which seeks to boost surpluses in the sector.

27 The Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods Malabo, Equatorial Guinea, 26–27 June 2014. In the Malabo declaration, African heads of state adopted the following: I. Recommitment to the principles and values of the CAADP process; II. Commitment to enhancing investment finance in agriculture; III. Commitment to ending hunger in Africa by 2025; IV. Commitment to halving poverty by the year 2025, through inclusive agricultural growth and transformation; V. Commitment to boosting intra-African trade in agricultural commodities and services; VI. Commitment to enhancing resilience of livelihoods and production systems to climate variability and other related risks; VII. Commitment to mutual accountability to actions and results; and VIII. Strengthening the African Union Commission to support delivery on these commitments.

28 The SDGs build on the success of the MDGs and aim to go further to end all forms of poverty. On 1 January 2016, the 17 SDGs of the 2030 Agenda for Sustainable Development—adopted by world leaders in September 2015 at an historic UN Summit—officially came into force.

29 CAADP pillars and those of Ethiopia's agriculture and related natural resource sectors were practically identical. CAADP Ethiopia study completion was followed by signing of the CAADP Ethiopia Compact in September 2009 by government, civil society, the private sector, DPs and African Union (AU) partners.

30 For GoE, PIF was the ultimate practical evidence of its determination to link with the all-Africa CAADP process and guide development partners support for incremental investment to tackle problems of poverty and hunger.

livestock, fisheries) through, among other things, provision of 'smart' protection to smallholder agriculture; supply of appropriate knowledge, information, and skills to users; efficient and effective water management systems notably through irrigation; suitable, reliable and affordable mechanization and energy supplies, amongst others. Specifically, in the fifth commitment they agreed to create and enhance policies and institutional conditions and support systems. In general, review of the SDGs and the AU-Malabo Declaration indicate that the need for policy and strategy changes or reviews in African states agriculture and allied sectors should not be taken haphazardly.

5. Livestock and related resources development policies and strategies

After a thorough review of the various broad policy, strategy documents and successive five year plans as well as pertinent studies, the livestock sector policies as of today are identified and sorted by resource base, subsector and subject/thematic areas.[31] Recall that in subsection 4.1 of this report it was pointed out that there are two diverging views: those arguing the country has no livestock policy versus those arguing that there is livestock policy although not issued in a consolidated, clear and elaborated manner. In the following subsections, the identified policies and strategies may help the reader to take personal stand.

The identification and elaboration of policies and strategies is presented below in a system wide value chain analysis framework. It started by identifying policies and strategies directing the resources/inputs use. Specific emphasis is accorded to resources such as land, water and forest (Table 3). It is followed by the livestock general policies and strategies with some specific species or commodity lines (Table 4). The key livestock inputs and services, feed and animal health are presented in Table 5. Table 6 presents the policies and strategies included in the agricultural research system, followed by a presentation of the same for the extension system (Table 7). Table 8 presents and discusses the policy and strategy issues related to markets, marketing, trade and associations. The policies and strategies relevant for pastoral and agro-pastoral areas are reported in Table 9. Table 10 presents the strategies of food and nutrition security.

5.1 Natural resources

Agriculture land and water access and use policy and strategy issues have been among the major policy and strategy gaps/challenges raised by different key informants. Clear and functional land policy and specifically land use policy have no substitute to accelerate the development of the livestock sector, and specifically the small ruminants' value chain development in Ethiopia. Land for production, specifically for modern and commercial farms including ranches, as well as for FTCs/PTCs establishment including the demonstration farms has remained a policy and strategy challenge.

Furthermore, land is required to establish and improve market and trade infrastructure and facilities such as the construction of quarantine centres, storage, water points or expansion of abattoirs both for domestic and international market. Table 3 presents the existing land policy and strategy that has to be known and understood by various stakeholders in the value chain and sub-value chains. As indicated in Table 3 land policy and land use policy are captured in the Constitution as well as other official documents,[32] such as proclamations and regulations. In Ethiopia

31 Mostly they are extracted from RDPS, PASDEP, GTP I and GTP II as well as several published proclamations and regulations.

32 The Constitution of the Federal Democratic Republic of Ethiopia in the Federal Negarit Gazette, first year, no. 1, Addis Ababa, 21 August 1995; a proclamation to provide for the expropriation of landholdings for public purposes and payment of compensation, proclamation no. 455/2005, Addis Ababa; the FDRE rural land administration and use proclamation no. 456/2005, Federal Negarit Gazette, eleventh year, no. 44, Addis Ababa, 15 July 2005; and the FDRE rural land administration and use proclamation no. 456/2005, Addis Ababa. Besides, for broader policy reading and analysis on land-related issues, please refer to the following policies and strategies: The national population policy 1993; the national science and technology policy 1998; the national policy on disaster and prevention and management 1997; the national policy on biodiversity conservation and research 1998; the Ethiopian water resources management policy 1999 and the national energy policy 1993.

the apex land policy document is the Constitution. The 1995 Constitution states that the right to ownership of rural and urban land as well as all natural resources is exclusively vested in the state and in the peoples of Ethiopia (FDRE 1995).

It is important to note here that proclamations and regulations that partly cover issues of land administration and use have been subjected to various reviews. During the process of writing this report, for example, the FDRE government reversed the administration of large investment land from its federal custody to regional state governments. Due to this, the institutional aspects of land banks are also subjected to change. This policy change may affect the federal institutions of land administration and horticulture development. Agricultural investment land administration agency and the horticultural development administration agency, which were answerable to the MoANR, are amalgamated and formed a new authority, horticulture development and investment support, which is directly answerable to the Prime Minister Office. The reversal of investment land bank administration and use to regional state governments will have implications for investors in the livestock sector including those looking land for ranch development.

Agricultural water has also been a policy and strategy issue during the discussions with key informants. The policies and strategies relevant in this regard are also reported in Table 3. For example, promoting the availability of water nearer to pastoralists as much as possible by providing livestock water supply to all the regions particularly to pastoral and agro-pastoral (PAP) areas is the policy stance of the EPRDF government.

The other important resource for the livestock sector is forest. The policy and strategy governing this resource directly and indirectly does mention livestock development interventions. In the RDPS document it is stated that forests should be sources of income for the people, for example, by planting various types of trees for animal feed or promoting integrated forest and apiculture development.

Table 3. Resources, policies and strategies relevant for the livestock sector development

Resources	Policy	Strategy
Land	Provide land free of charge for every Ethiopian citizen who wants his livelihood to be in agriculture[33]	Prepare and implement a guiding land use master plan that considers agro-ecological zones
	Prepare a sustainable and proper land use plan	Prepare and promote watershed based participatory land use planning
	Ensure the right of access to land to private investors who wants to invest on land on long- or short-term lease	Prepare land management and resources plan that considers different agro-ecological zones and soil and water conservation principles
		Promote and encourage the system of controlling free grazing and cultivation on slope areas
		Establish land information database system and
		Provide land holding certificates
Water[34]	Promote participatory watershed development to enhance watershed based agricultural production	Expand small-scale irrigated agriculture and where there is a comparative advantage, promote and strengthen medium- and large-scale irrigation
	Expand irrigated agriculture through efficient irrigation water use	Improve irrigation water-use efficiency and thus the agricultural production efficiency
	Ensure the development of multipurpose different size irrigation schemes[35] where appropriate	Develop irrigation systems that are technically and financially sustainable
	Promote the availability of water nearer to pastoralists as much as possible by providing livestock water supply to all the regions particularly to PAP areas[36]	Address water-logging problems in irrigated areas
		Promote and strengthen small-scale irrigation schemes (river diversion, micro-dam construction, ground water abstraction etc.

Forest and forest utilization[37]	Fostering private forest development and conservation[38]	Expand forest development technology
		Expand market development for forests
	Protecting forest resources from threats[39]	Establish modern information systems on forest development, conservation and utilization.
	Administration and management of state forests.	

33.Under Article 40 of the Federal Constitution of 1995, every Ethiopian has the right to the ownership of property.

34. For details refer to Water resources management policy and strategy issued by FDRE MoWR in 1999 and 2001, as well as to the water sector development program (WSDP), the PASDEP document (MoFED 2006).

35 . One important recent policy statement related to irrigation area development is the need to integrate the modern honey and wax production to these areas. There is a stance which is stated explicitly that it is the policy of the government to develop and expand honey production with special emphasis in irrigated areas, integrating with fruit and agroforestry.

36 . It is important to note that Ethiopia's water resources management policy document (MoWR 2001) outlines the details of the national policy on water revolve around issues of drinking water supply, livestock water supply, water supply for industrial use, sanitation, and integrated water supply and sanitation.

37 . For details refer to MoARD, Ethiopian forest protection and use policy and strategy 2007.

38 . One of the most important umbrella policies is the Environmental Policy of Ethiopia (EPE) that was approved by the Council of Ministers in 1997 (CSE 1997).

39 . It is important to note that wildlife is the core resource that goes together with forest. At present, it is handled by a sector outside agriculture. However, one of the core policies in this regard is that the wildlife of the country is protected and developed.

5.2 General livestock and product specific

Existing general livestock policies and strategies include the policy of breed improvement and importation of exotic breeds (Table 4). In terms of sheep and goat husbandry as can be seen on the table there is an explicit policy stand. The policy encourages the expansion and increase of small ruminants in highly populated, fragmented landholding, degraded and arid climate. The strategy for use of AI services is inclusive of the small ruminants' subsector.

Table 4. Livestock sector policies and strategies: general and specific product oriented

Sector, subsector and product	Policy and strategy	
	Policy	Strategy
Livestock in general	Enhance livestock productivity and production through breed improvement	Develop livestock technological extension package for pastoral areas
		Enhance the supply and use of improved technologies for supply of animal products
	Enhance livestock centred specialization development that includes the import exotic breeds[40]	Undertake relevant studies to improve the supply of inputs for animal products
		Undertake quality control work on improved inputs for animal products
	Expand and increase small ruminants in highly populated, fragmented landholding, degraded and arid climate	Proper identification of agro-ecological zones that is suitable for the livestock productivity and production improvement intervention
		Expand modern ranches carried out by private investors
Dairy/milk		Enhance dairy production through direct introduction of exotic breeds and crossbreeding between indigenous and exotic breeds through AI and bull services
		Strengthening the national artificial insemination (AI) services by supplying AI equipment and facilities

Meat		Improve and enhance the production, availability and quality of beef and other meat sources Improve animal health service and Increase production of meat through crossbreeding of imported breeds with indigenous breeds
Poultry/egg		Expand and increase poultry production in all mixed farming agriculture including agro-pastoral areas Increase the supply of chicken through the import and distribution of highly productive pure line chicks and hybrids Establish large-scale poultry farms Establish new poultry multiplication centres and strengthen existing ones Establish mini-hatcheries
Beekeeping/ honey		Develop and expand honey production with special emphasis in irrigated areas, integrating with fruit and agroforestry Import and adopt artificial production techniques of bee-queen Strengthen migration of beekeeping techniques Introduce bee raising technologies in semi-nomadic areas where there is adequate rainfall and Introduce beekeeping in highly populated, fragmented, and degraded areas
Fish	Curb the diminishing trend of fish resources Expand fishery production and development in water bodies where the potential is not fully exploited.	Introduce/promote fish farming through establishing fish farm models and flood plain aqua-culture Promote fish handling and processing by establishing of jetties and shore processing and associated facilities Increase fish dynamics through fish multiplication centres and stocking of rivers and lakes with fish seeds/fingerlings Capacity building through fishery staff and fishermen training and by providing logistics support.

40. Ministry of Agriculture and Rural Development (MoARD), livestock breeding policy and strategy (Amharic version) (MoARD 2008).

5.3 Inputs: Animal feed and health services

Most frequently mentioned livestock resources development policy and strategy issue is animal feed. Existing policies and strategies in this regard are presented on Table 5. Also in this table is the animal health services strategy which explicitly targets the necessity of controlling parasitic skin diseases in sheep and goats sub-sector.

Table 5. Livestock inputs policies and strategies: Animal feed and health services

Resources, subsector and subjects	Policy and strategy Policy	 Strategy
Animal feed	Promote animal feed production and development both in natural and compound form with due consideration for the protection of natural resources Enhance forage seed production and pasture development Integrate animal feed development with natural resources protection in drought prone zone	Improve forage production and supply Expand industrial animal feed Improve quality of crop residue Improve natural pastures Improve oil cake supply

Animal health	Improve and expand animal health services.	Disease prevention and control with emphasis on: Controlling transboundary and infectious diseases Controlling trypanosomiasis and tsetse fly Establishing disease-free zones Controlling parasitic skin diseases in sheep and goats Strengthen quarantine and inspection service with emphasis on: Improving quarantine service Improving food safety Improving vaccine quality control Strengthen clinical services with emphasis on: Rehabilitating existing clinics and animal health posts Constructing new animal health posts Providing mobile veterinary services Strengthening field AI service delivery Strengthen community-based animal health service delivery system in pastoral areas Expand ATVET colleges with substantive focus on livestock and fisheries Develop human resource basically aimed at increasing staff at professional and sub-professional levels Increase technical assistance and increasing public awareness through extension education.

5.4 Livestock research and extension

Compared with the agricultural extension system, the agricultural research system is relatively specific to address policy and strategy issues of the livestock sector. Table 6 shows that the policy allows the research system to undertake crossbreeding activities and the policy is species impartial. The neutrality stand is also applicable in the implementation of the policy of establishing research centres in major agro-ecological zones.

Table 7 presents the agriculture extension policies and strategies. In few instances there are explicit mentions of the livestock subsectors. For example among the strategies identified include: developing livestock based technological extension packages on indigenous knowledge and pastoral way of life; promoting and establishing facilities such as watering and feed points as part of the extension support services for indigenous cattle; expanding and strengthening the national veterinary institute (NVI) capacity for the production of vaccines and drugs; expanding artificial insemination centre at federal and regional levels; and expanding veterinary education and training centres.

Table 6. Livestock research policies and strategies

Policy and strategy	
Policy	Strategy
Improve the production and productivity of livestock through selection and crossbreeding Focus on technology development which will boost agricultural production and reduce pre- and post-harvest losses to increase supply for industrial uses, export and import substitution Promote technology development to support large-scale commercial farming Produce technologies which will support conservation of natural resources and environmental protection Enhance agricultural research programs for sustainable land management, wise use and maximum use of water and forest resources Undertake research on breed improvement, animal healthcare, feed resources management Promote adaptive research and make research participatory where farmers, industrial and business groups as well as research and extension staff will determine the research agenda Establish research centres in major agro-ecological zones.	Prioritize research programs on smallholder agriculture Improve and strengthen the supply, multiplication and distribution of agricultural technologies on a sustainable basis Carrying out research to increase food self-sufficiency on sustainable basis Building capacities of research centres Adopt domestic and imported technologies by ensuring the collection and documentation of information of the same Strengthening the research–extension–farmer linkage to ensure that research is demand-driven Adapting and developing appropriate agricultural technologies that enhance productivity and quality of crops, livestock, fisheries and forestry to contribute to food security and economic development Strengthening natural resources management research for sustainable agricultural production and maintenance of the integrity of the environment Developing and promoting commercialization of underutilized and non-traditional resources Popularizing improved agricultural technologies Providing national coordination of research and promoting partnerships and networking and Building capacity for agricultural research for development and fostering institutional innovation Generating better technology information packages Generating, introducing and adapting labour-intensive technology packages for extension services.

Table 7. Agricultural extension policies and strategies

Policy	Strategy
Improve the production and productivity of livestock through selection and crossbreeding Focus on technology development which will boost agricultural production and reduce pre- and post-harvest losses to increase supply for industrial uses, export and import substitution Promote technology development to support large-scale commercial farming Produce technologies which will support conservation of natural resources and environmental protection Enhance agricultural research programs for sustainable land management, wise use and maximum use of water and forest resources Undertake research on breed improvement, animal healthcare, feed resources management Promote adaptive research and make research participatory where farmers, industrial and business groups as well as research and extension staff will determine the research agenda Establish research centres in major agro-ecological zones.	Prioritize research programs on smallholder agriculture Improve and strengthen the supply, multiplication and distribution of agricultural technologies on a sustainable basis Carrying out research to increase food self-sufficiency on sustainable basis Building capacities of research centres Adopt domestic and imported technologies by ensuring the collection and documentation of information of the same Strengthening the research–extension–farmer linkage to ensure that research is demand-driven Adapting and developing appropriate agricultural technologies that enhance productivity and quality of crops, livestock, fisheries and forestry to contribute to food security and economic development Strengthening natural resources management research for sustainable agricultural production and maintenance of the integrity of the environment Developing and promoting commercialization of underutilized and non-traditional resources Popularizing improved agricultural technologies Providing national coordination of research and promoting partnerships and networking and Building capacity for agricultural research for development and fostering institutional innovation Generating better technology information packages Generating, introducing and adapting labour-intensive technology packages for extension services.

5.5 Marketing and trade

Most livestock sectoral strategies and regulatory frameworks are revolving around issues of marketing and trade. Similar to other areas, the broad agricultural markets, marketing and trade policies and strategies also apply for the livestock sector in the manner they are presented, i.e. whether species or product specific. The policies of promoting demand driven production system and export promotion apply to all livestock subsectors and products and by-products such as milk, meat, live animals, and hides and skins.

As can be seen from Table 8, the markets and marketing strategies include: the establishment of additional abattoirs; improvement of the provision for export animals waiting facilities; as well as preparation of storage service; and advancement of credit facility. Among the policies on trade are encouragement of investment in export-oriented undertakings and projects; encouragement of the diversification of Ethiopian export products; and the minimization and control of illicit trade. The trade strategies include the expansion and improvement of domestic markets emphasizing on value chain.

Table 8. Marketing and trade policies and strategies

Resources, subsector and subjects	Policy and strategy	
	Policy	Strategy
Markets and marketing	Promote market- and demand-oriented production system Expand and promote agricultural production for export[41] Establish warehouse services and credit system	Expand markets based on studies[42] Promote export by undertaking domestic conference, exhibitions and trade fair[43] Establish close integration among producers, unions and facilitators, exporters and officials[44] Undertake and search for solutions via studies on problems faced in domestic markets Produce and implement guidelines for contract production and marketing Establish additional new abattoirs Upgrade existing cold storage and packing facilities Procure trucks fitted with freezing facility for transporting export goods xpand work to provide for transportation and storage warehouses of agricultural products as well as improve the provision for export animals waiting facilities Prepare and implement standards for facilities of marketing organizations Undertake the following in warehouse services and advance credit system: Provide training in awareness to stakeholders Increase the capacity of storages by preparing storage service advance credit facility Prepare implementation documents. This task includes preparation of receipts for proclamation no. 372/1996 and Establish quality control laboratory
Agricultural trade[45]	Domestic trade Limit the role of the state in wholesale trade and phase out its role from retail trade Encourage domestic private capital to play the dominant role in wholesale trade Regulate the private sector, wholesale and retail trade practices and enforce them properly and Deregulate and decontrol prices and distribution Foreign trade Ensure adequate private sector participation in foreign trade activities by gradually abolishing state monopoly over foreign trade Regulate foreign trade by issuing appropriate foreign exchange and import-export trade regulations Explore ways and means for encouraging exports by providing fiscal incentives and promoting the use of trade information etc. Lower import tariffs gradually and replace quantitative restrictions with tariffs Carry out restructuring and diversifying of parastatals and support institutions.	Transform the traditional agriculture to modern and commercial agricultural through market driven development Accelerate market based agricultural development, and be competitive in the international market Accelerate private sector development by ensuring private operators remain abide by the rules of free market Expand and improve domestic markets emphasizing on value chain Expand export of agricultural products and their markets Enhance the competitiveness of the country in the global market Accelerate the process of Ethiopia's accession to the World Trade Organization (WTO).

41. The expansion of export of agricultural products and their markets has remained the major policy direction of the government during the SDPRP and PASDEP periods and also in the GTPs.

42 . PASDEP was footed on eight pillars including the pillar 'Massive push to accelerate growth' and 'strengthen the infrastructure backbone of the country'. The massive push to accelerate growth pillar has three subpillars. These subpillars are (a) accelerating market based agricultural development, (b) accelerating private sector development and (c) strengthening rural–urban linkage (RUL). In the subpillar to accelerate private sector development, a strategy of exploiting niche markets has been considered. Among those targeted for niche market exploitation are livestock, horticulture, floriculture and mining.

43. The promotion activity will be supported through posters, flyers, films and other dissemination mechanisms.

44. Through the creation of forums for discussion of problems between suppliers and support giving offices, joint solutions will be provided to common problems

45. Refer to 'Ethiopia's economic policy during the transition period (1991).' These strategies are also similar to the broad development directing principles. Since early 1990s Ethiopia's agricultural trade has been influenced by the general policy direction set by EPRDF transition government and revolves around its broad development directing principles.

5.6 Pastoral and agro-pastoral livelihoods development

Despite several project based efforts to tap the livestock and related resources from pastoral and agro-pastoral (PAP) areas, PAP areas development has not been a focus of policy and strategy formulation. Hogg (1996) wrote that GoE policy towards pastoralists had never been spelt out in any concise pastoral or arid lands policy document or strategy. It was generally implicit in the kinds of projects that were implemented in pastoral areas. In the same paper referring to the November 1991 Transition Policy, he indicated that nomadic areas were designated as '*areas with special problems', where 'unless special measures appropriate to local conditions are taken, these areas may, soon face uncontrollable problems'*.[46]

The RDPS 2001 can be cited as the first document to give policy and strategy statement in explicit writing on PAP. Since then the PAP areas policy and strategy issues are receiving refinements during the preparations of PRSP documents and specifically by regional states containing large PAP areas. Table 9 presents core policy and strategy policies available in various documents. Recall in PASDEP alone 47 strategies were listed for PAP areas livestock, education, health and infrastructure sectors development.

Table 9. Policies and strategies targeting pastoral and agro-pastoral livelihoods

Policy	Strategy
Ensure pastoral livelihoods and their asset bases developed through the participation of the pastoral community and the use of pastoralist traditional and formal institutions[47]	Develop participatory drought management mechanism Encourage preservation of hay and dry season forage reserve Control drought induced livestock diseases Facilitate local cross border trading
Expand and ensure access to basic social services[48]	Establish MFIs that is tailored to the pastoralist way of life
Ensure settlement of PAP community members on a voluntary basis and with adequate and appropriate attention to natural resources and environment conservation	Expand strategically placed dry season water points Strengthen participatory watershed management Encourage livelihood diversification Strongly initiate traditional NRM mechanism
Crossbreeding selected local breeds and reproduction of improved breeds of small ruminants such as sheep and goats	Introduce livelihood options: fishery, agro-pastoralism, herd diversification Exercise timely restocking and destocking activities
Modernize and commercialize livestock rearing when and where appropriate[49]	Training of community-based animal health workers Establish community-based drought EWS Control encroachment, deforestation and desertification practices Retrieval and modernization of rotational range use system Rehabilitate/construct feeder roads Encourage agroforestry and social forestry intervention.

5.7 Food and nutrition security strategies

Ethiopia has food security strategy (FSS), not food security policy, since 1996. The FSS that is widely referred is the one which was revised and published in 2002. Ethiopia today has also a national nutrition strategy. Components of the food and nutrition security strategies are presented in Table 10. Recently two documents related to these two

46 .Transition Government of Ethiopia, November 1991. Ethiopia's economic policy during the Transition Period, Addis Ababa.

47.There are two broad categories of institutions in the pastoral areas. These are traditional institutions (clans, tribes, lineage, age groups, resource use groups etc.) and the modern state political and administrative institutions. The two systems support each other to effectively function in pastoral areas. The FDRE government need to emphasize and capitalize on indigenous knowledge and institutions. The strategies to address this include: the development of participatory conflict management mechanisms; the strengthening of indigenous institutions systems in peace building process; enhancement of the capacity of pastoralists; the enhancement of women's participation in community affairs; the development of participatory policy; and the strengthening of agricultural extension service.

48 . Education and health issues are addressed under this category. The recommended strategies to address this issues included: the development of pastoral friendly curriculum and school calendar; the expansion of both formal and non-formal school system; the encouragement and support of CBOs; the strengthen of vocational skill training for pastoral dropouts; the prioritization of mobile primary health education; the strengthening of reproductive health programs; the encouragement of alternative use of community health development; the expansion of intended program of immunization; and the control HIV/AIDS.

49. Based on RDPS policies and strategies on PAP areas, the PASDEP document has an explicit policy and strategy statements on (a) Improving pastoral livelihoods and asset bases via livestock marketing, veterinary, and livestock feed; water development and environment and management; improve natural resources management mechanisms, (b) Setting and improving economic and social infrastructures such as roads, education, health, (c) Strengthening traditional institutions and design mechanisms for the traditional institutions and the modern state political and administrative institutions to support each other to effectively function in pastoral areas.

strategies are at the drafting stage. One is the nutrition sensitive agriculture strategy.[34] The preparation of this strategy is led by MoANR with active participation of MoLF and different DP agencies. The other one is the food and nutrition policy document. Its preparation is led by MoH. Both documents have strategic activities including different livestock commodities. Specifically, interventions of the FSS based PSNP program and the nutrition sensitive agriculture promote small ruminants and poultry both from the supply as well as income dimensions of ensuring households' food and nutrition security.

Table 10. Food and nutrition security strategies

Food security[51] strategy	Nutrition[52] strategy
Increase supply or availability of food through increased domestic production. This can involve: Expanding the quality and quantity of agricultural packages and other interventions Expanding the size of water harvesting and small-scale irrigation schemes and qualitative improvement in the adoption and use of the related technologies[53] Committing on the part of the government to make the necessary financial and technical inputs available to make the food security program work so that by the end of the program period, the entire case load of chronic food insecurity will be overcome on a sustainable basis and Promoting non-farm and off-farm small- and micro-enterprises with improved credit services, appropriate training and the development of local markets Improve access/entitlement of food for food deficit households[54] and Strengthen emergency[55] response capabilities[56] Support the development and expansion of micro- and small-scale enterprises as alternative or supplementary sources of non-farm income Improve the food marketing and distribution system Supplementary employment and income generating schemes through public works programs or privately initiated activities and Targeted programs[57] aimed at the transfer of resources to capacitate self-provisioning groups or support those not capable of doing so in the short- to medium-term—this was developed into the productive safety net program Establish and sustain Ethiopian strategic food reserve[58] (ESFR) system Promote interventions related to food reserve and distribution[59].	Promote nutrition sensitive agriculture interventions at different tiers of the agriculture and allied sector DAIs with a strategic emphasis on: Increasing production of fruits, vegetables, nutritious roots, cereals and pulses to improve the consumption of a diversified diet at household level Improving access to and use of animal source foods Increasing production and consumption of fish Promoting appropriate technologies for food production and processing through handling, preparation and preservation for food diversification to ensure nutritious food use Promoting value addition to ensure availability and consumption of diverse, nutritious foods Promoting consumption of diversified food through the agricultural extension program and through agricultural development agents (DAs) at community level Strengthening the capacity of the agriculture sector to integrate nutrition sensitive interventions into agriculture programs Supporting local complementary food production and creating economic opportunities for women through development groups and cooperatives Supporting agriculture research centres to develop seeds of high nutritional value.

50. The last final draft version was presented at a validation workshop, at Bishoftu, 2–3 December 2016.

51.. Ethiopia's Food Security Strategy (FSS), which was first published at the end of 1996, and then revised in 2002, is based on three pillars: Economic growth and employment, additional entitlement/access and targeted programs, and strengthening emergency capabilities. The 2002 FSS gave greater emphasis to the goal of ensuring access to food for food deficit households (MoARD 2002).

52. The latest national nutrition strategy (NNS 2008) and the derived national nutrition program—June 2013 to June 2015 seem to overcome the problems related to the misconceptions that nutrition is exclusively a food issue and, hence, the belief that the presence of a food security strategy (FSS) is sufficient to address issues of nutrition in the country. In addition to the NNS and the NNP, there have been other related policy and strategy documents that are directing nutrition issues in different development agenda in the agriculture, education and other sectors. For example, the school health nutrition strategy, drafted by Federal Ministry of Education in 2012, the national social protection policy of 2012 by the Federal Ministry of Labour and Social Affairs, and the salt iodization legislation of 2011 are the few that can be referred.

53 . In this connection, FDRE government gave attention to emerging and expanding challenges in land productivity. Several thousands of hectares of Ethiopian soils are affected by acidification. The causes are directly or indirectly connected to progressive soil erosion, reduction of crop rotations, lack of proper residue management and conservation, and exploitative practices (burning, use of dung for fuel etc.). In addition to this, over 10 million hectares of cultivated land are occupied by vertisols and soils prone to water-logging, with about several thousand hectares of these being degraded and located in food insecure and vulnerable areas. These two areas are also identified as areas of interventions to be scaled up in the CAADP Ethiopia program framework.

54. The FSS was reinforced at the start of the PASDEP period (2005/06) by developing more detailed strategic approaches in the areas of: (a) agriculture (crop, livestock and pastoralism); (b) the voluntary resettlement subprogram for 'people who have lost the capacity to be productive mainly due to land degradation, drought and high population pressure'; (c) the productive safety net subprogram; off- and non-farm alternative or supplementary income generating activities and strengthened capacity for emergency response.

55 . In Ethiopia, emergency has taken as part of a bigger policy and strategic framework which is identified as an issue of disaster risk management.

56 . This is anchored on the long-time emphasis, development and use of early warning and surveillance systems.

57. The EPRDF government food security program (FSP) has had interventions that revolve around (i) household asset building, (ii) voluntary resettlement, (iii) productive safety net, (iv) non-agricultural income generation and (v) other elements of vulnerability

58. The ESFR is considered as an excellent instrument for disaster preparedness and response and has proven to be essential at times of crisis, whereby donors can borrow food from the EFSR on the basis of confirmed contributions.

59. This strategy is set to strengthen the early warning system, surveillance and monitoring to increase the capacity of the Ethiopian strategic food reserve (ESFR), food and relief distribution, among others, to enhance the emergency response capability of the country.

6. Institutional arrangements: 1990–2016

6.1 Sector wide

Institutions are key elements of a policy formulation and implementation process. Institutions can be seen from the aspects of organizational setup at village level up to national public and private bodies and linkages and relationships among organizations. In section three it was indicated that institutions are part of what Halcrow (1984) said of implements, one of the four elements of a policy. In the Ethiopian context, House of Representatives, parliament, ministries and agencies are part of the policy framework (Oqubay 2015).

The transition and later the EPRDF government agriculture public goods and services providing institutions are arranged at federal, regional states, zone and woreda levels. The institutions include ministries, bureaus, offices and desks. Livestock in general, and specific species and commodity value chains, such as milk, meat, hides and skins research, extension and development have been part of the institutional arrangements organized in departments, directorates, agencies and institutes (DAIs) with stand-alone or cross cutting development programs and projects of government and non-government institutions.

The non-governmental organizations (NGOs); mass and community-based organizations (CBOs); private institutions; professional and trade associations; development partners: bilateral/multilateral institutions including the CGIAR institutions are also part of the broad agriculture sector institutional arrangement.

Since 1991 till the establishment of MoLF at federal government level livestock research, extension, development and marketing programs/projects have been institutionalized within the Ministry of Agriculture (MoA) as DAIs. Specifically the programs and projects were coordinated by the animal and fisheries resources development department; the animal health service department,[35] national artificial insemination centre, the national trypanosomiasis and vector research and control centre; the national veterinary institute; national animal health centre; animal science research directorate; the agricultural extension and TVET department; the livestock and fishery marketing department; and the agricultural input supply department and animal and plant health regulatory directorate (LDMP study 2007 and CAADP-Ethiopia study of Chanyalew et al. 2009). Similar portfolios with minor variations also existed at regional states level, often led by Bureaus of Agriculture (BoA) or Bureaus of Livestock and Fisheries (BoLF).

Livestock DAIs being part of MoA set-up, they were also equally exposed to change when the MoA became a target of government sectoral restructuring. MoA has experienced changes more than 15 times in the last couple of decades (Chanyalew 2015) including the sweeping arrangement from MoA to Ministry of Agriculture and Rural Development (MoARD) during the PASDEP period and back to MoA during the GTP I period.[61] In the ongoing GTP II period, DAIs of MoA were reconfigured into three core ministries: Ministry of Agriculture and Natural Resources (MoANR), Ministry of Livestock and Fisheries (MoLF) and Ministry of Public Enterprises (MoPE). Disaster Risk Management

60 . It was downgraded to a team when animal and fisheries resources development department was established (LDMP 2007).

61. Different studies recommended for strong livestock resources development institutional arrangements (Kumsa et al. 2008; Chanyalew et al. 2009; Chanyalew et al. 2010) and as a result of these and various lobbying and advocacy by civil societies a state ministerial portfolio for livestock development was created within the MoA in the middle of GTP I implementation period.

Commission (DRMC) moved from MoA, with a status of its own directly answerable to the prime minister office. It was in the MoA led by a State Minister for food security and disaster management.

Similar changes have also taken place at regional levels. The livestock sector activities and the results to be achieved are not dependent only on the capacity, capability and competence or the integration and linkage of these three ministries and the corresponding BoAs at regional level but also the DAIs in the Ministry of Water, Irrigation and Electric (MoWIE), Ministry of Trade (MoT) which recently was hosting the livestock marketing directorate, Ministry of Industry (MoI), Ministry of Education (MoE), Ministry of Transport and Ministry of Health (MoH), specifically in the context of the emerging nutrition sensitive agriculture strategy and the implementation of the strategy's action plan. This strategy requires the involvement of DAIs working on small ruminants, poultry and fishery. Ministry of Federal and Pastoral Affairs (MoFPA) also works in livestock resources development programs and projects mostly in selected pastoral *woredas.*

At the beginning of GTP I implementation the Agricultural Transformation Agency (ATA) was established. It is established by Council of Ministers Regulation in 2010 with objectives to identify systemic constraints of agricultural development, and to support the establishment of strong linkages among agricultural and related institutions and projects. In some documents its mandates are stated to identify systemic bottlenecks including policies and strategies; identify problems of coordination and integration and support for implementation. When it started it has seven value chains and none were in the livestock area. During the last part of the GTP II preparation period, ATA announced that it established a directorate dealing with livestock programs and projects.

The programs and projects of this directorate, together with directorates that address seven value chains, systems and support activities, become part of what is called the Agricultural Transformation Agenda (ATAg). ATAg has four pillars, the first is the pillar of increasing crop and livestock production and productivity.[62] One component of this pillar is livestock with three program areas, namely livestock breed and genetic improvement; livestock feed and feeding and livestock health. These are expressed in terms of transforming deliverables again presented using same phraseology.

6.2 Deepening on recent arrangements: MoLF and regional states structures

6.2.1 Organizational arrangements

By the time this review report is finalized, the FDRE MoLF is led by the minister and two state ministers, one leading the animal production and marketing subsector and the other the animal health and feed quality control subsector. The state minister for animal production and marketing has 11 directorates and 1 centre, and the state minister for animal health and feed quality control has six directorates and four institutes, centre and authority (Table 11). It is important to notice that there is no separate DAI for small ruminants' value chain development. Same holds for cattle and camel too. As most of the general livestock policies and strategies work on these species of animals, same is true also for the different DAIs. Almost all DAIs within MoLF have duties and responsibilities for cattle, sheep and goat, and camel development/extension, marketing and trade public goods and services provisions.

62. Overview of the ATA and the Agricultural Transformation Agenda in Ethiopia's Growth and Transformation Plans (GTP) I and II, October 2016 (National Planning Commission 2016).

Table 11. Ministry of Livestock and Fisheries DAIs as of 2015/16

Sector	Institute/agency/authority/centre	Directorates
Animal production and marketing sector	National Artificial insemination Centre (NAIC)	Poultry resource development
		Fishery resource development
	Emerging regions and pastoral area coordinating directorate	Genetic improvement
		Forage resource development
		Dairy resource development
		Meat resource development
		Honey and sericulture resource development
		Urban livestock resource development investment support
		Input market and supply
		Livestock production marketing
Animal health and feed quality control sector	National veterinary institute (NVI)	Epidemiology directorate
	National institute for control and eradication of tsetse fly and trypanosomiasis (NICETT)	Quarantine, import and export inspection and certification directorate
		Disease control and investigation
	Veterinary drug and animal feed administration and control authority	Veterinary public health directorate
	National animal health diagnostic and investigation centre (NAHDIC).	Animal identification, registration, welfare and traceability directorate
		Export abattoir inspection and certification directorate.

Source: MoLF.

Regional state governments organize their DAIs with slight structural variations to that of the federal government (Annex 5). The effect of the federal level agriculture sector institutional split, MoANR and MoLF, seems to receive different reaction from regional states. In some regions, for example in SNNPR a new Bureau of Livestock and Fisheries resource development is established separate from the BoA. Oromia has Livestock and Fisheries Resource Development Bureau working in 233 non-pastoralist woredas. Oromia pastoralist commission work in 33 pastoralist woredas. In Amhara and Tigray regional states livestock and fisheries development is organized at agency and core process level within BoANR, respectively.

It is important to restate that in addition to the MoLF and the regional bureaus, commissions and agencies, the Ministry of Federal and Pastoral Affairs (MoFPA) has been working in livestock resources development programs and projects. As of 2016, it is working in 7 regions and 202 pastoral *woredas*.[63] Overall, operations are relatively well done in the Somali and Afar regions. Overall there are institutional challenges manifested in the forms of poor synergy with the regional livestock development offices (previous Oromia livestock agency, SNNPR agricultural bureau); shortage of budget; and poor villagization, where such interventions are promoted.

6.2.2 Human resources and infrastructure

Both federal and regional states are operating with a cadre of professionals and technicians and different types of technical facilities and infrastructures that goes up to grassroots level. Annex 6 presents the core human resource for animal health services provision by 2015, and Annex 7 states the state of animal health infrastructure as of 2015 in the

63. These include 33 pastoral *woredas* in Oromia, 93 in the Somali region, 32 in Afar, 12 in Gambella, 20 in Benishangul and 12 SNNP regions.

different parts of the country. In general, the sector is too deficient in terms of required human resources. As of February 2015, at federal level, the average shortfall of staff in the different DAIs was about 50%.[64]

At woreda level vacant positions for livestock and animal health services ranges from 13 to 80%. For example, in Oromia regional state at Kebbena at the end of 2015 there were only 3 out of 15 livestock specialists and 2 out of 7 veterinary practitioners were on their posts. Shortages of inputs, (laboratory facilities, bureaus, office and field equipment, transport means, finance) either in quantity or quality have been in gross deficiency to undertake planned livestock sector GTP II activities.[65]

In terms of the country's effort to become competitive in the live animal marketing and trade practices, key institutional facilities are quarantine centres. As of December 2016, there were four livestock quarantine stations, though they are not fully functional, in different parts of the country (Table 12). Besides there is one officially designated check point named Almehal in Benishangul regional state. Overall, livestock are produced in both the highly productive, high rainfall highland areas and vast lowland areas of the country. They are marketed domestically via different market routes.[66] Most market routes are local micro routes that connect an area or a primary market with a destination market (secondary or tertiary or terminal) through some intermediate stages.

A local market route may originate in a rural area or a primary market located in one administrative domain (*woreda,* zone or region) but serve a destination market (secondary or tertiary or terminal) located in another administrative domain.

Table 12. Livestock quarantine stations in Ethiopia

Location	Carrying capacity
Mille quarantine station in Afar region	Cattle 18,000, shoats 10,000, camels 2,000
Jigjiga quarantine station in Somali region	Cattle 18,000, shoats 10,000, camels 2,000
Metema quarantine station	Cattle 18,000, shoats 10,000, camels 2,000
Humera quarantine station	Cattle 18,000, shoats 10,000, camels 2,000

Source: MoANR/MoLF.

6.3 Agricultural research and extension

Some of the government and public research and extension institutions that were established during the Imperial regime still exist today. For example, the Institute of Agricultural Research (IAR) which was established in 1966[67] exists but retuned to address the federal administration system of the day. During the Imperial and Derg periods one central IAR was catering for the generation, development and release of agricultural technologies (variety, breeds and improved crop and livestock husbandry) through research stations and substations established in different parts of the country.

Today the Ethiopian IAR (EIAR) work on research programs/commodities that are broad based via different federal research centres. Regional state governments have also their own regional agricultural research institutes (RARIs) which focus mostly on research programs and commodities, which are more specifically of interest of the region. There was no unique institutional arrangement to address the small ruminants' value chain, except the few research centres (Sheno and Jigjiga) in the agricultural research system. Same is true about the agricultural extension system institutional set-ups and dynamics.

According to Kassa (2008), the beginning of agricultural extension system goes back to 1890s. Since then the agricultural extension system in Ethiopia has gone through several stages of reorganization as a result of the

64. During the review process the discussion at MoLF indicates the staffing situation is highly improved but attrition rates are escalating.
65. Existing institutional capacity limitations for the implementation of GTP II for agriculture sector: assessment report by Demese Chanyalew, Getinet Gebeyehu and Hussien Bekele, MoANR, commissioned by the Synergos Institute Ethiopia Office, February 2016 (unpublished report).
66. According to Mitiku Gobana, unpublished data, in the four regions of Tigray, Amhara, SNNPR and Oromia, there are about 93 designated domestic livestock market routes as of 2016.
67. It has been documented that agricultural research in Ethiopia dates back to early 1950s with the establishment of Bishoftu Central Experimental Station, the current Debre Zeit Agricultural Research Center (Hamito 2004).

emergence and expansion of higher education and research institutions, as well as the separate government sectoral structure catering for the agriculture and natural resources research, extension and development activities. Kassa (2008) also documented that the formal and contemporary agricultural extension institutional arrangements started in January 1943 after the Imperial government established the Ministry of Agriculture as a separate ministry.

Immediately, the MoA began establishing demonstration farms to test the suitability and adaptability of more productive temperate breeds of cattle, sheep and poultry. Concurrently, the formal institutional arrangements were also linked with the start of agricultural colleges in the 1950s. The present Haramaya University, when it was established as the Imperial Ethiopian College of Agriculture and Mechanical Arts in 1953, was accorded to three-prolonged responsibilities: education, research and extension. As of 1991 the FDRE has only one university.

Today there are 35 public universities and 58 private universities and colleges[68] which also formally or informally work on extension, in addition to the education and research undertakings. The number of public universities is expected to be 46 by the end of the GTP II period. Twenty-six of the public universities have agriculture, natural resources and/or veterinary faculties or institutions. The establishment of these and in some cases the whole university seems to have agro-ecology orientation. For example, the establishment of Jigjiga and Samara universities, in Somali and Afar regions, respectively, is primarily to address the research and development needs of the pastoral and agro-pastoral areas, which is the arid and semi-arid agro-ecology of Ethiopia.

The various research, extension, development, marketing and trade interventions have been organized and facilitated by institutional arrangements that exist from federal up to woreda levels. ATVETs, as well as farmers/pastoralists training centres (FTCs/PTCs), and recently the kebele management are the centrepiece in the regional institutional arrangements. The ATVETs existence has been a subject of review as the growth and transformation plans need change. The ATVET curriculum was first introduced in September 2000 in 28 ATVETs located across the country. In 2001, the number was reduced to 25 (Davis et al. 2010).

Farmers research groups (FRGs)[69] and agricultural development partners linkage advisory councils (ADPLACs) have remained key institutional arrangements in the livestock research to consumption systems setting. FTCs/PTCs as well as ATVETs did play big roles in facilitating for and availing the required human and non-human resources for the functionality of FRGs and ADPLACs.

FRGs and ADPLACs are registering different performance in different regions. In some regions there are woredas that have good relationship between farmers and research through FRGs. FRGs, in some regions are considered as the public wings of the agricultural research system. They are strong arms of applied research. They have been useful in promoting 'research for development'. ADPLACs are the councils formed to strengthen the partnership and linkage platforms of various actors in the agricultural development process. Table 13 presents its predecessors, RELCs and REFLACs. ADPLACs function at federal, regional, zonal and district levels all over the country. Research institutes are not expected to be part of the *woreda* ADPLACs, since they do not have that level institutional representation or a means to provide representation at *woreda* level.

Table 13. ADPLAC and its predecessors

Linkage mechanism	Starting year	Focus	Major actors	Administrative layers
Research–extension liaison committees (RELCs)	1986	Technology transfer and adoption	Research, extension	National, zonal level
Research–extension farmers linkage advisory councils (REFLACs)	1999	Technology transfer, adoption and feedback	Research, extension, farmers	National, regional, zonal level
Agriculture development partners linkage advisory councils (ADPLACs)	2008	Collaborative learning and innovation	Research, extension, farmers, policymakers, private sectors, civil societies	National, regional, zonal, district level

Source: MoANR.

68. Ministry of Education, education strategy centre www.esc.gov.et
69. FRGs and FREGs can be used interchangeably. The E is for extension. In the field most researchers express views using FRGs while development workers, agricultural extensions experts, prefer FREGs.

Overall, the role of FTCs/PTCs as entry points for innovative, entrepreneurial ventures and improved technologies, both in crop and livestock agriculture has been substantial. FTCs/PTCs are located at kebele level and expected to function with demonstration sites. The kebele is the lowest level of government set-up with its own institutional arrangements. All economic sectors implementing agriculture and rural development policies and strategies in one way or another are represented by some form of institutional arrangement at kebele levels. At kebele level the newly emerging kebele management portfolio, development groups (DGs), the one-to-five (1–5) networks are parts of the institutional arrangements in the sector. Recently DGs and 1–5 networks have become key institutional arrangements for access to technology, learning and knowledge exchange at grassroots level.

6.4 Development partners and non-governmental organizations

The discussion of institutional dynamics of the agriculture sector remains incomplete without addressing the place and roles of bilateral, multilateral institutions including the CGIAR, the United Nations (UN) agencies, as well as NGOs. These institutions often play professional and evidence based roles in the formulation and implementation of Ethiopia's agriculture sector policies, strategies, programs and projects. The CGIAR member institutes are members of the National Agricultural Research System (NARS) too. Almost 15 of the CGIAR centres/institutes are present in Ethiopia most having their offices in the ILRI campus.

The FDRE government and development partners (DPs) are using the Development Assistance Group (DAG) specifically the Sector Working Groups (SWG), like the agriculture sector, Rural Economic Development and Food Security (RED&FS) SWG, to address issues of development projects formulation, harmonization and alignment. With the MoFEC leadership, DAG covers issues of an inter-sectoral nature that need to be aligned and harmonized using such SWGs.

The RED&FS SWG was formally established in April 2008.[70] About 20 development partners, mostly from North America and Europe,[71] support RED&FS and it receives a quarter of all aid provided by DAG members. There are also projects that are supported by the traditional donors coordinated by the MoANR and MoLF DAIs, such as the planning and programming directorates (PPD), ATA and EIAR. Overall, under the leadership of the government of Ethiopia, RED&FS SWG has evolved to provide a platform for dialogue between the government and its DPs with the goals of defining development priorities and harmonization of development investments in order to achieve the objectives of CAADP, the SDGs, GTP I and GTP II and other agriculture related investment programs.

The platform is basically designed to promote effective communication, coordination and harmonization of development programs in order to maximize resource effectiveness. Apart from the broader platform, RED&FS SWG has four institutionalized subcomponents or pillars addressing development programs/projects in disaster risk management and food security; sustainable land management; agricultural growth and livestock development. Each has its own technical committees (TCs) and taskforces (TFs). Since most of the livestock and fishery sector interventions have been project based and the projects often are substantially externally financed, the institutional arrangement that was led by the RED&FS secretariat was significantly important (Table 14). As of December 2016 the livestock sector is represented in the RED&FS through two TCs and five TFs.

Table 14. RED&FS technical committees under Ministry of Livestock and Fisheries

TC	TF
Livestock and fisheries production and marketing TC	Mixed crop and livestock TF
	Pastoral and agro-pastoral TF
	Fisheries and aquaculture TF
Animal health and feed quality control TC	Veterinary services TF
	Drug and feed quality control TF

Source: RED&FS SWG secretariat.

70. For details, refer to the RED&FS SWG, annual report, November 2008 to December 2009.
71. Other development partners like Russia, China, India and several Middle East countries; as well as some European countries which also give substantial crop and livestock agriculture development programs support are not part of the RED&FS SWG.

6.5 Cooperatives and finance institutions

In Ethiopia there are two types of cooperative institutions that are providing services for the rural agricultural communities starting at the grassroots level. These are multipurpose producers' cooperatives (MPCs) and saving and credit cooperatives (SACCOs). These have both rural and urban coverage. MPCs are expected to perform three major functions: marketing, supply and service. Currently livestock marketing cooperatives are offering small traders certain economies of scale and access to larger traders or even export abattoirs, but are challenged by a lack of business skills and, frequently, a reliance on a single buyer (AMAP/USAID 2010).[72]

Service cooperatives include organizations such as farm credit system, a network of borrower owned lending institutions that provide credit and other financial services to farmers. Credit/finance services providing institutions that reach the rural poor play tremendous role in livestock species/commodity value chain developments in Ethiopia. Rural SACCOs (RUSACCOs) are part of the broader SACCOs. In the Ethiopian context, RUSACCOs are expected to be the main sources of agricultural finance services to smallholder farmers.

The other important institutional arrangement in this regard is the microfinance institutes (MFIs). MFIs number is on rise. At the beginning of SDPRP in 2000 there were 19 MFIs. It increased to 39 by 2016 (NBE and BIRRITU 2016).[73] MFIs have played great role in the livestock species/commodity value chains grassroots level interventions. They avail financial services to the urban and rural poor. These institutions have played tremendous role in the promotion of sheep and goat as main sources of rural household income generation specifically for poor women. NGOs and some bilateral agencies funded projects used MFIs as institutions to make poor women and youth have access to credit for entrepreneurial and innovative emerging and expanding small agribusinesses.

6.6 Associations and abattoirs

Professional societies, trade associations and other private sector organizations have also played great role in the livestock sector development initiatives in the last 25 years. The key professional and trade associations are Ethiopian Society of Animal Production (ESAP); Ethiopian Veterinary Association (EVA); Ethiopian Animal Feed Industry Association; Ethiopian Live Animal Traders Association; Ethiopian Meat Exporters Association; Ethiopian Meat Producer–Exporters Association as well as Butchers Association.

Private institutions particularly those involved in the production and marketing of livestock products and by-products has also played tremendous role to where the sector is today. Transportation infrastructures, expansion of export abattoirs and the likes are increasing the marketing and trade competitiveness and capacity of Ethiopia (AMAP/USAID 2010; Solomon et al. 2014). Specifically in terms of small ruminants production for the export meat market the increased role of export abattoirs has been noticeable. As of December 2016 there were 11 lead abattoirs/companies.[74] In general, most of Ethiopia's export abattoirs are private, state of the art Halal-certified slaughter houses with livestock reception pens, automatic and semi-automatic mechanical slaughter and processing equipment, chilling rooms, air conditioned deboning facilities, packaging equipment, freezing facilities, and rendering and effluent treatment.

72. End market analysis of Ethiopian livestock and meat: A desk study, micro report # 164, May 2010 supported by the Accelerated Microenterprise Advancement Project (AMAP), funded by USAID.
73. National Bank of Ethiopia (NBE) Quarterly Bulletin, Fourth Quarter 2015/16, Vol. 32, No. 4, Addis Ababa, 2016. BIRRITU, No. 122, October 2016.
74. Helimex export abattoir Ltd; Elfora agro-industries Ltd; Modjo modern export abattoir; Luna export slaughter house Ltd; Organic export abattoir; Abergelle international livestock development Ltd; Jigjiga export slaughterhouse; Halal food industry; Abyssinia export abattoirs; Frigorifico Boran foods Ltd; and Ashraf export abattoir Ltd.

7. Gaps and challenges

The SWOT analysis gave detailed information and explanation about the gaps and challenges in the broad livestock sector as well as those affecting the small ruminants' value chain development in Ethiopia. Results from the analysis are reported in Annex 8. For example, the presence of broad policy frameworks like those in the RDPS as well as drafted policy and regulatory documents are opportunities to grab and maximize on. The federal and regional sectoral institutional arrangements, and the failure to align and harmonize DPs and NGOs resources with regular sectoral development programs are among the threats to attain to.

Policy, regulatory, as well as strategy and institutional gaps and challenges that required a relatively detailed explanation are discussed below. The issues or topics covered are listed in Table 15. The discussions reflect more on the weaknesses, the opportunities exist and the threats to be attained too. Most of the previous sections discussions on policy/regulatory, strategy as well as institutional arrangements reflected on the exiting situation can be considered part of the strength existing in these dimensions, i.e. policy/regulatory, strategy and institutions.

Table 15. List of elaborated policy/regulatory, strategy and institutional gap or challenge issues/topics

Policy/regulatory	Strategy	Institutional
Land use policy	Modernization and commercialization	The structure of MoLF
Livestock policy	The strategy and principle of integration—MoLF with MoANR	Intra-sector coordination and linkage
Small ruminant value chain policy	The strategy and principle of integration—MoLF with the manufacturing sector	Inter-sectoral coordination and linkage
The continuous neglect of the livestock sector in the policy review processes	Livestock extension	MoLF and ATA
NGO and CSO written versus actual implementation policy	Strengthening FTCs/PTCs	The commercialization and commodity cluster approach
Policy neglect of real transforming agents—SCFs	Livestock marketing and cooperatives	FRGs and ADPLACs
Policy for structural shift	Agricultural finance—MPCs, RUSACCOs and MFIs	Research system linkage and coordination
The policy of attracting FDI and finance	Private large-scale production, marketing and processing	Research and extension linkage
Interface policy	Public–private partnership	Projects alignment and harmonization
	Livestock and nutrition security	Capacity to utilize project finance
		Woreda dichotomization
		Coordinating DPs and NGOs resources

7.1 Policy and regulatory

Land use policy: From among natural resources, the discussion with key informants, the frequently mentioned policy challenges revolve around land use. The country has land policy which makes ownership under the state and peoples and also a policy for administration and use of land. However, the existing policy instruments like the land use and administration proclamations of the federal and regional state governments are not adequate to cater for land needs in the livestock sector development both for feed and animal production. Attempts have been made to solve the problems associated with livestock resources development in the land use policy after the launch of the sustainable land management framework in 2008 (MoARD, SLM 2008).

But still no significant policy change has been observed. In the production area, though the policy of the government allows the establishment of ranches, the lack of clear land use policy remained a challenge to expand ranches. Ranches are land and capital intensive. Besides land for animal farming, land is a critical input to build different infrastructures from farm up to processing. Land is the basic input for domestic and export markets infrastructure development. All these make land use policy a key policy area for review in order to harness the economic potential of the livestock sector in the economy in general, and for those whose livelihood is heavily dependent on livestock, in particular.

Livestock policy: At the time of undertaking this review assignment there are some livestock professionals which argue that Ethiopia has no livestock policy. Similar positions are also reflected in recent studies. For example, Dessie and Mirkena 2013 argued that there has been no real policy for livestock and hence representing significant obstacle to effective development of the sector. They also argued that livestock production and productivity are hampered by absence of breeding policy and planned breeding programs in addition to other technical constraints. Others recognized the presence of policy and regulatory frameworks, some at the stage of draft proclamation or regulation stages, but informally referred to guide the sector's policy and regulatory debates and actions (Gizaw et al. 2010; Legese and Fadiga 2014).

Though specific policies such as the breeding policy are not in place, in this review exercise we found out documents such as the RDPS 2003 encompassing broad livestock resources development policies covering breeding, feed and health services. But the policies are not compiled and officially published to guide the different actors' role in the livestock sector. They are not also supported with legislations. According to Legese et al. (2014) though the RDPS and PASDEP documents contain elements of a breeding policy, the policy statements often do not address specific value chain issues and in rare cases where available, lack clarity (Legese and Fadiga 2014). Gizaw et al. (2010) argued that although some policy/regulatory frameworks are put on paper, in reality they are not supporting farmers (small ruminant) to reap their share of the market benefits.

It is important to note here that in addition to the breeding policy, which has been at the draft stage for more than a decade, the following draft proclamations and regulations also exist:

- Proclamation for animal health welfare and veterinary public health (draft, text in Amharic)
- Proclamation for the establishment of veterinary statutory body (draft, text in Amharic)
- Animal disease prevention and control legislation (draft, text in Amharic)
- Regulation to regulate veterinary profession and para-profession (draft, text in Amharic)
- Import and export regulation (draft, text in Amharic)
- Regulation to regulate primary livestock products (draft, text in Amharic)
- Regulation to regulate veterinary laboratories (draft, text in Amharic)

Small ruminant value chain policy: Though the presence of general livestock policy and specific subject matter policies is controversial it is possible to claim that there is not even a draft policy designed to guide the development of the small ruminants' value chain in the country. Spontaneous treatment of sheep and goat is common in the formulations of policies and regulations either as a species or commodity in documents addressing the meat, dairy, hides and skins production, trade and marketing issues.

The continuous neglect of the livestock sector in the policy review processes: There are claims that since the launch of RDPS the FDRE government did not take measure to review the policies and strategies of the agriculture (crop and livestock) sector. This indeed is erroneous. In section 4 of this report it was highlighted that policy and strategy reviews have been made in the preparation of the successive five year plans. Besides the government have been formulating additional new policies and strategies as part of the preparations of these plans. Whether the reviews and new formulations are adequate can be a subject of discussion and debate. Besides, various external supported programs, projects, international as well as continental agreements and conventions have also been the causes for policy reviews.

In all these processes, the gap is that again the livestock sector is the most neglected sector in the review process. Some argue it is because of the dominance of crop agriculture in the pre MoLF federal ministries as well as BoA/BoLF DAIs, programs and projects. This should have been corrected when the new ministry, MoLF, is imparted. Available information indicates MoLF is established as part of institutional reform without a policy and strategy review.

Some key informants suggest the assumption is that the new MoLF will take the finalization of the draft policy frameworks (proclamations and regulations) immediately in order to streamline the sector species and commodity based development programs and projects. In a year and half of its existence, however, this did not happen. This indicates the sector is indeed confronted by challenges to win the attention of top policymakers in the government cabinet or the parliament when it comes to livestock policy reviews or formulations.

NGO and CSO written versus actual implementation policy: In the agriculture sector policy and strategy reviews NGOs, Civil Society Organizations (CSOs) and professional societies have a stake. But often are considered as token stakeholders. That is stakeholders without a space to undertake policy debate and voice in policy formulation and review. This negates the GTP II period written policy and strategy position of the GoE. In the GTP II subsection 7.2.1 which deals with strengthening people's participation, the following is written:

'…The contributions of professional associations and mass-based associations to the development and democratization processes of the country will continue to be promoted. The role of non-government charity organizations in the country's development will also be encouraged and supported. Capacity building support and follow-up will be given to these organizations to ensure that they all operate according to the Charities and Societies Law of the country. Conducive environment will be created to ensure the exercise of constitutional rights of professional associations to enhance the participation of intellectuals and professionals in the development and governance processes of the country. Capacity building and support will be further strengthened to ensure their freedom of association. In addition, capacity building and support will be provided to mass based associations particularly for youth and women associations and business associations to enhance their contribution in the democratization and development processes….'

The policy and strategy positions contained in the above extract when looked in paper are reasonable and non-constraining. The above being the written policy and strategy stance of the government on CSOs and NGOs, still it is not uncommon when members of the CSOs and NGOs get together, either at their annual conferences or workshops organized for different reasons, that they do complain about the policies and strategies the government has put in place. They believe they are squeezed out from the policy formulation and review process. Furthermore, there is no clear policy on how they can be coordinated and integrated to work with the government's regular development DAIs and programs/initiatives. Their plans and engagements are not regularly known, analysed and coordinated with that of the government and public institutions. More on this is also written later on in the institution subsection.

Policy neglect of real transforming agents—small commercial farmers (SCFs): The policy and strategy choices to achieve agriculture led industrialization that assume intra- and inter-sector changes should not be revolving only on a choice of having small or large farms to promote agriculture economy transformation (Collier and Stefan 2009) but on the dynamics and different levels of farms configurations. This requires a policy that endorses and supports SCFs as lead transformation agents within agriculture and the transformation from agriculture to industry based economy.

The growth and expansion of small and micro-enterprises in rural agricultural areas are heavily dependent on the performance of SCFs in crop and livestock subsectors. At present, most of the emerging millionaire farmers' fall in the category of SCFs, but their growth seems to be dragged. Indeed the recognition of SCFs as transforming agents embodies a policy change challenge. The required policy and strategy change, for instance, calls for a land use and administration policy review. A review that should give way for the SCFs of Ethiopia become medium size commercial farmers, and eventually become the lead developers and owners of large-scale farms. All model farmers may not be millionaires. But model millionaire smallholder farmers should be guided to re-invest their incremental gains from agriculture in medium- and large-scale beef and dairy cattle or SRs and other animal production related enterprises.

Policy and strategy changes that encourage the emerging millionaire model farmers to re-invest in agriculture, including in farming, instead of buying Isuzu or opening a disco house in rural woreda towns should be in place. Farmers, pastoralists and agro-pastoralists owning Isuzu for tracking business or hotels and night clubs in rural woreda towns has done nothing wrong in a growing tourist industry led economy. But the trend may become hazardous to bring sustainable change in the crop and livestock agriculture sector that is expected to lead the transformation process to industrialization by home grown large-scale farm and non-farm agricultural enterprises.

Policy for structural shift: The above call for policy attention to the emergence and growth of SCFs is also linked to policy interventions to expedite structural change within the sector as well as economy wide. Without making the dynamics of farm structure changes led by Ethiopian smallholder commercial farmers, Ethiopia cannot easily transform and reach to its ambitions of industrialization by agriculture led interventions. At present Ethiopia is in a policy and strategy dilemma of making agriculture register intra-sector structural changes measured by changes of farm structures in all dimensions of need: farm size, employment intensity and value additions.

Bringing agricultural transformation requires farm structure changes in size that gives incremental advantages of economies of scale and scope. This cannot be done solely by importing investors on large-scale farming or few local investors which do not have a footing in the agricultural practices and indigenous knowledge of the country nor the science of agriculture. The emerging and expanding SCFs are the agents of such change but are ignored by policy and strategy makers.

Here it is important to note that recently the economy is showing a slight structural shift from agriculture to non-agriculture when looked at from the percent share of different sectors from GDP. The decline of agriculture's share from GDP can be expedited if agriculture itself gets modernized and commercialized with intra-sector productivity rise. But agriculture still did not get appropriate attention and support for modernization and commercialization at different scales: small, medium and large. The GTP II policy directive is focusing on the promotion of modern and commercial agriculture led interventions with the right transforming agent, i.e. SCFs in the various subsectors of the sector. However, these farmers need urgent and real support in terms of policy that usher consolidation as well as access to investment land at federal and regional levels.

The policy of attracting FDI and finance: The above should not be a substitute for attracting and encouraging foreign direct investments (FDIs) in farm and non-farm activities of the agriculture sector. The policy on FDIs attraction, however, should be cognizant that the outsiders coming via FDI initiatives may bring technologies and new know-how but the domestics will create a sustainable farming with indigenous knowledge complemented by affordable and indigenously growing modern and commercial farming which eventually buy and adapt to new technologies.

Indeed FDIs in the livestock sector farming to processing businesses shall be encouraged. But, the expansion of modern and commercial farms in Ethiopia should be led by domestic farmers who happen to know how to make it but

need support to acquire additional land and finance for expansion or embark on mechanized and modern equipment engaging farm practices. They should be given strategic guidance and support to move to middle- and large-scale farmers. Only this strategic approach give guarantee for a healthy and sustainable farm structure shifts within the country. All this need sound and pragmatic land and finance access and use policy.

Interface policy: Existing broad livestock sector policies and strategies or the policies and regulatory frameworks that are in the preparation process need to be revisited for sectoral and subsectoral programs and projects interface with the industry policy, industrial development and the CRGE strategies. The manufacturing industry target clusters like leather and leather products; meat, milk and honey; and agro-processing industries require sound interface policy. The strategic directions and development targets set for these clusters call for a strong linkage policy that captured the complexity of the system that goes from the rural agricultural household up to the final domestic and international users or consumers of Ethiopia's livestock sector products and by-products.

As pointed out earlier, the existing policy frameworks are fragmented and documented in agriculture, trade, industry, and water sector policy documents with no clear statements on linkage and integration in handling specific species/ commodity value chains. This requires a thorough assessment of the relevant value chains in all aspects of the three dimensions, i.e. policy, strategy and institutions.

7.2 Strategy

Modernization and commercialization: The major strategic gap and challenge in the agriculture sector of today's Ethiopia revolves around the failure to comprehend the transition from subsistence to modern and commercial agriculture. Modernization and commercialization of Ethiopia's crop and livestock agriculture with clear and consistent strategies of support to SCFs is important direction to follow but so far not done efficiently and effectively.

As highlighted in the previous sections strategies to make smallholders agriculture market oriented, commercial and modern have been set in successive five year development plans (Chanyalew 2012). GTP I included fundamental strategic changes including the strategy of promoting smallholder commercial agriculture, which actually was not well understood by implementing DAIs within the sector and as a result remained unimplemented. This strategy literally vanished from the GTP II document. Partly this shows inconsistency in strategy formulation and also the challenges in implementation by reorienting existing DAIs to new strategies.

The failure to implement the GTP I strategy of promoting smallholder commercial agriculture, however, did not prevent the GTP II designers to write about modernization and commercialization with conditional strategic thinking such as joint undertakings between farmers, jobless but educated youth and investors. While introducing this strategic direction, the GTP II implementation started on the strategy of creating modern and commercial agriculture without clear and explicit strategy for supporting emerging and expanding smallholder commercial crop and livestock farmers. Most of these farmers are SCFs. These farmers at present have an average land holding of one to five hectares, mostly in the highland mixed crop–livestock system, producing more than 75% of the annual marketable crops for profit as well as dairy and meat products.

The term profit is deliberately inserted because there is also a fallacy and a failure in strategic thinking which is currently assuming that the smallholder commercial farmers, with holding sizes of less than five hectares are not profit motivated. The notion of commercial farmer and some working definitions of Central Statistical Agency (CSA) seem to focus on licensed, business type farm establishments excluding the many smallholder farmers, particularly those which are refereed as SCFs.

The fallacy deepens when looked at the recent CSA survey on commercial farms (CSA 2015). In the 2015 survey, CSA states that a commercial farm is one which is certified. Specifically, in the survey report it is stated that commercial farms are:

'certified (legally established) farms owned/operated by government, private investors, and/or shareholders, which are profit oriented large- and medium-scale farms. These farms relatively use capital intensive, mechanized and market oriented farming system, as well as modern farm management practices and inputs such as irrigation scheme, fertilizers, pesticides . . . etc. to attain high productivity per unit of area.'

In the same report, it is stated that in Ethiopia, however, due to various reasons, commercial farms are not widely spread, and as a result of which the contribution of these farms to the country's gross total agricultural output is limited only to about 5%. Over 95% of the annual gross total agricultural output of the country is generated from the private agricultural holding.

In short the policy review to support and guide SCFs in the establishment of modern and commercial agriculture in Ethiopia has to start from the understanding and characterization of the SCFs. It calls for a revisit of the definition and statistics of CSA on smallholder commercial farming or non-farm agricultural enterprises. It requires accepting the possibility that commercial large-scale farms, for that matter non-farm agricultural enterprises, can emerge from small farms in the process of growth leading to medium- and large-scale modern and commercial farm and non-farm enterprises in agriculture. SCFs are the pull–push bondages of rural agricultural and rural non-agricultural economic transformation dynamics.

The strategy and principle of integration—MoLF with MoANR: Integrated approach is still strategy challenge to address interface development interventions of crop and livestock agriculture. As the income of citizens' increase their demand for livestock products and by-products increases and this in turn put a pressure on animal feed and nutrition. Crop production will not be only for human consumption but also for livestock. In this dynamics the integration between the crop and livestock sector in the maize, wheat, oil crops value chains is a must. Any institutional reform cannot avoid this reality and hence the strategy and programs designed by the sector institutions should embrace the principle of integration without commotion.

At present, MoANR and MoLF are focusing on the production of sector specific commodities one giving little attention on what the other is doing. Being cognizant of the fact that Ethiopia's agriculture led economy is growing rapidly the two ministries need a strategy that enhances integration between crop and livestock programs and projects. The rapid economic growth and the subsequent increase in per capita income are expected to have an effect on the demand for livestock products and by-products in the domestic market. It will also put pressure on the competitiveness of such products and by-products in the international market. The increasing demand domestically may put pressure for food commodities shift to animal feed and also affect export prices negatively. This requires a strategic approach that makes the crop and livestock experts work together for same goal.

The strategy and principle of integration—MoLF with the manufacturing sector: The GTP II volume I: main text, section 4.2 deals with strategic directions which clearly states the success in the growth and transformation of the manufacturing industry sector will remain dependent on, among others, the strength of the linkages between agriculture (crop and livestock) and industry. Hence, enhancing the linkage between these two sectors is a strategic interest for success in the manufacturing industry.

Oqubay (2015, 197) wrote that the linkage between agriculture and manufacturing is weak and may even be considered as a major cause for the leather and leather products industry poor performance. If MoLF and the corresponding regional bureaus and agencies leadership and development workers in different DAIs and levels are not considering the strategic interests of the leather and leather products industries and agro-processing, then the manufacturing industry may be constrained by supply side factors. Similarly if those DAIs in the manufacturing industry sector ignore the works of DAIs in the agriculture sector and sit for annual, for that matter multi-year, plan by assumptions on the supply side then their efforts remain merely paper work. They cannot achieve their sector's GTP II objectives. All has to comprehend the GTP II encompassed industry development strategy areas which are focused on leather and leather products, as well as meat, milk and honey industry. Box 1 highlights the expectations of these two industries.

Livestock extension: Despite the GTP II strategic directive of 'expansion' cum 'scale-up', the MoLF seem to have no extension strategy. Even the recently launched 'Ethiopia's agricultural extension strategy' (MoANR/ATA 2017) gives little emphasis to livestock sector by design as well as in its section explaining implementers and implementation modalities. Except few cases of individual experts efforts of scaling up of best practices and technology uses, the extension system is not well set both strategically and institutionally in the MoLF to promote livestock and fisheries technologies and advisory services. The FTCs/PTCs are not doing different from what the farmers are actually doing when it comes to improved livestock husbandry. In general, there is deficiency in the sector's strategic approach to establish prudent extension system which encompasses interventions that improve existing challenges at grassroots extension institutions such as FTCs/PTCs.

Strengthening FTCs/PTCs: FTCs/PTCs, if equipped and demonstration farms (DFs) attached, are key instruments of growth and transformation within and outside the agriculture (crop and livestock) sector. FTCs/PTCs weaknesses have been raised by some key informants and also reported by recent project completion studies. As it is today, FTCs/PTCs have several weaknesses and gaps. Even for the crop sector, which is relatively less land and capital intensive compared with the livestock sector, most FTCs/PTCs are at dysfunctional state. At FTCs/PTCs level the livestock sector requires spacious land for demonstration, clinics and laboratories as well as finance for procuring improved breeds, feed and animal health services.

There are key informants that argued FTCs/PTCs problems are not in making them practically functional but at the conceptualization stage. The wrong conception and assumptions have made them remain weak despite the federal government effort to support their capacity building through projects such as RCBP, AGP I, as well as the ongoing AGP II. For example, the assumption that land will be available and specifically voluntarily availed by farmers throughout the country where FTCs/PTCs are to be established is a wrong one. Even in areas where land was availed mostly it was marginal land. Looking at the agriculture GTP II, similar design fallacy can be depicted. In the second phase agriculture growth project (AGP II) components there is a plan to introduce land based change inducing intervention. The reality is in most intervention FTCs/PTCs there is no demonstration field (DF) for technology and innovative entrepreneurial intervention.

All these do not make the very first question on conceptualization of FTCs/PTCs answered. Can a given FTC/PTC exist without a DF? If yes, then how? Such questions were not raised then, and even at present, by those who are supposed to make studies on systemic problems and strategic fallacies. Some argue, if the government cannot push farmers allocate community land for demonstration farms, and that this assumption is failing, then the system has to gear to the use of farmers' plots with some arrangements for technology and improved agricultural practices promotion purpose. This in turn needs a cautious move to address the complex and highly land and capital intensive improved technology and husbandry promotion of the livestock sector.

It is important to note that there are those who challenge the views expressed above. The challenging views are mostly based on results instead of resources availability, including land for DF. Though there is no doubt about the need for resources to strengthen FTCs/PTCs, even if this is fulfilled unless the DAs are committed to work and has the self-energized desire to innovate, the resources put in place will be wasted and infrastructures debilitated. They substantiate their views by giving some examples of what has been seen in the last decade. In places where committed and dedicated DAs are present even with the existing resources, and in some areas with no DFs, they have made differences, and make the farmers gain positive changes. This argument is in line with the strategy thinking debates of the 1990s, which revolved around the resource based vs. capability and competence augmenting strategies for development and transformation (Segal-Horn 2004).

Livestock marketing and cooperatives: The FDRE government cooperatives movement policy and strategy framework put in the RDPS document includes that neither a meaningful agricultural development nor an efficient agricultural marketing system could be materialized in Ethiopia without having a visible breakthrough in the development of cooperatives. It also recognizes that cooperatives shall also render vital services other than those related to agricultural marketing, including:

- expanding financial services in rural areas;
- purchasing agricultural machinery, equipment and implements to be leased to farmers;
- setting up small agro-processing industries where processed agricultural products with greater value addition could be produced; and
- establishing social institutions to provide various social services.

With this understanding the strategy of prompting MPC and RUSSACOs has continued in PASDEP, GTP I and the ongoing GTP II. During the GTP I a review of strategy was also made.

A revised EPRDF government agricultural cooperatives sector development strategy was published in June 2012, covering a strategic period of 2012–16. This revision did not bring change as expected and hence the government continued to make reforms to guide and strengthen the cooperative movement. Recently the Federal Cooperative Agency (FCA) led policy and strategy review has been made and as a result new proclamation enacted by parliament. The regulation is under preparation. Despite such efforts livestock marketing development projects like the LMD/ USAID seem to face challenges to work with livestock marketing cooperatives. The few livestock specific cooperatives are weak in terms of management, finance, and business know-how and most of the MPCs are mainly involved in grain/coffee marketing and agricultural input supply functions and very little with species and commodities of livestock resources marketing.

Agricultural finance—MPCs, RUSACCOs and MFIs: Agricultural finance is a determinant factor for the successful rural agriculture led transformation of Ethiopia's economy to be a middle-income, industry-based by 2025. Credit provision is one of the services that need urgent and prudent attention. The debate on whether Ethiopia has a national agricultural finance system is unsettled. Some argue that there is and others argue there is no agricultural finance system that is serving the sector. As it is today the proponent of no national agricultural finance system particularly to support SCFs and in terms of scale seem to weigh more in their worry.

Specifically, in spite of the efforts made to introduce and promote RUSACCOs, there is no organized or structured agricultural finance system put in place so far to handle or take care of problems of emerging and expanding SCFs for credit. In different regional states, the efforts made so far have been to overcome such problems by promoting RUSSACCOs and MFIs. In spite of this smallholder farmer in general and SCFs in particular are not getting adequate, appropriate and timely agricultural credit services. RUSACCOs, MFIs and development and commercial banks have not been able to fulfil the increasing and diversified financial needs of farmers, in general, and SCFs, in particular.

Commercial banks in Ethiopia have not provided directly (although government collateral arrangements are taking place) financial services to smallholder farmers. There are views that a possible strategic change will be to review the existing institutional rearrangements, like creating an integrated MPC and RUSACCO service delivery scheme, where both are weak operating separately but can take advantage of scale and size economies when integrated with appropriate mechanisms to administer and allocate available human, physical and financial resources.

Private large-scale production, marketing and processing: The other strategic challenge is the promotion of the private large-scale livestock production, marketing and processing enterprises. The road to industrialization could be smooth if the policies and strategies focus on a transformation process led with commercial and modern agriculture. This transformation requires an enhanced private sector investment with the government's timely and appropriate interventions to facilitate access to resources, such as land and finance, as well as to promote products produced in the commercial and modern sector to get domestic and international markets. These are part of the foundations for the growth and expansion of modern agro-processing industries.

Both GTPs I and II gave strategic emphasis to the encouragement and support of the private investors, including investments in modern and commercial ranches or livestock large-scale farms that can also utilize out-growers scheme. The pertinent integration principle, captured by subsection 7.3, of RDPS, is the promotion and use of production contractual relationship that encourages the emergence and expansion of out-grower producers. The

out-grower scheme is encouraged and expected to be based on contract farming whereby the contract farmers make a contractual agreement with the investors who supports the farmers to produce surplus and sell the surplus back to them.

However, the caveat in this regard is that the contractual relationship could and should mainly be a major strategy on the highlands of the country where there is high population density. In this area, the investors can pull the amount of land they need to produce crop or livestock products, without evicting the farmer from their land. In the lowlands of the country where a large amount of land is available for modern farming, the out-grower contract is seen no more than a support system. Ranch investors can be beneficiaries of such support system.

Here the challenge, however, according to some key informants is that the policy and strategy is not clear in terms of the specific instruments to support the emergence, growth and expansion of domestic private investors. Secondly, it needs further refinement to attract foreign investors via joint ventures or stand-alone companies. It is important to emphasis here about the strategy of promoting out-growers scheme but without evicting the farmer from their land. Thirdly, even as it is today, the strategy of out-growers scheme to promote the private sector has not been implemented properly.

Public–private partnership: It is not only the presence of the private sector that recently is becoming a focus of policy and strategy but also the cooperation and partnership between public and private sector. Public□private partnership (PPP) has been in the discussions of various forums but was not receiving that much attention till recently. In recent years, such partnership is emerging in road, transport, fuel, mineral, energy as well as in agriculture in general and the livestock sector in particular. By the time this review was at the final stage of writing, there was an ongoing study on PPP in the livestock sector.

The preliminary findings of the study indicated PPP is an option in establishing and expanding operations in the areas of quarantine centres, abattoirs, sanitary institutions, including mandates and regulatory frameworks, as well as livestock markets. This being in the process, the PPP strategy still requires clear understanding from two sides: government and private actors. The government support of the private sector and engagement in PPP business undertakings should be with a clear understanding of its own role, individuals, and corporate business entities contributions to employment creations.

Furthermore, the present movement to reform the PPP undertakings in the livestock sector shall be encouraged in the context of the out-growers strategy too. The GTP II's educated farmers but jobless youth and investors' linkage as a strategic move will be a PPP strategy complement to the out-growers promotion strategy. It also needs clear strategy on the type of support or resources the youth group get from the government or put it in share as equity.

Livestock and nutrition security: The recently emerging issue of nutrition sensitive agriculture (NSA) and the draft strategy need to be reviewed in view of the programs and activities of various DAIs within MoLF and the livestock bureaus and agencies at regional levels. The strategy still requires fine-tuning from both conceptual and application aspects. The fine-tuning shall include assessment of the agriculture sector institutions and the notion of NSA specifically in view of expected strategic, institutional and program reforms in the MoANR, MoLF, MoE, MoH and their counterparts at regional and woreda levels.

Experts working on feed and nutrition for livestock are equally important to human nutrition to build a nutrition secured society. Technically the livestock DAs role in promoting nutrition sensitive agriculture may be through the productivity and production augmentation, scale up and expand strategy of the sector. In relation to the productivity and production increase they may have to work on livestock products and by-products role in augmenting farm labour productivity.

It is not only to create awareness on the insufficient dietary effect of inadequate household food security on malnutrition but also the reverse effect of malnourishment or undernourishment on inadequate household food security due to labour productivity reducing effects. This should be done with a clearly known and shared responsibilities and duties of DAs, HEA, school teachers, and home economists or their equivalent in kebeles where they are available.

7.3 Institutions

The structure of MoLF: In the broad view, the major structural challenge in MoLF today is the absence of an explicit institutional arrangement that is responsible for extension services delivery. It has no explicit directorate catering for livestock (cattle, sheep, goat and camel) as well as poultry, fish, beekeeping extension activities. Its structure seem to ignore the role of draught animals, mostly oxen, and equines in the livestock productivity and production enhancement undertaking.

The absence of a separate DAI for SR subsector is the other noticeable organizational gap. This is despite the fact that this subsector's role in the national economy is growing multifaceted: ensuring household level food security, reducing poverty, specifically in the women and youth rural agricultural population group, as well as increasing the export revenues from sale of live animals, meat and leather products. In the absence of a formal structured institutional arrangement within MoLF, the small ruminant subsector has also experienced weak vertical and horizontal linkage among actors.

This further exacerbated the problems of shortage of feed, health, and credit services as well as exposed small ruminant traders for multiple taxation (Gizaw et al. 2013). There is no regular extension system that promotes inputs and credits for small ruminants despite NGOs efforts and results in using small ruminants to overcome problems of food security, poverty and malnutrition affecting mothers and children at rural agricultural households.

Intra-sector coordination and linkage: For integrated development approach the intra-ministry DAIs coordination, integration and linkage are critical. Coordination and linkage among the livestock sector lead institutions, mainly MoLF, BoA, and BoLF and the different DAIs are an institutional challenge at present. The animals' production, the meat, hides and skins development directorate relationship with the forage and feed directorate or with the animal health services in the backward linkage and with the marketing and trade promotion directorate in the forward linkage determines the overall success of the livestock sector. The success can be measured by improved income and standard of living of farmers engaged in livestock husbandry as well as increased contribution of the sector to the country's GDP.

However, the exploratory assessment during this review exercise indicates that today the different DAIs are busy running by their own to meet their respective GTP II plan targets. The prevailing coordination and linkage functions are weak and the little witnessed are established on personal relationships. In general the intra-ministry institutional arrangements should be well set based on studies to avoid redundancies and unwanted bureaucratic hurdles in implementing annual planned activities that call for multiple sources of expertise.

Downstream, since the establishment of MoLF, the national livestock resources development sector has faced challenges of instability in terms of actively engaging human and non-human resources at regional, zonal and woreda, as well as kebele levels. The federal level agriculture sector institutional split into MoANR and MoLF is still creating confusions in order to review and create smooth linkage and coordination of crop and livestock extension goods and services deliveries at grassroots level.

Attempts are being made by different regions to review their organizational set-up, by taking their respective constitutional rights, including the rearrangement of the agricultural (crop and livestock) public good and services providing DAIs. Some regions established separate BoLF while some others left livestock within the BoA as one of their DAIs or core process owner. Overall, there seems to be difficulty to duplicate what has been done at federal level.

As a result, gaps and challenges in implementing the different activities of the livestock sector GTP II are becoming rampant. This has also implication on resources use, including demonstration farms, at FTCs/PTCs. All DAIs and DAs ultimate move is to knock the door of the same farm household and provide packages and advices. At this level, caution is needed since the grassroots institutional set-up should not be centres of conflicts for development workers from various ministries. Besides, the presence of MoANR and MoLF in one FTC/PTC should not be a deterrence

to improve the capacities of FTCs/PTCs, specifically in terms of strengthening the logistic and physical facilities, infrastructure and machinery as well as better use of demonstration farms where available.

Some key informants pointed out that several regional experts and top management members believe that the federal–regional institutional arrangements are not set with sound linkage mechanisms and strategies in a manner where the federal is able to give technical backup and support for regional counterparts. The federal MoLF DAIs are expected to give system wide support, focusing on strategic matters, identifying policy and strategy bottlenecks, improving the capability and competence of institutions for efficient and effective use of existing natural, human and physical resources. This is not what is seen today. In most cases, the human resource situation at the federal DAIs level is not filled with experienced and top-notch scientists and technical leaders.

Often too junior, incapable and incompetent staff are appointed either as heads of DAIs or as senior expert positions at MoLF to give technical support or advice to regional experts. Most surprisingly, even these experts are not staying long in their position. They leave the ministry for various reasons, living the experience and institutional value formation in jeopardy.

Inter-sectoral coordination and linkage: The coordination and linkage within the livestock sector being one aspect of institutional challenge, while the coordination and linkage of the sector ministry, bureaus and agencies with other sector ministries, bureaus and agencies is also critical in making the livestock sector resources utilized efficiently and effectively. Sound coordination and linkage is also needed to use the value chain approaches be it on commodity and systems route.

Although the responsibility to lead the livestock resources development is given to the MoLF, this ministry alone cannot make changes and achieve the goals set in GTP II. It has to work closely with other sector ministries. At present organizational/structural as well as linkage and integration among existing sector ministries for crop and livestock agriculture, as well as with ministries for industry, trade, education, health, water and energy can be described as weak and inefficient. For example, MoLF and its regional counterpart institutes need educated and trained human capital. The primary source of such capital within the country is the institutes within MoE, particularly the higher learning institutions (HLIs). The quantity and quality of HLIs graduates in various disciplines of livestock has a direct effect on the performance of the livestock sector.

The discussion with key informants indicates that the quality of animal production and veterinary science graduates from the HLIs is under question. So far there is no clear institutional arrangement between the two ministries (MoLF and MoE) to solve this problem. Besides the MoT and MoI collaborative and integrated work with MoLF is critical both for the production, supply and use of industrial raw materials from the livestock sector. The establishment of efficient and effective livestock marketing systems and markets, abattoirs, quarantine centres and sanitary institutions are tasks which require strong inter-sectoral coordination and linkages.

Similarly domestic and export markets promotion and placing need strong inter-sectoral operational arrangements. The role of MoWIE in the establishment of modern and commercial farm and non-farm livestock enterprises, including ranches, is also tremendous. Overall the different ministries and the MoLF/BoLF need a strong linkage and coordination for their respective role in the value chains of dairy, meat, hides and skins in order to make the country's manufacturing policies and strategies achieve their goals in the agro-processing as well as leather and leather products industries.

MoLF and ATA: As indicated in the previous section, ATA is established by Council of Ministers Regulation in 2010. The regulation states that ATA '...shall be accountable to the ministry' that is Ministry of Agriculture. There is a lack of understanding of these clauses of ATA establishment and as a result, confusions seem to exist to the extent considering ATA as a parallel Ministry of Agriculture.

Since September 2015, MoA is split into two: MoANR and MoLF. This split, by its own, triggers question of lucidity about the institutional arrangement between ATA and the two ministries, both in terms of its status as a project as well as its positioning as an agency. ATA is a project heavily financed by funds generated from external sources. On the other hand, the regulation is clear that it is one of the many DAIs within the agriculture sector, formerly in MoA

and currently in MoANR. Although, ATA remains within MoANR, the recent dynamics may trigger a review of its answerability to MoLF, as well as how to make the livestock commodity clusters as instruments of the livestock sector development programs implementation modalities at grassroots level.

Indeed, the establishment of ATA has been an area of confusion for the development partners and government and public sector development workers alike. The former considers it as an institution outside the formal sectoral ministries and primarily to serve as an interface between them and the FDRE government while the later understand the proclaimed status but marred with confusion the way ATA operates at federal, regional sometimes going to woreda levels directly. Originally, it was established to create enabling environment for MoA (perhaps present MoANR and MoLF) but in practice it is involved in the implementation at woredas level.

With all this institutional gaps and challenges, one thing needs urgent attention. That is the ATA livestock directorate programs and project areas, as well as the deliverables in the ATAg need a revisit of what MoLF proper and ATA do in reality. At proclaimed mandate level there may not be that much of discernable gap.

The commercialization and commodity cluster approach: Though initially conceived and promoted by the Synergos Institute, ATA took over the promotion and implementation of the agricultural commercialization cluster (ACC) approach which is recently being institutionalized, with a lot of ambiguity, in selected regions. Broadly, the ACC approach is an emerging strategy challenge or for some opportunity in enhancing the research, extension and development actors collaborative work in the agriculture sector. In the mainstream agricultural extension systems of regional states BoA/BoLF, a different vision of cluster approach is also emerging as core extension approach to implement the agriculture sector GTP II. The approach is expected to yield high quality and quantity based results in the value chain compartments of selected crop and livestock commodities.

Whether it is the initial Synergos thought or the later MoANR promoted cluster approach, the approach has a big role not only in meeting the agriculture sector pillars targets but also those targets set in MoT and MoI. But the institutional arrangements in which the two types of cluster approaches are implemented are different and needs harmonization and sustainable formation. The cluster approach in the regular extension system is housed and lead from sector ministries and BoA/BoLF directorates. As it is today the implementation of ACC is not institutionalized and aligned with the existing federal and regional DAIs. It is run by ACC secretariats under the auspices of the regional states heads outside BoA/BoLF.

From the very beginning ACC's institutional set-up at federal as well as regional levels should be well designed, specifically in terms of its link to the MoANR and MoLF and with other ministries dealing with marketing, commercialization and processing, mainly MoT and MoI, as well as with the BoA/BoLF. Furthermore, since ATA is a project which has a remaining expected life time of 10 years, then the GTP II period shall be a period when ACC activities should be institutionalized in the regular federal and regional DAIs.

FRGs and ADPLACs: Recent project evaluation reports, including the RCBP of 2012, AGP I of 2015 and the PIF MTR of 2015, reveal linkages and coordination among research, extension, cooperatives, inputs and marketing institutions and farmers remained weak. To strengthen the linkage, their recommendations often revolve around the rehabilitation or reinvigoration of already existing institutional arrangements, including FRGs and ADPLACs. Research and extension are not jointly converging at FTCs/PTCs or where they have to meet at farmers' field level. In general, the organizational arrangement and the functionality of FRGs and ADPLACs need a review. They are registering different performance in different regions.

ADPLACs are expected to be established at federal, regional, zonal and woreda levels. But they do not exist in such arrangements in all regions and where they exist they are not functioning properly. Often at regional level at least once in a year there is some talk about ADPLAC. Sometimes, ADPLACs become hot forums and another time cool and nearly inexistent. Recently they are changing to a workshop type event making. Lack of commitment is a serious problem that members of ADPLACs are facing. Attempt has been made to make them vibrant during RCBP and AGP I projects implementation period but not made significant change.

They are not yet coming to a real institutional arrangement to help all actors in the two ministries (MoANR and MoLF) have a common base of interventions and implementation of GTP II type plans. Same is said about their existence in the ongoing AGP II period. Despite the launch of the latest Ethiopia's agricultural extension strategy (March 2017), till the end of this phase of AGP, most key informants doubt no big change will come in the extension system to benefit the MoLF operations.

Research linkage and coordination: The linkage and coordination among the institutes in the national agricultural research system (NARS) is still wanting. Coordination is weak and the coordination mechanism is still questionable. Relationship between EIAR and RARIs is weak and in some cases take rivalry type. Both the federal and regional institutes move in divergence instead of converging and divide tasks to be handled by federal and regional research centres.

Choice of comfort zone and having redundant federal and regional infrastructures to the extents of establishing research centres within a distance of few kilometres and same agro-ecology has become unbridled. Besides, the linkage between adjacent research institutes and universities is weak. It is often based on personal relations. In agriculture research, where there is still capacity limitation in terms of human and other resources as well as capability problems, the support received from CGIAR centres, according to some heads of RARIs is similarly deficient. RARIs link with CGIAR institutes mostly is based on personal relationship rather than system based. Mostly the CGIAR's link and coordinate with EIAR, while only few incidences of linkages exist with RARIs and HLIs.

The coordination and linkage problems were expected to be rectified by the newly established Ethiopian Agricultural Research Council (EARC). However, the EARC recent, 2016, national agricultural research programs and implementation directives, as well as its road map documents are not explicitly showing how the gaps and challenges facing NARS, specifically between EIAR and RARIs are to be resolved. EARC is expected to put institutional arrangements that encompass agricultural research institutes, the federal and regional, the HLI, the CGIAR and private actors in place.

But the EARC directives and road map, as it is today, seems to have no authority on resources garnering and allocation to members of the NARS (EIAR and its research centres, HLIs and RARIs). With this it may remain a toothless council. It has no specific instruments, technical or institutional, to avoid duplication of facilities and research programs. Duplications have to be avoided for efficient and effective use of resources that are available within the country. Overall, EARC still has to come up with strong coordination and collaboration ways and means.

Research and extension linkage: The linkage between research and extension (R&E) institutions still remain an area of concern. It is weak. Tesfaye (2009, 14) discussed about the emergence and role of the different extension system institutional arrangements as well as their weak linkage with the research system to enhance agricultural technology, generation, development, transfer and utilization, and make an impact to unleash the potential and resourcefulness of users. His conclusion is that there are still weak linkages between research and extension institutions today.

It is important that the agriculture research and agriculture extension system actors stop their finger pointing at one another and work closely to improve the standard of living of the many poor farmers as well as to make the country gain more from the agriculture sector productivity and production increments. Efforts have to be made to harmonize the research problem identification, technology generation, development and demonstration and utilization mechanisms used by DAIs in the agriculture sector. Broadly the linkage mechanisms among R&E institutions and programs at federal and regional levels need to be revisited and improved.

Technically, the agricultural research system strategy and program reviews and the choice of commodities as reported in the 2015 EARC strategy and road map documents need a corresponding review of the strategy and road map of the agricultural extension system. The March 2017 Ethiopia's agricultural extension strategy document has not gone to the extent of filling this gap except including statements of promoting demand driven and client oriented research.

In the revised EARC strategy and road map, small ruminants' research is not considered as a program. It is part of the meat research program. Sheep and goat research is expected to be addressed on a project base. In the agriculture extension system, the emerging and expanding cluster approach need to consider SRs as core value chain. Whether

in the ACC or the regular extension program notion of clusters, the cluster approaches seem to be driven by market demands instead of agro-ecology determined agricultural productivity and production factors. This needs harmonization with the SRs value chain technology needs (breeds and improved husbandry practices) that should be generated from the institutes in NARS. If the research endeavours in the SRs value chain is to be project oriented the strategic role of CGIAR institutes needs also a revisit. This is an area for further inquiry.

Projects alignment and harmonization: The livestock sector is highly dependent on externally financed projects. This may continue in the near future too. For effective use of external funding, however, development partners should be aware of the federal system of the country, specifically the constitutional scope of federal and regional states in making agreements and implementing the projects. At present, in Ethiopia, the institutional arrangements for externally supported projects implementation have different understandings at federal, regional and woreda levels. At any level, however, there is need for aligning and harmonizing of external development project activities with the regular development activities that are annually planned and implemented, mostly at grassroots level.

According to the discussions made with key informants, in woredas that have externally financed projects, the problems are that the projects are not coordinated, integrated as well as their activities are not aligned with the regular development interventions of the woreda offices. In some woredas, development projects come with a finance allocation cap per annum per participating woreda tied with specific conditionality of use. Often the amount set as the cap is negligible to support the capacity building needs of the woreda. In reality, what is allocated as a capacity building finance ends up not building capacity. Instead it distorts government and local administration focus from long run and sustainable interventions designing and implementation.

Furthermore, though externally financed and separately managed development projects have their own positive contributions; there are those that argue such projects are also causes of institutional instability. It is not unusual to come across DAIs at the federal and BoA/BoLF levels, as well as woreda process owners' staff resigning and joining another DAI as a project employee within the same compound or work environment for incremental salary gains and other incentives. This is contributing for regular program DAIs human resources and capability decline.

Besides, it is affecting the morale and motivation of existing staff because for the same level of education, skill, and work experience those who joined projects often paid more, both in terms of salary and allowance. It is important to note here that it is not asking for project staff to be paid less rather the incentive mechanisms in the regular system for agriculture sector should be put right. Staff free mobility to get highest pay should be allowed and on the other side the remuneration system of the sector has to work to mitigate their departure from their home DAIs.

Capacity to utilize project finance: Project midterm or final evaluation reports reveal that externally funded projects, particularly those with substantial loan component, end with huge unutilized finance in the midst of many things to be done. For example, the quarantine centres at Humera and Metema had been reported to have poor financial performance, and with this the civil works done are sub-standard. In these and other sectoral projects often the lender complains about the capacity limitations of the borrower. On the borrower side there is complaint about the attitude and willingness of the lenders, and the burdensome bureaucracy they have in implementation phase. Partly the problem is associated with lack of coordination and integration mechanisms and partly because of the donors or funders procedural requirements and specific conditionality to avail the fund.

At the end of the day, this rests on the design problem or the capacity of the coordinators and project leaders assigned from both the borrower and lender side. In general, the uses of externally funded projects as capacity gap fillers shall be seen at the design stage from the projects own capacity for implementation. This is directly related with the institutional implementation modalities. For example, AGP II document considered existing implementation institutional capacity is inadequate and a risk for unsatisfactory implementation at this phase of the project. If this is the case, the design should have been inclusive of placing pragmatic implementation capacity.

Overall, the Paris Declaration on Aid Effectiveness (2005) and its Accra Agenda for Action (2008) shall be adopted by the international community to make aid more effective and efficient. In terms of aid implementation, traditional

donors, many of them are members of the RED&FS SWG, are still preferring to use their own system for budget allocation, procurement and reporting. This is reoccurring despite the Paris Declaration on Aid Effectiveness. Most of the present day aid- and grant-based bilateral and multilateral projects, some refer to them as programs, are not aligned with the regular development programs of the country. The other reason for ineffective use of aid and grant project based funds is fragmentations. In Ethiopia, at present the aid and grant resources use is highly fragmented both in commodity or subject orientation and spatially. According to the PIF MTR 2015 report, the main feature of aid fragmentation is an increasing numbers of donors each with a small share of the total aid envelop yet numerous aid projects.

Woreda dichotomization: Projects' resource allocation on the basis of dichotomizing woredas as high and low potential based on crop productivity and production criteria has made the livestock sector grassroots level activities in highland mixed agricultural system suffer. For example, during the AGP I phase the notion of high versus low potential woredas has made the country to lose than gain from the project resources. The AGP midline evaluation report—2013 (IFPRI/ESSP 2014) reported that in the AGP woredas after the project intervention when crop yields and revenue increase, livestock and livestock products yields and revenues decreased.

Crop yield index of 13 crops grew at average rate of 8% between 2010/11 and 2012/13 while average cow milk yields decreased by about 26% for the same period. Real revenues from crop sales grew at average annual rate of 54 and 38% between 2010/11 and 2012/13, real revenues from sales of livestock and livestock products on average declined at 24 and 27%, respectively, for the same period. Supposedly, this is partly the effect of the biased woreda selection and classification as high and low potential as well as the biased crop dominated intervention which also consumed the times of livestock for crop related activities in AGP woredas. Hopefully, these will not repeat in the ongoing AGP II implementation period. Compared to AGP I, AGP II is availing relatively more resources to address development problems of the livestock sector in different woredas.

It is time that agricultural projects implementation and finance allocation should be based on the major agricultural economy (crop or livestock) of the woreda. The recent cluster approach of development intervention shows that within the so called low potential areas there are high potential commodities such as beekeeping, sheep and goat husbandry with high demand both in local and international markets. The ongoing cluster approach of the extension system or ACC may bridge such a gap and become sources of lesson to learn for non-dichotomized project designs. In general, dichotomization of woredas in external project resources allocation has to cease or, at least, stop the marginalization of livestock dominated woredas for the sake of receiving externally sourced crop based development projects.

Coordinating DPs and NGOs resources: As reported in the PIF MTR 2015, though the establishment of the overarching and coordination bodies like DAG and RED&FS is commendable, there are still institutional problems that infringe the efficient and effective use of donors' resources. The RED&FS SWG increasingly become weak as different donors are moving to their own choices of comfort zones, including project and spatial area choices. Some say there may be a serious drift in this arrangement as a result of the recent ministerial arrangements within the agriculture sector. There is no coordination mechanism to bring together NGOs for harmonized, aligned and coordinated use of their human, financial and physical resources.

8. Conclusion and way forward

Conclusion

This study was initiated to review the policy/regulatory and institutional features of small ruminants' (SRs) value chain development in Ethiopia focusing on the period from 1991–2016. The study identified and reviewed relevant documents and interviewed selected key informants on livestock sector policy, regulatory, strategy, and institutional dynamics in the country for the period indicated. Gaps and challenges are examined and reported. It also investigated the coordination and linkage issues among core systems and institutions within the sector and with other sectors.

Overall, the review assessments and findings revealed the following:

- It is hardly possible to get specific document addressing policy and strategy issues of SRs.
- There have not been specific institutional arrangements to lead and coordinate SRs value chain development in Ethiopia since 1991, even before that, except the presence of specific research centres dealing with sheep and goats productivity and production problems.
- The absence of articulated, clear and explicit policy document is not only for the SRs subsector but also for the livestock sector at large.
- There have been policy statements contained in documents such as RDPS, PASDEP and GTPs. The policies and strategies reflected in such documents are too general and with several gaps to address the complex livestock breeding, feed, animal health, as well as production, value addition/processing, marketing and trade issues.
- The policy, strategy, and institutional gaps and challenges are vividly noticeable when the value chain is examined from systems approach: linkages and coordination among research, extension, farming systems and elements and implements in the system from federal up to grassroots kebele FTCs/PTCs levels.
- In recent years, several policy and regulatory frameworks drafted to address the gaps and challenges the sector and subsectors face but not approved for official use. Particularly the SRs subsector has received insignificant attention in the institutional arrangements the livestock sector has had for decades. Even today after the establishment of MoLF, the small ruminants' value chain development efforts are dwindling having no specific institutional arrangement but treated in the DAIs addressing commodities such as meat and milk.

In general, the review exercise reveals the livestock sector at large, and the small ruminants subsector in particular needs uncompromising attention in the areas of policy and regulatory frameworks preparation and implementation and institutional arrangements nationwide: federal, regional, zonal and woreda levels. The attention accorded should commensurate with the subsector's increased contribution to ensuring food security at rural and peri-urban poor households' level particularly targeting women and youth as well as to the GDP from live sheep and goats, meat and skins export.

Way forward

To rectify the problems of paucity of policy and regulatory frameworks and appropriate institutional arrangements in the livestock sector, at large, and the small ruminants subsector, in particular, the following need urgent consideration.

i. Finalize and approve the draft livestock and specific value chain/commodity as well as thematic, such as veterinary services, marketing and export policy and regulatory frameworks. The present MoLF has to take the lead in this regard. It can do so by mobilizing domestically available public and private sector resources as well as the resources that can be obtained from development partners. Members of the CGIAR and other DP agencies may avail technical assistance and financial support to undertake such activities with the ownership and leadership of MoLF.

ii. MoLF has to start putting together the scattered sectoral and subsector policies and prepare one consolidated livestock sector policy and strategy document. Currently the country is implementing its second GTP II without a consolidated livestock and fishery resources development policy. The consolidated document shall contain different resources and issues of the livestock sector so that it can be easily referred by the different actors when needed.

iii. Policies and legal frameworks shall also be formulated to facilitate and enhance the linkage and coordination of livestock sector government, public, private and donor actors. Within the government and public sector, the linkages and coordination among ministries, bureaus and agencies, higher learning institutions, specifically universities, federal and regional research institutes have to be improved.

iv. Refine the many strategies documented in RDPS, successive five year plans and other related documents, and map the strategies with existing development programs and DAIs.

v. Revisit the institutional arrangements within the livestock sector, i.e. within MoLF and at regional bureaus and agencies. At both sides an urgent assessment of the livestock extension system institutional arrangement need to be done and appropriate improvements enacted.

vi. Devise institutionalized and in-built systems within the sector to advise top management and policymakers in the identification of gaps and challenges that require review of policy, strategy, institutions and regulatory frameworks and continuously refining provisions and practices of the whole enabling environment.

vii. MoLF has to work closely and in partnership with other ministries including MoANR, MoI, MoT, MoE and MoFPA. However, the partnership needs pragmatic institutional arrangements. It is known that there are steering committees and similar inter-ministerial arrangements. All need a revisit in the context of executing GTP II planned activities in the areas of meat, milk, honey as well as hides and skins production and processing spread in different sectors. Besides, MoLF has to set a clear functional relationship with ATA. Overall, it is time that existing inter-ministerial cooperation and institutional arrangements should be reviewed to establish pragmatic institutional arrangement which create conducive environment for all actors dealing with meat, milk, leather and leather products production to consumption systems.

viii. Establish workable planning, monitoring and evaluation (PM&E) system that brings both treasury budgeted and externally financed programs and projects in a functional, efficient and effective coordination, alignment and harmonized framework.

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Annexes

Annex 1. Sheep and goats export outlook

Year	Meat (frozen, offal)		Live animal			Hides and skins	
	Volume (net weight, kg)	Value (USD)	Quantity	Net weight (kg)	Value (USD)	Net weight (kg)	Value (USD)
2000	1,149,126	2,327,767	35,402	1,203,600	1,257,773	4,769,760	31,690,862
2005	5,546,466	11,863,570	29,373	714,770	626,513	1,003,180	2,377,683
2010	9,735,763	37,221,125	11,725	3,303,658	5,480,490	1,413,983	18,129,987
2013	11,986,684	62,474,389	420,166	12,223,393	29,031,601	140,451	2,524,828
2014	14,275,805	72,226,136	367,295	9,996,058	26,693,921	210,729	2,103,579
2015	16,951,059	88,587,829	539,220	16,855,379	39,633,156	205,530	2,070,441

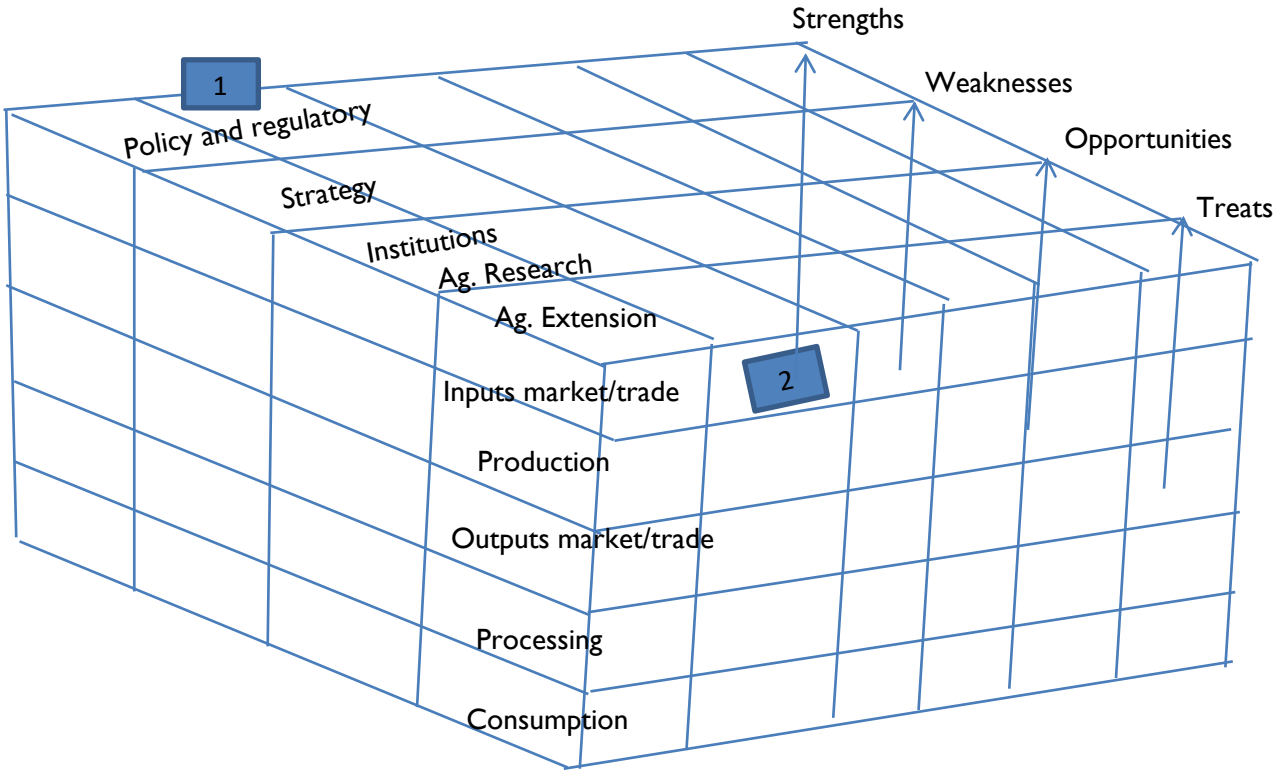
Source: ERCA, annual reports.

Annex 2. Livestock export for selected commodities

Year	Live animals		Meat		Dairy, bird, eggs, natural honey and other edible products of animals		Raw hides and skins		Leather and related (saddlery and harness; travel goods, handbags and similar	
	Quantity (t)	Sales (ETB)* ('000)	Quantity (t)	Sales (ETB) ('000)	Quantity (t)	Sales (ETB) ('000)	Quantity (t)	Sales (ETB) ('000)	Quantity (t)	Sales (ETB) ('000)
2000	12.0	1,198.1	18.8	479.9	1,180.1	20,809.0	21.2	232.8	0.1	49.2
2001	18.1	1,633.8	19.1	412.8	1,170.4	26,367.3	26.2	412.7	0.3	114.9
2002	15.2	1,559.1	14.3	433.8	1,711.3	22,957.4	6.9	148.4	0.7	149.8
2003	19.0	3,133.0	18.0	1,191.0	2,012.0	49,569.0	5.0	123.0	4.0	379.0
2004	7,317.3	39,207.7	4,412.5	71,595.5	12,207.5	3,448.8	14,638.7	548,473.3	9.7	814.2
2005	27,746.5	208,902.5	8,346.1	159,195.8	739.6	3,404.5	14,219.3	578,701.6	1.0	291.9
2006	40,517.3	296,753.2	6,814.4	151,331.4	1,139.0	5,349.4	15,964.9	675,705.3	0.5	107.2
2007	18.7	4,822.0	24.2	680.5	1,552.7	52,635.7	69.7	7,489.1	9.6	2,224.7
2008	22.0	5,391.6	20.6	1,631.7	1,789.3	82,299.1	11.9	1,373.1	4.9	690.8
2009	9.7	3,034.9	14.6	1,785.4	1,896.4	106,517.9	37.9	3,857.5	32.6	5,571.0
2010	94,356.0	1,866,738.0	13,681.0	698,455.0	3,454	42,202.0	3,253.0	947,282.0	28.0	9,018.0
2011	247,864.3	5,636,171.5	18,275.0	1,301,291.1	5,146.4	57,685.5	5,590.2	2,068,186.6	18.0	11,387.4
2012	211,171.1	5,702,715.9	15,414.5	1,300,828.6	5,146.4	57,685.5	2,643.4	1,509,595.6	116.1	52,839.8

*ETB = Ethiopian birr. On 22 November 2017, USD 1 = ETB 27.2570.
Source: CSA statistical bulletins, various years.

Annex 3. Three-dimensional policy, strategy and institutions SWOT analysis framework using systems value chain approach.



For example, box 1, entails one has to get information and data to give an in-depth analysis of the strength of the research system from policy and regulatory dimension. Or box 2 gives the institutional dynamics analysis in the agricultural extension system focusing on weaknesses. Such effort for a detailed analysis of each of the 84 boxes generated from a crossing of the three dimension variables requires time and resources.

Annex 4. GTP II implementation strategies relevant for the livestock sector

Item no.	Implementation strategy	Core components of the strategy
1	Implementation capacity building	Systems establishment [83]
		Scaling up through building well organized developmental army and technological transformation system
		Modernize the agricultural commodity exchange system
		Strengthen cooperatives through creating conducive environment to be organized and become the main actors of the agricultural marketing system
		Establish rural financial system to accommodate savings generated through the wealth being created in rural areas
		Expand while at the same time improving quality of services in the following sectors: Rural health and education service coverage, rural access road coverage, rural potable water supply, electrical and telephone access and coverage.
2	Improved crop productivity and production	Building climate resilient green economy is a key agenda across sectors in GTP II.
	2.1. Strengthening agricultural marketing and cooperatives	Modernizing the agricultural marketing system
	2.2. Agricultural inputs supply and utilization	Ensuring integrated input supply system for farmers/pastoralists, educated youths, private investors and government
		Scaling up to all regions and woredas the voucher credit system to increase agricultural input use
		Alleviating shortage of original seeds supply and providing the required supports to organizations, farmers and government seed multiplying agencies through identifying their skill and material limitations
		Expanding direct distribution system through time in all regions and areas of the country to ensure timely supply of seeds, to address the problem of long chains in the process of improved seed distribution, and to decrease the unused seeds which are transferred to the next farming season
		Supplying, in an organized manner, agromechanization inputs which contribute to productivity improvement.
	2.3. Expanding agricultural extension system	Expanding agricultural extension services to agrarian and pastoral areas via teaching, advising and providing basic training, and changing the attitudes of the farmers and pastoralists
		Building and strengthening existing training centres in agrarian and pastoral areas including providing support with materials so that they will be able to provide adequate services.
	2.4. Enhancing agricultural investment	Encouraging environmentally friendly agricultural investments Promoting private sector large-scale farming Increasing the participation of the private sector in agriculture sector Exercising prudence in attracting foreign investors.
3	Increasing livestock productivity and production	Improving the genetics of livestock
		Expanding livestock health coverage
		Enhancing service quality and control
		Improving supply of livestock feed
		Integrating implementation of livestock value chain efficiency.

Item no.	Implementation strategy	Core components of the strategy
4	Conserving and utilizing natural resources	Maintaining the momentum of public mobilization achieved in GTP I to benefit from natural resource conservation and development works
		Carrying out small-scale irrigation development and soil and water conservation works to increase agricultural production and productivity
		Integrating livestock development with natural resource development to rehabilitate the natural resources base and wisely utilize existing resources
		Laying the ground for building climate resilient green economy and to capacitate climate change mitigation and adaptation strategies.
5	Improving sustainable national biodiversity conservation and equitable benefit to the community	Carrying out activities to expand in-situ and ex-situ biodiversity conservation sites in coverage and contents
		Supplying different genetic types of agricultural crops to enhance the country's and communities' equitable benefits through strengthening sustainable conservation of biodiversity
		Controlling the movement and expansion of invasive exotic species and reduce their impact on the country's biodiversity resources.
6	Ensuring food security and strengthening disaster prevention and preparedness undertakings	Increasing the capacity of contingent food stock
		Improving the early warning system and holding sufficient stocks of non-food items for emergency
		Building contingent budget and preparing woreda risk vulnerability profile
		Strengthening the productive safety net program
		Strengthening resettlement programs
		Improving the credit system that enables to build household assets
		Establishing risk insurance system that contributes to building climate resilient green economy
		Reducing the amount and frequency of disasters occurring due to climate change through improved participation of the private sector.
7	Enhancing agricultural development in pastoral areas	Expanding potable water supply for human and livestock
		Expanding small-scale irrigation using surface and ground water
		Strengthening the pastoral extension service system
		Integrating the implementation of social service institutions and infrastructures and institutional capacity building
		Constructing access roads and bridges in selected development centres
		Equipping social and economic service delivery and start to deliver services
		Addressing implementation capacity bottlenecks in water and road construction.

83. For details readers are advised to refer to the GTP II Vol. I main text.

Annex 5. Regional livestock and fisheries organizational set-up

No.	Regions	Regional office	Zonal office	Woreda office	Kebele level
1	Oromia region	Livestock and fisheries resource development bureau (working in 233 non-pastoralist woredas)	Livestock and fisheries resource development office (appointment)	Livestock and fisheries resource development office (appointment)	Integrated approach but their technical accountability for their respective ministries
		Livestock and fisheries resource development extension core process	Livestock and fisheries resource development extension core process	Livestock and fisheries resource development extension core process	
		Animal health core process	Animal health core process	Animal health core process	
				Coordinators for the clinics as team	
		Livestock and fisheries resource development input supply core process	Livestock and fisheries resource development input supply core process	Livestock and fisheries resource development input supply core process	Livestock
		Livestock and livestock product regulatory core process	Livestock and livestock product regulatory core process	Livestock and livestock product regulatory core process	Crop
		Oromia pastoralist commission (working in 33 pastoralist woredas)			Natural resource
2	SNNP region	Livestock and fisheries resource development bureau (appointment)	Livestock and fisheries resource development bureau (appointment)	Livestock and fisheries resource development bureau (appointment)	Under the agricultural development office
		Livestock and fisheries resource development extension core process (appointment)	Livestock and fisheries resource development extension core process (appointment)	Livestock and fisheries resource development extension core process (appointment)	Livestock
		Animal health core process (appointment)	Animal health core process (appointment)	Animal health core process (appointment)	Crop
		Livestock and fisheries resource development input supply core process	Livestock and fisheries resource development input supply core process	Livestock and fisheries resource development input supply core process	Natural resource
		Livestock and fisheries feed development and utilization core process	Livestock and fisheries feed development and utilization core process	Livestock and fisheries feed development and utilization core process	

No.	Regions	Regional office	Zonal office	Woreda office	Kebele level
3	Amhara region	Livestock and fisheries resource development and promotion agency (accountability for agricultural development bureau)	Livestock and fisheries resource development and promotion office	Livestock and fisheries resource development and promotion office	Under the agricultural development office
		Livestock and fisheries resource development extension process	Livestock and fisheries resource development extension process	Livestock and fisheries resource development extension process	
		Animal health process	Animal health process	Animal health process	
		Livestock and fisheries resource development input supply and technology process	Livestock and fisheries resource development input supply and technology process	Livestock and fisheries resource development input supply and technology process	Livestock
					Crop
					Natural resource
4	Tigray region	Agricultural and rural development bureau		Agricultural and rural development office	Under the agricultural development office
					Clustered 3–5 kebeles
					Apiculture
					Animal health assistance
					AI technician
					DA
					Livestock
					Crop
					Natural resource

Annex 6. Human resources size and type in animal health with their area of assignment

Location	Qualification									
	Veterinarian	AHO (BSc)	Lab. tec (BSc)	AI tec (BSc)	AHA	MI	LT	AHT	AIT	CAHW
Federal	8	1 MSc				20				
Oromia region	220 (12 DVM + MVS)	20	9	5	2,434	122	12	151	115	
Amhara region	160 (77)	40			228	30	31	326	303	302
Afar region	27 (3 MVSc and 1 PhD)	2			79		4	254		616
BSG[84] region	11	1	2		63		1	122	3	
Somali region	26	2			190	1	4	701	4	907
SNNP[85] region	180		31	62	1,035	110	20	481	96	500
Tigray region	22				50	9		127		256
Gambella region										
Harari	2				8	2	1		1	
Addis Ababa										
Dire Dawa	5				18					28
Total	661	66	42	67	4,105	294	73	2,162	522	2,609

84. Benishangul Gumuz.

85. Southern Nation, Nationalities and Peoples.

Legend: AHO = animal health officer, Lab tecno = laboratory technologist, AI tecno = artificial insemination technologist, AHA = Animal health assistant, MI = Meat inspector, LT = Laboratory technician, AHT = Animal health technician, AIT = Artificial insemination technician, CAHW = community-based animal health worker.

Annex 7. Animal health infrastructure in Ethiopia with their spatial distribution

Federal/Regional	Federal veterinary laboratory	Regional veterinary laboratory	Woreda veterinary clinic	Sub woreda veterinary clinic	Animal health post	Artificial insemination site	Private woreda clinic	Private sub-woreda clinic	Private drug shop	Quarantine station	Export abattoir	High level domestic abattoir	Medium level domestic abattoir	Rural abattoir
Federal	4*									8	12**			
Oromia		4	233	914				27	291			7		84
Amhara		2	134		847			8	210			5	10	10
Afar		1	28		59				5					1
BSG		1	20	106										1
Somali		1	36		43	1			60			1	1	1
SNNP		2	93		40	154	112	525	24			–	20	90
Tigray		1	99		153	33	3		14			4	15	6
Gambella		1												
Harari			5	6	5	1	1		2			1		2
Addis Ababa														
Dire Dawa		1	1		16				7					28
Total	4	14	649	1,026	1,163	189	116	560	613	8	12	18	46	223

*One laboratory (quality control) under advanced stage of construction.
** Three new export abattoirs at different stage of development.

Annex 8. Results from policy/regulatory, strategy and institution SWOT analysis[86]

Parameters Issues	Strength	Weakness	Opportunity	Threat
Policy and regulatory	Presence of broad livestock resources development policy covering breeding, feeding, and animal health services Presence of draft commodity or thematic area specific policy and regulation documents on animal health, veterinary statutory body, veterinary laboratories regulation, disease prevention and control, regulating primary markets, and import and export	No clear and concise species breeding policy Absence of species centred i.e. sheep and goats breeding policy Absence of policy to promote mutually inclusive public and private sector veterinary services provision Failure to present draft policy and regulations to top level policymakers and follow up till approved Lack of effective land acquisition policy for various livestock investment areas including ranches establishment, feed production and processing Rigid protective trade policy and weak regulation to regulate the domestic hides and skins market Weak health control and quarantine system (poor quality skin mainly due to lice and mange mites infestation) Lack of clarity, depth and coverage of the existing policies Existing broad policies on small ruminants focusing on food security but insignificant on marketing, trade and foreign exchange generation aspects Policy stances on small ruminants research is weak, often treated as part of meat production and trade policy Existing broad policies on livestock have little attention on competitiveness and value chain approaches No specific policy on marketing and quality management and standards on live animals, meat and other products Absence of policy to attract private sector investment in the small ruminants subsector Lack of commodity grading and standards regulatory framework	Presence of policy and strategy documents such as RDPS, and five-year development plan documents Presence of enormous amount of livestock resources Recent focus given to livestock sector and commitment from the government and partners The demand for specific, functional and applicable policy is huge Huge gap to be addressed by the policy for developing the sector, specifically the SRs subsector Professional and trade associations concerned about the sector's resources development and readiness to provide support in the drafting of policies and regulations and designing bankable projects	Policy not widely known to stakeholders and users Mere focus on designing policy and regulatory frameworks Repeated taxation of live animals at different check points and local farm gate markets Indiscriminate taxation, including the imposition of VAT on breeding, feed and animal health inputs Inadequate attention from top level policymakers to the livestock sector Negligence in implementing the land use policy through the preparation and use of land use plans and commodity based zonation

Parameters Issues	Strength	Weakness	Opportunity	Threat
Strategy	Livestock development master plan prepared and approved Small ruminant strategy drafted Small ruminant production strategy included in existing strategy and plan documents Crossbreeding with exotic breeds encouraged and an overall breeding strategy is developed Agricultural extension strategy revised and addressed PAP and livestock areas Improving animal health service Livestock research strategy and road map prepared Private sector investments are encouraged	Compressing the production and supply of sheep and goat live animal, meat, and skin development and marketing activities in a basket of commodity framework such as red meat and milk Farm management specifically record keeping culture not developed and promoted Absence of institutionalized strategy to reduce young and adult stock mortality for all livestock species, but more so for SRs Absence of clear strategy to promote the emergence and expansion of small ruminants commercial farmers Inadequate attention to the promotion of improved forage and fodder production Over ambitious master plan (LMP) on the red meat sub-value chain, specifically mutton, which is set in the absence of commercial and sustainable production system Small ruminants are not considered explicitly on the commodity cluster, and program level in the new EARC strategy and road map documents Lack of clarity on the place of SRs value chain based development intervention promotions in the midst of the crop commodity based cluster extension approach in highland mixed farming areas Small ruminant strategy drafted but not enacted No clear strategy to work on the research system and scaling out and scaling up of research and development practitioners' best practices through organized SRs development extension system The strategic focus on livestock marketing in general and small ruminants is poor Poor market information, infrastructure and technical knowhow of standards in quality management Market oriented extension, knowledge based and committed extension support lacking Technological packages (breed, feed) for small ruminants is lacking Extension and health care are supposed to be done by the public Limited and weak private sector engagement in health care service Insignificant breeding being done by research institute to meet the demands of communities who depend on SRs for food security and income Absence of livestock extension strategy and road map that is integrated with the research strategy and road map Absence of clear strategy on range/grazing land rehabilitation Absence of promotion for integrated edible oil and concentrated feed production in cottage industries	Presence of extension agents at grassroots level, academia, professional associations involved in designing and familiarization of the strategy Existence of the strategy of promoting out-growers scheme which can be linked with the strategy of promoting ranches development and export abattoirs expansion	Gene pool problem Environmental, genetic conservation and safety aspects not explicitly stated and not adhered to Presence of highly competitive meat and dairy products as well as hides and skins supplying countries and industries globally

Parameters Issues	Strength	Weakness	Opportunity	Threat
Institutions	The establishment of Ministry of Livestock and Fisheries at federal level and the presence of counterpart institutions at regional state governments level Presence of other livestock research, and development oriented institutions such as HLIs, CGIAR, leather and leather products, meat and milk processing industries Investment agency promoting private sector undertaking and the emergence and expansion of agro-processing industrial parks Presence of loan, aid and grant based projects working on the livestock sector, and some specifically on SRs subsector The increased acceptance of value chain approaches in development and marketing institutions	Poor coordination mechanisms among existing DAIs within MoLF and with other sectors Linkage between federal and regional institute dealing with livestock R&D is wanting Most of existing R&D institutions lack capacity in terms of infrastructure, staffing and management to implement the prevailing policies and strategies MoLF have no separate institutional arrangement to promote and deliver livestock extension goods and services Limited focus on undertaking focused researches, developing packages of technologies and extension system often underestimated Limited capacity to exploit existing information technologies from production to trade and processing and consumption chains Weak link among public goods and services providers, producers, processors and export abattoirs Inadequate holding areas and feedlot space which commensurate with the expanding live animal and meat marketing and trade Lack of adequate training centres for persons involved in slaughter, meat cutting, grading, hides and skins handling tasks with fair spatial distribution at woreda level Limited coverage and focus on small ruminants institutional arrangements in the various systems (research, extension, input and outputs marketing and processing)	Increased focus of the FDRE government on institutional arrangements, technical staff, logistics and commitment for the sector Wide room for private sector engagement for production investment, marketing and trade infrastructure development, and feed and health service delivery Increasing market and information technology infrastructures Learning from other countries practices and potential for scale up The sector potential for rapid result and observable achievements Wide room for innovations and value chain approaches	Clumsy structure and too many DAIs within the MoLF and different institutional arrangements at regional state governments level Intra- and inter-sectoral limited information sharing, coordination and efficiency Increasing demand for breeds, market standard, health care etc. amidst weak progress from public institutions to supply the required inputs and services Absence of national agricultural (crop and livestock) finance system to support land and capital intensive livestock investment ventures Frequent institutional reforms and changes at federal and regional levels Most donor financed project based R&D activities with little institutional arrangements to internalize and sustain project started interventions External project based interventions are not properly and timely aligned and harmonized with regular development programs

86.Recall the subject of the SWOT analysis is the small ruminants value chain. Anything outside this value chain is considered external.

Annex 9. List of key informants

Alemu Yami, Senior Expert, Food and Agriculture Organization of the United Nations, Ethiopia Office

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