Capacity Gap Assessment

and Capacity Building Action Plan for the Implementation of the Updated Ethiopia's NDCs Agriculture and Forest Sector

29 September 2021

Addis Ababa

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Ethiopian Environmental Protection Authority

UNDP
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Capacity Gap Assessment and Capacity Building Action Plan

For the Implementation of the Updated Ethiopia's NDCs Agriculture and Forest Sector

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ABBREVIATIONS AND ACRONYMS

ADLI Agricultural-Development Led Industrialization
ADP Agriculture Development Program
AFP Adaptation Fund Project
AGP Agricultural Growth Program
APACC Agriculture Sector Program of Plan on Adaptation to Climate Change
ASPIF Agricultural Sector Policy and Investment Framework
ATA Agriculture Transformation Agency
AU African Union
BAU Business as Usual
CAADP Comprehensive Africa Agriculture Development Programme
CBD UN Convention on Biological Diversity
COP Countries of Parties
CRGE Climate Resilience Green Economy
CSA Climate Smart Agriculture
DRSLP Drought Resilience Sustainable Livelihood Project
EFCCC Environment, Forest and Climate Change Commission
ENDCs Ethiopia's Nationally Determined Contributions
ESSP Ethiopia Strategy Support Program
Eth-NAPs Ethiopia's National Adaptation Plans
EthioSIS) Ethiopian Soil Information System
FAO Food and Agriculture Organization
FGDs Focus Group Discussions
FDRE Federal Democratic Republic of Ethiopia
GCF Green Climate Fund
GDP Gross Domestic Product
GEF Global Environment Facility
GEM Green Economy Model
GHG Green House Gas
GTP Growth and Transformation
INDCs Intended Nationally Determined Contributions
IPCC Intergovernmental Panel on Climate Change
LMP Livestock Master Plan
LUCF Land Use Cover and Forest
LLRP Lowlands Livelihood Resilience Project

MDGs	Millennium Development Goals
M & E	Monitoring and Evaluation
MoA	Ministry of Agriculture
MoANR	Ministry of Agriculture and Natural Resources
MoF	Ministry of Finance
MoLF	Ministry of Livestock and Fishery
MRV	Measuring Reporting and Verification
NAMAs	Nationally Appropriate Mitigation Actions
NAPA	National Adaptation Program of Action
NBSAP	National Biodiversity Strategy and Action Plan
NEPAD	New Partnership for Africa's Development
NPDC	National Planning and Development Commission
N/RFSDPs	National and Regional Forest Sector Development Programs
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
PESTLE	Political, Economic, Social, Technological, Legal, Environmental,
PMO	Prime Minister's Office
PRSP	Poverty Reduction Strategy Paper
PSNP	Productive Safety Net Program
RDPS	Rural Development Policy and Strategies
REDD	Reduce Emission from Deforestation and Degradation
RIP	REDD+ Investment Program
SAPs	Strategic Action Programmes for shared international water-bodies
SDGs	Sustainable Development Goals
SLM	Sustainable Land Management
SWOT	Strengths, Weakness, Opportunities, Threats
ToR	Terms of Reference
UNCCD	UN Convention to Combat Desertification
UNDP	United Nation Development Program
UNFCCC	United Nations Framework Convention on Climate Change
WB/G	World Bank / World Bank Group
10 YPDP	10 Years Perspective Development Plan

ACKNOWLEDGEMENT

This report, which presents results of training and capacity building needs assessment for implementing updated NDCs and 10 YPDP benefited from the guidance of Ato Bemnet Teshome and his team of experts. Experts from sectorial ministries are greatly acknowledged for their constructive comments as well as for completing the questionnaire survey with relevant data sets. Their constructive feedbacks and comments to enrich this study are also acknowledged with thanks. Gratitude goes to all participants at consultative meetings, validation workshops who provided information on key training needs and capacity gaps that would be hindering the implementation of updated NDCs and 10 YPDP.

Last but not least, I extend my utmost appreciation to Ato Ababu Anage and his team for their efficient handling of administrative and logistic support.

EXECUTIVE SUMMARY

I. This consultancy service is commissioned to conduct capacity development gaps and needs to address key areas of capacity development gaps and training needs to help to achieve the implementation of 10YPDP and NDCs.

II. Training needs and capacity gaps were assessed in three woredas in three regions: Ada woreda in Oromia, Amibara in Afar, and Delanta in Amhara. The selected woredas represent various livelihood zones (crop farming sedentary agriculture in urban and rural settings, pastoral and agro pastoral communities). The assessment reveals level of currently existing capacity gaps and needs along with recommended capacity development action plans. Wide range of capacity gaps at individual level, enabling environment level and organization level, particularly at woreda level were reported by respondents.

III. A regular training plan with staff career structure is highly recommended to reduce high rate of staff turnover.

IV. Action plans of training, infrastructure building, particularly at woreda level such as computer, internet facilities and motor cycles are prioritized capacity for upgrading and bridging critical capacity gaps for implementing updated NDCs,

V. Importantly it was observed that various capacity building trainings conducted/organized so far were redundant and there is a need for training on new and emerging knowledge,

VI. The respondents mentioned areas of capacity needs for which several types of trainings were conducted; and this reveals that new staffs are recruited to replace the technical staffs who did left the organizations. This confirms that the staff turnover is high.

VII. Training on manure management through the use of biogas and bio slurry is highly appreciated upscaling use of renewable energy source in rural settings as revealed by the farming communities in the visited woredas, particularly in pastoral and agro pastoral communities, where cow dung is most available ample resource.

1. INTRODUCTION AND BACKGROUND

1.1. Introduction

Adverse impacts of anthropogenic climate change (global warming) on human lives is well noted by series of IPCC reports and decelerations of COPs on climate change mitigation and adaptation actions. To this end, the Copenhagen **accord (COP15)** in December 2009 declares the "immediate establishment of a mechanism to enable the mobilization of financial resources from developed countries" to support efforts to reduce emissions from deforestation and forest degradation and to enhance forest sinks. Following this global initiative in mitigating climate change, Ethiopia developed climate resilient green economy strategy (CRGE. 2011). CRGE is an ambitious national blueprint towards reducing the country's emissions by 64% from a business-as-usual trajectory by 2030. CRGE anchors on six development sectors (i. Agriculture; ii. Forest; iii. Industry; iv. Transport; v. Water, Irrigation & Energy; vi. Urban & Construction and vii. Mining).

Towards mitigating global warming, the Paris Agreement (COP 21) in December 2015 declares to **limit global warming** to well below 2, **preferably to 1.5 degrees Celsius in this century**, compared to pre-industrial levels, and reach to net zero emission by 2050. In response to the Paris Agreement, Ethiopia submitted its INDC (Nationally Determined Contributions) to the UNFCCC on 10, June 2015 which later converted to Ethiopia's 1st NDC after Ethiopia ratified the Paris Agreement in March 2017. Emission reduction targets of the 2015 INDC and 2016 NDC have anchored on that of CRGE, and has specific aims to limit the country's net greenhouse gas (GHG) emissions in 2030 to 145 Mt CO_2 e or lower and also to undertake adaptation initiatives to reduce the vulnerability of its population, environment and economy to the adverse effects of climate change (NDC 2015). Recognizing that the Government has made significant progress in addressing adaptation and mitigation under the CRGE and GTP2; updating the BAU scenario; preparing GHG emission pathways to 2030 (national and sectoral); setting 2025 and 2030 targets; prioritizing mitigation interventions and indicator selection, disaggregating conditional and unconditional contributions and reviewing the role of carbon markets in the enhanced NDC became necessary and were undertaken in the updated NDCs (NDCs 2021). In the updated NDCs Emissions at the base year 2010, BAU and under conditional and unconditional pathways are estimated. Accordingly, the base year emissions in 2010 are estimated at 247 Mt CO_2-e and are projected to approximately 403.5 Mt CO_2 –e in the BAU scenario in 2030. The projections in updated NDCs are categorized into three pathways: (i) unconditional (i.e. domestically financed, (ii) conditional (i.e. with international support) and (iii) BAU. Under unconditional pathway the absolute emissions level were estimated at 347.3 Mt CO_2-e in 2030, representing emissions reduction of 14% against the revised BAU (-56.7 Mt CO_2-e); while under the conditional pathway the absolute emissions level decrease to 125.8 Mt CO_2-e; representing emissions reduction of 68.8%

of the revised BAU (-277.7) as compared to the revised BAU 2030. The updated NDCs reported that the combined impact of contributions from Ethiopia's unconditional efforts with further policy interventions and conditional on international supports represent a emissions reduction of 68.8% (-277.7 Mt CO_2-e) in comparison with the revised BAU emissions in 2030.

Considering key capacity gaps identified by CRGE implementation progress assessment, six set of recommendations are made for the government to develop updated-NDCs revision and implementation (EFCCC et al 2019). Recommendations for NDCs update and for its implementation in 2021, 2023 and 2025 include: (i) Climate finance budgeting and tracking; (ii) MRV of climate mitigation and M&E adaptation impacts; (iii) Policy and strategy revisions; (iv) knowledge and information management; (v) Institutional arrangements (CRGE Facility optimization) and (vi) Project design and structuring. At the same time the recommendation outlines key prior sectors and categorize them as implementing entity and verification entity; and these are EFCCC, Prime Minister's Office (PMO), Ministry of Finance (MoF) and National Planning and Development Commission (NPDC).

1.2. Background

The background for this capacity gap assessment is that, following set of the aforementioned recommendations, updated NDCs across sectors was developed by large group of organizations (EFCCC et al 2021). The NDCs updates provide a suite of immediate and long-term enabling measures that will result in strengthened action across all sectors and planning levels, with economy-wide benefits. Key areas of updated NDCs are in line with supporting and fostering the implementation of 10-Years Perspective Development Plan (10YPDP) and include the following among others: (i) Political commitment; (ii) Updating BAU and GHG reduction scenarios in line with Green Economy Model (GEM) (GEM) i.e. Mitigation MRV that is is most compatible with the IPCC 2006 guidelines; (iii) Policy processes; (iv) Institutional framework; (v) Monitoring and evaluation (adaptation M & E); (vi) Resource mobilisation; (vii) Stakeholder engagement; (viii) Capacity building.

Furthermore, the government conducted Climate Resilient Green Economy National Capacity Development Program Gap Assessments (FDRRE 2015 [1]) five years ago in 2015 and set of major gaps were identified for the agriculture and forest sectors at federal, regional and woreda level in five key capacity ares: (i) CRGE knowledge capacity; (ii) Human resource capacity; (iii) Physical capacity; (iv) IT and filling capacity and (v)

[1] FDRE. 2015. Climate Resilient Green Economy National Capacity Development Program Gap Assessments and Findings.

Financial capacity along three capacity measurement dimensions namely: (i) organizational, (ii) human and (ii) system. Recommendations for addressing the capacity gaps were also reported; however, these recommendations were not adequately articulated in line with aligning NDCs with 10YPDP.

The updated NDCs set emission reduction output targets for BAU, unconditional and conditional pathways by the year 2025 and 2030 in the agriculture and forest sectors (defied as emission sector: Livestock, LUCF and managed soil). Furthermore, the output targets in the updated NDCs were if they are well aligned with government's 10-years development output targets defined in 10YPDP for agriculture and forest sector. The 2025 and 2030 mitigation and adaptation actions are set for the agriculture and forest sectors in order to enhance the ambition of the updated NDCs, and these are presented and described as follows.

A. Updated NDCs- agriculture sector

Sustainable agriculture:

- Increasing the share of agricultural land under sustainable management practices
- Reducing pre-harvest losses and land converted for agricultural infrastructure.
- Grassland improvement
- Additional carbon sequestration through grassland improvement

Dairy, red meat and poultry intervention packages:

- Enhancing efficiency and productivity in livestock subsectors

Agricultural mechanization:

- Replacing cattle/oxen by tractors for farmers and smallholders

Increase in the share of poultry:

- Replacing non-dairy cattle stock by chicken (supply side) and inducing a demand shift from beef to chicken

Oilseed feeding:

- Improved feeding to reduce emissions from enteric fermentation.

Managed soil:

- Enhancing *manure management,*
- *Replacing use of fertilizers by use of organic fertilizers.*

B. Updated NDCs- forest sector

Household energy use:

- Fuel switch: shift from residential biomass energy demand to electricity
- Biomass efficiency: Improved cook stoves

Reforestation:

- Reforestation of 3 million ha of land (conditional pathway) by 2030
- 20% moist Afromontane, 60% dry Afromontane, 10% *Acacia Commiphora*, 10% *Combretum-Terminalia*)

Restoration:

- Restoration of 5 million ha of land (conditional pathway) by 2030 and 9 million ha by 2050
- 10% moist Afromontane, 60% dry Afromontane, 10% *Acacia Commiphora*, 20% *Combretum Terminalia*)

The government of Ethiopia issued varies policies, strategies, laws, proclamations and is undertaking key mitigation and adaptation interventions set in flagship programs, namely national adaptation plan and climate resilient strategy to become Climate Resilient, Carbon Neutral and middle income country through green path of economic development by 2025. The updated NDCs report presents that large number of adaptation and mitigation options are well aligned with defined targets of 10YPDP, NAP, CRGE and SDGs.
Recognizing these efforts and to support the implementation of the updated Ethiopia's NDCs UNDP developed Deepening the efforts to implement Ethiopia's NDC project.

The overall goal of the project as part of NDCs Support Programme of UNDP is to support governments to undertake fully inclusive, zero carbon development pathways to deliver on Ethiopia's NDC targets in the context of sustainable development.

To this effect, UNDP calls for a National Consultant - Senior Specialist (Agriculture and Forestry Sectors) who would provide a consultancy service to assess progress and identify capacity gaps and develop institutional capacity building action plans for the implementation of the updated Ethiopia's NDCs.

1.3. Objectives

The objectives of this consultancy service are to assess progress and to identify technical and capacity challenges at systemic, institutional, and individual levels that will affect the implementation of recently updated NDCs- of the agriculture and forest sectors; and ultimately to develop action plans to overcome identified capacity constraints for achieving the targets of Updated NDCs and PDP-10 set by the Ethiopian government and to make sure the current and future economic development is sustainably climate proofed and resilient.

Agriculture sector	Forest sector
1. Conduct in-depth review and analyses of project documents, policies, programs and strategies dedicated to CRGE/NDC	1. Conduct in-depth review and analyses of project documents, policies, strategies and programs dedicated to CRGE/NDC;
2. Provide situational analyses of the agriculture sector in view of achieving the targets of NDC;	2. Provide situational analyses of the forest sector in view of achieving the targets of NDC-forest;
3. Undertake analyses on the progress of capacity building and identify required capacity building needs for NDC-agriculture;	3. Undertake analyses on the progress of capacity building and required capacity building needs particularly on MRV, policy, institutions, finance, and knowledge management;
4. Produce alignment with the interventions identified in the updated NDCs Updated interventions actions with PDP-10 and determine the level of the contribution for updated NDCs to 10YPDP;	4. Produce alignment of Updated NDC-forest project actions with 10YPDP actions of the forest and other sectors and determine the level of the contribution of Updated NDC forest to 10YPDP targets and SDGs;
5. Conduct field visits to selected case study areas for the: • **Crop sector in the Oromia region around the Bishoftu area and**	5. Conduct field visits to selected forest sector development program plantation case-study areas in Delanta woreda in the Amhara region around the Wollo areas.

• **Livestock sector in the Afar region.**	
6. Draw actionable recommendations to bridge the capacity gaps for meeting targets set for Updated NDCs-agriculture sector and 10YPDP;	6. Draw actionable recommendations to bridge the gaps for meeting targets set for Updated NDCs-forest sector and 10YPDP actions;
7. Prepare Institutional Capacity Development Plan for Updated NDCs project implementation and for supporting 10YPDP implementation in each of the agriculture subsectors and their agencies.	7. Prepare Institutional Capacity Development Plan for the interventions identified in the updated NDC and for supporting 10YPDP implementation in each of the forest sector programs.

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1.4. Scope of the work

The duties and responsibilities of the consultancy services as per the ToR are presented in the Box below (Box 1).

Box 1. Scope of the consultancy services and responsibilities of the national consultants as well expected deliverables of the assessment.

1.5. Expected outcomes

- Evaluation of efforts and achievements made so far in addressing the capacity gaps that had been identified and prioritized in several studies (e.g. NAP implementation roadmap, Gender Analysis, CRGE National Capacity Development Program Gap Assessments etc);
- Currently existing capacity gaps and needs that may adversely affect the implementation of updated NDCs;
- Actionable recommendations to bridge the gaps for meeting targets set for updated NDC and 10YPDP actions in the Agriculture and Forest sectors drawn;

- Institutional Capacity Development Plan prepared for implementing updated NDCs interventions and for supporting 10YPDP implementation in the each of the agriculture and forestry sectors.

2. METHODOLOGY

2.1. Steps and Design of Assessment

Tier level approaches consisting of four steps were used to collect relevant data sets for performing the tasks stated in the agriculture and forest sector (Task 1-4) following the assessment work flow shown in Fig 2.

2.1.1. Step 1. Literature review:

Information was gathered through literature review. Reports, polices, strategies, projects documents, institutional mandate areas, publications, website, were reviewed and situational and SWOT analyses were conducted. Furthermore, 10YPDP, NDCs and Eth-NAPs programs were reviewed and the milestones/objectives/targets of NDCs, 10YPDP and NAP were aligned and level of their alignment/complementary was determined using a 5-score point scale. Capacity assessment reports were reviewed for determining major capacity gaps, short & long term priorities and for SWOT analyses in view of implementing 10YPDP and updated NDCs in the the agriculture and forest sectors. Polices/strategies and FLAGSHIP projects/programs reviewed include such as Sustainable Land Management (SLM), Agriculture Development Program (ADP), Livestock Master Plan (LMP), Productive Safety Net Program (PSNP), REDD+ Programme, the REDD+ Investment Program, National and Regional Forest Sector Development Programs (N/ RFSDPs) and more others as summarized in Table 3.

2.1.2. Step 2. Conducting Gap assessment

Using gap assessment report (FDRE. 2015) Climate Resilient Green Economy National Capacity Development Program Gap Assessments and Findings) as a guiding document, self-evaluation assessment was conducted along key areas of capacity gaps to determine level of efforts/achievements made so far in addressing the identified capacity gaps;

2.1.3. Step 3. Primary data collection

Primary data sets were collected with questionnaire survey completed by experts, project heads from EFCCC and MoA. Field visits were conducted to selected Woredas in Amhara, Afar and Oromia regions, which included Delanta, Amibara and Ada woredas, respectively. Representativeness of the woreda selection is presented in Box 1. Information gathering through questionnaire survey was conducted according to UNDP Capacity Assessment Framework (UNDP 2008) as described in section 3.2. Additionally institutional capacity

assessment approach (FAO. 2018) was used to determine the changes in addressing capacity gaps and needs as a result of recommendations and action plans made by earlier capacity assessment studies.

2.1.4. Step 4. Obtaining feedbacks/comments

Four stages of feedbacks were obtained:

Firs stage: was obtaining comments from experts on the inception report aimed at improving methodological approaches proposed for data collection and analyses. Inception report was shared to experts for comments on the methodology, and feedbacks and comments given by reviewers were considered.

Second stage: the data collection protocol (questionnaire survey) was presented for discussion on a consultative workshop with selected experts and project heads from the MoA and EFCCC at Federal level. Their comments/views discussed at the consultative workshop were considered and the data collection protocol was revised accordingly.

Third stage: awareness meeting was conducted with woreda level experts of livestock, crop, NRM, Forest and Environment, and half-day awareness training was given on woreda level and household level data collection protocol (Photo 1). At the same time comments from woreda level experts were considered through awareness training on the questionnaire survey. Using this data collection protocol, further information with regards to woreda level capacity gaps for implementation of NDCs, Eth-NAPs and 10YPDP actions were collected (Photo 1). Household level data on climate change impacts on livelihoods and climate related project impacts on livelihoods related were collected using FGD (Photo 2A-B). Households were selected from three woredas (Amibara, Delanta, and Ada woredas from Afar, Amhara and Oromia regional states, respectively) for conducting FGDs. The list of contacted experts and households are presented in Annex 1.

Fourth stage: was seeking for comments on the draft report of the capacity gaps assessment. In this respect, the first draft report was shared to selected peer reviewers. Their comments were considered and incorporated into the main body of the reports. The second draft report that has incorporated the peer reviewers' comments will be presented on a validation workshop to ensure that the identified key capacity gaps and capacity development actions would help fostering the implementation of updated NDCs.

Photo 2.A, B, C. FGDs for household level data collection in: A) Amibara Woreda (Afar region), B) Delanta Woreda (Amhara region) and C) Ada Woreda (Oromia), respectively.

2.2. Woreda Selection Criteria and their representativeness

Selection of the woredas was based on the assumption that they represent woredas with wide range of capacities, farming practices, livelihood zones and source of major household income activities (Table 1). The Bishoftu woreda would ideally represent the capacity of urban and peri urban farming systems that consist of open cereal-

livestock mixed farming system with/without small scale woodlots at homesteads and farm boundaries or degraded lands. This will be compared with the Delanta woreda that represents the same farming system but are occurring in areas that are too remote. Additionally Delanta waoreda was selected purposely for inferring the contributions of REDD+ afforestation projects to address climate change adaptation and mitigation and to build tree based livelihood system in the degraded highlands of Ethiopia. Likewise, the Amibara woreda represents pastoral and agro pastoral livelihood systems. Communities of the agropastoral and pastoral communities were living in a close proximity around Awash Arba. FGDs were used to conduct household level capacity assessment to infer the implementation of NDCs action at local/household level. Two FGDs with a total of 12 households i.e., six households from pastoral and six households from agro pastoral communities were selected. FGDs questionnaire was developed in a way it captures information on the contribution of implementing NDCs to adapt and mitigate climate change and to document climate smart technology needs and availability in pastoral and agro pastoral areas.

Table 1. Livelihood characteristics of representative sample woredas

Selected Sample Woreda	Livelihood characteristics	Number of FGDs Households
Amibara (Afar)	Pastoral livelihood	6
	Agro Pastoral Livelihood	6
Delanta (Amhara)	Highland- Livestock-cereal-woodlot mixing farming system in rural settings	6
	Reforestation and afforestation REDD+ project	6
Ada (Oromia)	Highland- Livestock-cereal-woodlots farming systems in urban settings	6
	Highland- Livestock-cereal-woodlots farming systems in peri-urban settings	6

2.3. Assessment Framework

For identifying technical and capacity challenges in implementing the updated NDCs and 10YPDP, UNDP Capacity Assessment Framework (Fig 1) was used as a basis for capacity building Assessment. Accordingly, assessment data collection activities and analyses was undertaken for each category of three dimensional

capacity assessment framework (i. individual level, ii. organizational level, iii. enabling environment level) along five key areas of capacity gaps: (i) Knowledge capacity; (ii) Human resource capacity; (iii) Physical capacity; (iv) IT and filling capacity and (v) Financial capacity; and these were aligned with three capacity measurement dimensions: (i) organizational, (ii) human and (ii) system that were reported in CRGE gap assessment. The UNDP 2008 capacity assessment framework consists of three dimensional capacity measurements:

1. **Point of entry**: data on different levels of capacity i.e. at the (i) enabling environment, (ii) organizational and (iii) individual level;
2. **Core issues:** Data on most commonly encountered issues across sectors vertically and horizontally; i.e.; (i) institutional arrangements; (ii) leadership; (iii) knowledge; and (iv) accountability;
3. **Functional and technical capacities**: Information on capacity are necessary for creating and managing policies, legislations, strategies and programs; i.e.: (i) engage stakeholders; (ii) assess a situation and define a vision and mandate; (iii) formulate policies and strategies; (iv) budget, manage and implement; and (v) evaluate.

Additionally, the alignments of 10YPDP, updated NDCs and NAPs action plans, targeted activities/milestones were done. Efforts and achievements made so far in addressing capacity gaps were assessed/ evaluated at individual level, organization level and enabling environmental level along those key areas of identified capacity gaps using the UNDP Capacity assessment framework to determine the capacity of the agriculture and forest sectors in implementing the updated NDCs and 10YPDP. Checklists for capacity gap assessment questionnaire is presented in Annex 1-3.

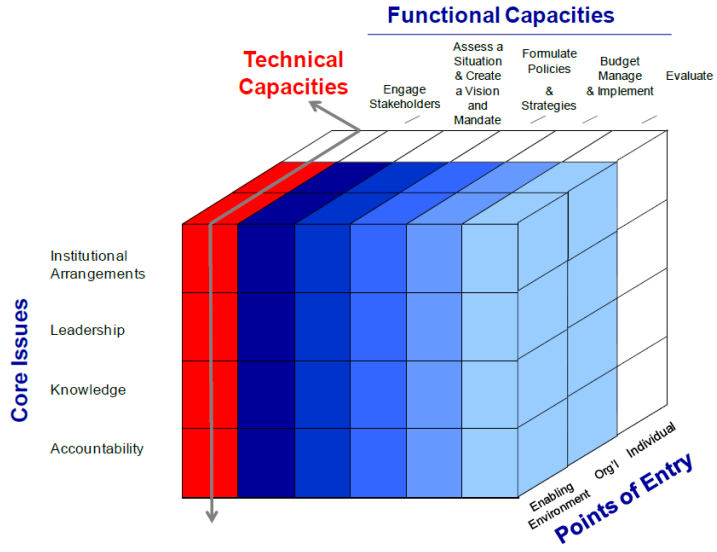

Fig. 1. The UNDP Capacity Assessment Framework

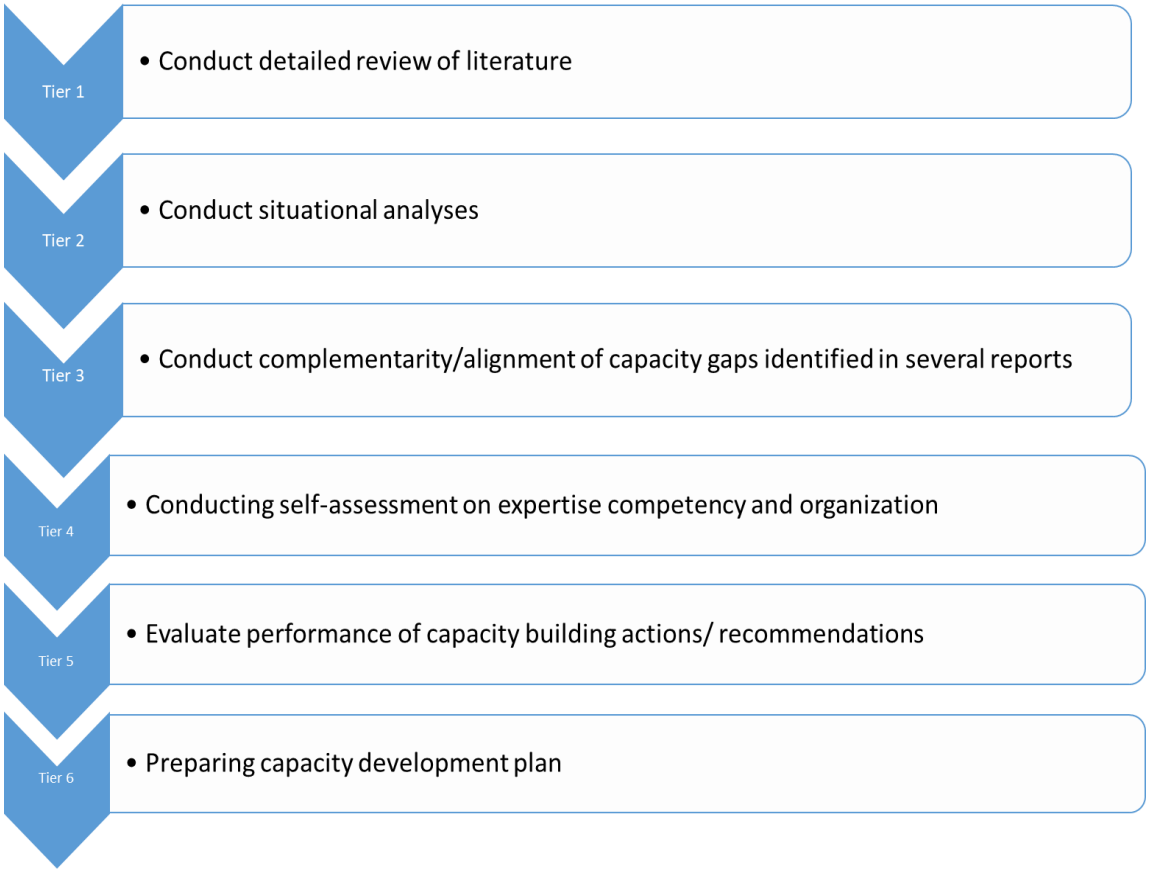

Fig. 2. Assessment work flow of the capacity gap assessment and preparation of capacity building

3. RESULTS/FINDINGS OF CAPACITY GAP ASSESSMENT

3.1. SWOT Analyses

The strengths and weaknesses of implementing updated NDCs in the agriculture and forest sectors as well as the opportunities and threats that updated NDCs implementation would provide were identified (Table 1). Generally, a SWOT analysis is used as a method for planning a business venture or any other aspects of new project. It serves as a tool to distinguish the project's strengths and weaknesses (currently existing internal view/capacity) and its opportunities and threats (external view, ascends from the project). The SWOT analyses has been summarized from list of questionnaire surveys, discussions with experts and project/program heads, and assessment report reviews.

According to the results of SWOT analysis for the agriculture and forest sectors most commonly mentioned strengths include among others the strong government commitment and presence of enabling policy environment such as the endorsement of 10YPDP, updated NDCs, Green Legacy, large public mobilization, Presence of functional sectoral CRGE Units etc., and Policy and strategic programs. Large public mobilization for tree planting activities and soil conservation works as well established kebele level agriculture offices that have experts dedicated to NRM, Livestock, Crop and extension reveal level of government's commitment at national and local level. Regarding weakness side, delay and irregularity of budget flow, lack of office facilities and field equipment including field vehicle and absence/lack of functional MRV unit/lab, technical staff turnover, redundancy of enrichment trainings, and lack of skill/practical training were common the weakness reported by KIIs/FGDs at woredal and federal level. Lack of timely awareness training on policies/strategies and development plans as well as lack of support and mentoring with regards to the policy and strategy implementation are existing, particularly at woreda level, were commonly discussed threats. For example the staffs at woreda and kebele level have little awareness about CRGE, but no idea about Eth-NAP, NDCs. They are one year behind to develop woreda/kebele level development plan that need to be in line with the 10YPDP.

Anticipated opportunities arise from the updated NDCs include among others upgrading of knowledge and skill through specialized training, system establishment and infrastructure building, leverage/upfront funding commitments from international organizations and development partners, public funds, multilateral and bilateral efforts and private sector for funding the agriculture and forest development policy interventions; as the current strategic development interventions, namely 10YPDP and updated NDCs of the agriculture and forest sectors are crafted in an alignment manner and are also aligned with Eth-NAP and with SDGs.

The identified list of strengths, weaknesses, opportunities and threats may suggest to devise clear strategies that cover the threats and work with the opportunities. Although there is long list of strengths, there are however strong challenges to build on the strengths and use the opportunities. Weaknesses should be worked out but even more importantly the implementing institutes must use its competitive strengths and enabling environments to position themselves well in the development goals of the country's agriculture and forest sectors and meeting the global climate change agenda of the Paris agreement and SDGs.

Table 2. SWOT Analysis for Agriculture and Forest Sector in view of implementing updated NDCs of the agriculture and forest sectors

SWOT ANALYSES	**Helpful**	**Harmful**
Internal	STRENGHTS: -Replica of Woreda agriculture office is in place at Kebele level with dedicated DAs, although they need hands-on training, and this could be considered as lessons learnt for establishing similar structure for the forest sector. -High government commitment for the forest and climate change sector as shown by Tree planting legacy, and GEBETA LEHAGER projects/initiatives, could be considered and reported as part of NDCs achievement. - Farmers have increased interest in transforming degraded agricultural land to tree based livelihood landscape, and this would substantially contribute to emission reduction of LUCF sector, which is key sector for meeting objectives updated NDCs. - Leverages costs of forest development through community works that is not supported by public money; -Existence/availability of best practices from flagship projects (FSCDD project woredas, REDD+ project woreda, SLMP, AGP, etc) provide experiences for managing updated NDCs implementation in the agriculture and forest interventions.	WEAKNESSES: -Lengthy and irregular budget flow reporting channel for expenditures; -No clear regional level organogram and staff development plan; -Lack of technical capacity in managing the MRV system. -Lack of office and field equipment including ITC facility ; -High staff turnover; -Lack of awareness on policies and development plans such as NDCs, 10YPDP at woreda office and woreda experts, -Lack of horizontal coordination and vertical alignment between woreda sectoral offices and federal line ministries, - Mainstreaming CRGE is in place at Federal and Woreda level, but has no dedicated budget, particularly at woreda level. .

	-Leverage costs of MRV capacity and facility building through REDD+ initiatives and support,	
External	OPPORTUNTIES: -Job opportunity creation and livelihood support, -Attract international support mechanism is supporting climate mitigation and adaptation focused development interventions, -Knowledge and skill building through specialized training for institutional and human capacity building; -Enhances high level commitments of federal and regional governments to forest development through green development legacy; -Long lasting free labor from community contributions to forest development;	THREATS: -Institutional mandate overlaps particularly between the two sectors in the areas of LUCF, -Social unrest and conflict in some woredas may adversely affect the capacity building process, -M & E, Accountability, Transparency, MRV reporting etc may lack international standards, Community mobilization is limited;

3.2. Climate change integrated agriculture and forest policy interventions relevant to Updated NDCs implementation

3.2.1. International Conventions and national policies strategies and flagship programs relevant to climate change

Adverse impacts of anthropogenic activities induced climate change (known as global warming) on human lives, biodiversity and water and land resources and ecosystems is well noted by series of IPCC reports based on scientific studies. Several global initiatives and policy directions have been made globally and nationally following the outcomes of the 1992 Rio- Earth Summit Conference (Table 3), which set the corner stone for global and national actions on climate change by establishing UNFCCC (COPs), and the IPCC which develops guide lines and indicators (Rio- Marker indicators for climate change mitigation and adaptation).

Following international milestones on addressing climate change issues nationally and globally, Ethiopia had set various policies, strategies and development plans/programs that have a focus on addressing national and global adverse impacts of climate change (Table 3). Scholars have critically

reviewed these polices/programs and evaluated to what extent their intervention actions integrate climate change and food security issues. Using relevance score points (a 5-point scale with 5 for very high, and 1 for very low), Zewdu et al., 2018 reported set of national and sectoral policies/programs that create synergies among implementing sectors to effectively integrate climate issues into sectoral development interventions. According to this study report, Agriculture and forest focused policies/programs are crafted with are highly relevant objectives and interventions/actions to integrate/address climate change adaptation and mitigation targets. These include Agriculture Growth Program (AGP2), Productive Safety Net Program (PSNP4), Ethiopian Strategic Investment Framework for Sustainable Land Management (ESIF-SLM), Ethiopian National Adaptation Plan (ET-NAP), Livestock Master Plan (LMP), National Forest Sector Development Program (NFSDP), NDC/Updated NDCs, 10YPDP.. The policy review includes also the Pre-CRGE policy documents. Table 3 presents summary of national conventions/protocols and national policies/strategies that are the bases for updating NDCs and action plans of 10YPDP.

Table 3. International convention/ protocols, ratifications and national polices/programs/flagship projects with objectives/activities highly integrate climate change issues in the agriculture and forest sectors (source: Zewdu et al., 2018; FDRE 2021; Updated NDCs 2021; MoANR et al 2018; Getachew Eshete 2020;).

A. National Polices, strategies and programs	
Policy/strategy/program	Objectives/activities
Agricultural-Development Led Industrialization (ADLI) strategy 1993	Advancing Agriculture sector as the main source to generate primary surplus that fuel the growth of other sectors notably, industry, infrastructure, and social services; tailored interventions to address the specific needs of the country's varied agro-ecological zones
Ethiopian Constitution1995: Article 43 and 44	Environmental rights and a policy of promoting sustainable development.
Poverty Reduction Strategy Paper (PRSP)	Introduced in 1999 by WB and IMF; Ethiopia PRSP: GTP 2010/11-2014/15
Environmental Policy of Ethiopia 1997	Overall guidance in the conservation and sustainable utilization of the country's environmental resources
Environmental Impact Assessment Proclamation 2002	Ensure that the environmental implications are taken into account before decisions are made

The Rural Development Policy and Strategies (RDPS) 2003	Aims to integrate rural infrastructure and social development programmes, trade and industry in to development efforts to build on and support developments in agriculture sector; States that there should be particular attention for execution modality in ensuring environmental protection, promoting sustainable natural resource management and livestock resources development addressing climate change and environment concept.
Sustainable Development and Poverty Reduction Program (SDPRP) 2002- 2005	Poverty reduction strategy program that formulated to achieve the MDGs
The Rural Land Administration and Land Use Proclamations No. 89/1997,	This was revised in 2005 as No. 456/2005; and the primary objective is to ensure land tenure security among farmers, hence fostering the responsible use of land and ensuring the use of land-holding for an indefinite period of time for land holders, including the right to pass it to offspring.
2007 Forest Management, Development and Utilisation Policy; **The Forest Development, Conservation and Utilisation Proclamation (542/2007)**	They are issued by the federal government. The forest proclamations, regulations and directives are currently under revision to provide a more enabling environment for private sector involvement in forest management and development
Plan for Accelerated and Sustained Development to End Poverty (PASDEP) 2006- 2010	Poverty reduction strategy program that were formulated to achieve the MDGs
Community Based Participatory Watershed Development strategy 2005	Guide on how to plan, design and implement community watershed development activities. The Guideline provides consolidated and normative information for field workers and woreda sector offices
Ethiopian Policy and Strategy on the development, conservation and use of forests 2006	Meet public demand in forestry products and foster the contribution of forests in enhancing the economy of the country; through appropriately conserving and developing forestry resources.
National Adaptation Program of Action (NAPA) 2007	The NAPA represented the first step in coordinating adaptation activities across government sectors
Nationally Appropriate Mitigation Actions (NAMAs)	Any action that reduces emissions ranging from project-based mitigation actions to sectoral programs or policies; Include policies directed at transformational change within an economic sector, or actions across sectors for a broader national focus

Comprehensive Africa Agriculture Development Programme (CAADP) Compact 2009	is the agricultural programme of the New Partnership for Africa's Development (NEPAD), which in turn is a programme of the African Union (AU). CAADP focuses on improving food security, nutrition, and increasing incomes in Africa's largely farming based economies by sustainable land management, reliable water control system and raising agricultural productivity by at least 6% per year and increasing public investment in agriculture to 10% of national budgets per year.
REDD+ strategy 2008	Alternative mechanism for financing the forestry development in Ethiopia and enhancing the country's climate change mitigation potential
Ethiopia Strategy Support Program II (ESSP II): Agricultural Growth Program (AGP) of Ethiopia — Baseline report 2011	It is an initiative aims to strengthen evidence-based policymaking in Ethiopia in the areas of rural and agricultural development.
AGP 1-2 2010- 2020	AGP-I, 2 aimed to increase agricultural productivity and market access for key crop and livestock products in targeted woredas (districts), with a focus on women and young people's participation; and to address drawbacks in agricultural production and productivity and focused on scaling up investments and technologies with a proven track record in the country; Increase the supply of demand driven agricultural technologies that directly link to the other components
Productive Safety Net Programme Phase IV (PSNP 4) 2014	increase in off-farm and wage labor incomes, rehabilitation and protection of watersheds, seedlings for sale
	soil and water conservation using terracing, tree-planting and gully control to avoid runoff and soil erosion, minimize deforested and over-grazed hillsides, enclosing rehabilitated slopes from grazing
	Watersheds protection from drought, connecting remote communities to markets services, Increased stream flow, small-scale irrigation, agricultural yields, rural roads built
Ethiopia's Livestock Master Plan (LMP) 2015	Increase milk production to 7967 million liters by 2020, improve genetics, feed and health services, traditional family cow dairy production and expand and improve specialized dairy production units, marketing and processing.
	Increase red meat production, improve animal health and feeding, genetic, marketing and processing,

	Increase chicken meat production, improve feed, animal health services and chicken breads, marketing and processing
Livestock Policies/Strategies in Ethiopia 2016	Focuses on livestock development in the GTP2, identifying livestock interventions and detail action plans for each agro ecology.
Eth-NAP 2017	Enhancing food security through improving crop and livestock productivity, soil and water conservation in a climate smart manner
	Improving access to potable water using wind and solar pumps
	Strengthening sustainable natural resources management, hydropower dams, ground water recharge, safeguarding landscapes through flood risk mitigation and watershed, health, agriculture, rehabilitating degraded lands.
	Improving soil water harvesting and water retention mechanisms, enhancing irrigation agriculture, soil moisture, water infrastructures, water harvesting technologies
	Enhancing sustainable forest management for commercializing timber and non-timber products for livelihood income generation and national economy
	Developing efficient value chain and marketing systems for livestock, crops, and forest products
Ethiopia's Climate Resilient Green Economy: National Adaptation Plan (NAP) Implementation Roadmap 2020.	NAP-ETH Implementation Roadmap aim to identify key enabling activities instrumental to achieving the country's NAP, their timelines, and key milestones to note during implementation in collaboration with key actors responsible for their delivery. It also helps facilitate the implementation of actions identified through the NAP process.
CRGE 2011	Ethiopian overarching strategy to become carbon-neutral middle-income status before 2025; Identified four areas of engagement, which are the pillars of the strategy that aim sector wide emission reduction of 64% by 2025; and the pillars are: The forestry Pillar- aims to achieve emission reduction of 64% by enhancing carbon sequestration through afforestation and reforestation and by reducing deforestation and degradation; The agriculture pillar- aims to improve "crop and livestock practices for higher food security and farmer income while reducing GHG emissions from livestock and soil through using improved livestock and soil management; The Energy pillar- aims to expand renewable power generation for domestic and regional markets from hydropower, solar, wind, geothermal, biogas etc.

	The transport, industrial sectors, and buildings pillars- aim to shift to modern and efficient energy technology in the transport, industrial, and building/construction sectors.
	creating value of > $6.5 billion by Increasing cement production from 3 Mt/yr in 2010 to > 65 Mt/yr in 2030; increase incomes to > $2.5 billion in 2015 from textile and leather production, reduces fossil fuels import, increases savings of foreign currency, switch from fossil fuels to biomass energy, increases farmers' household income by selling biomass to cement factories
	Creates sustainable jobs, improves health, Reduces market prices, creates market stability by increasing cement production, creates employment, value added capital formation, construction of risk-resilient housing
	Reaches more rural households with efficient stoves, creates $1 billion savings from Fuel wood expenditure, increases rural household income, Creates more jobs.
REDD+ Strategy 2008	Alternative mechanism for financing the forestry development in Ethiopia and enhancing the country's climate change mitigation potential REDD projects: afforestation and sustainable forest management, reduces deforestation, distribution of fuel wood efficient stoves, biogas, electric stoves, increases household incomes through sales of forest products, Increases GDP via wood product import substitutions, increases financing through payment for carbon sequestration to reduce CO2 emission etc.
	Improve soil Management, increases yields via crop residue, small- and large-scale irrigation,
	Create labor savings, high labor productivity, Fosters climate-resilient Asset building, women and youth empowerment, Increases food security
GTP 1-2 2010-2020	Is a strategic framework for the period 2010-2020; The GTP recognizes that the environment is a vital pillar of sustainable development
	Increase the productive capacity and efficiency to reach the economy's production possibility frontier through concurrently improving quality, productivity and competitiveness of productive sectors (agriculture and manufacturing industries);

	Sustain the rapid, broad based and equitable economic growth and development witnessed during the last decade
	Promote women and youth empowerment, ensure their participation in the development process and enable them equitably benefit from the outcomes of development;
Agriculture sector in Growth and Transformation Plan (GTP II)	It focuses on Climate Smart Agriculture as a strategic approach helping to achieve the objectives of reducing greenhouse gas emission through enhancing productivity of the crop and livestock. Aims to improve food security and increase income for farmers and pastoralists.
Ethiopia's Agricultural Sector Policy and Investment Framework (PIF) 2010- 2020	Provides a strategic framework for the prioritization and planning of investments that will drive Ethiopia's agricultural growth and development
Ethiopia's 2018 Forest Proclamation (referred to as the 2018 Forest Law	recognizes that communities and associations may own forests and have forest use rights, is a step forward in the country's efforts to reduce these impediments.
ESIF-SLM 2010	Improvement of Soil fertility, soil moisture retention, water availability increases agricultural productivity doubling income return, grazing land management, forage development, conservation tillage, fattening livestock, dairy, beekeeping, high-value vegetables and forage crops provided annual income of 18 to 21 million birr for three districts.
	spring development, increased vegetation cover, decreased runoff and soil loss, reduced downstream flood hazards, enhanced soil rehabilitation, reduced downstream sedimentation, increased soil fertility, increased stream flow, increased water infiltration and ground water recharge, minimized spread of invasive species,
	enhanced social protection and gender equity, Equal access to benefits of conservation tillage, cut-and-carry systems, credit for water harvesting structures, minimized children's work load of water fetching and fuel wood collection, giving them more school time, opportunities to grow new crops, off-farm income generating activities such as cattle rearing, sheep fattening, poultry, bee keeping, raising fruit seedlings for sale.

Agriculture Sector Program of Plan on Adaptation to Climate Change/APACC 2011	The Agriculture Sector Climate Change Adaptation Plan.
Ethiopian Program of Adaptation to Climate Change (EPACC) 2011	More programmatic approach to adaptation planning. Seeks to build a climate resilient economy through adaptation at sectoral, regional and community levels. The EPACC updates and replaces Ethiopia's National Adaptation Program of Action (NAPA) which was formulated in 2007 and submitted it to the UNFCCC Secretariat
Ethiopian Soil Information System (EthioSIS) 2011	A National Soils Database and soil fertility map of Ethiopia developed, through a combination of remote sensing and in-field sampling, to determine soil nutrient deficiencies and develop tailored fertilization regimes.
Working Strategy for Strengthening Ethiopia's Teff Value Chain 2013	Includes nutrient management practice through legumes in crop rotations to supply biologically fixed, atmospheric nitrogen as a replacement or supplement for inorganic nitrogen fertilizer
National Policy and Strategy on Disaster Risk management 2013	Disaster risk management framework, including early warning and risk assessment, information management, capacity building, and integration of disaster risk reduction into development plans. Focus on droughts
Agriculture and Forestry Climate Change Resilience Strategy 2014	Sectoral chapter of the Resilience Strategy of the CRGE. Focuses on agricultural crops, livestock, forestry, food security and disaster prevention; under a transformation of the agriculture and forestry sectors into services and industry based
Ethiopia's Climate-Resilient Green Economy Climate Resilience Strategy: Water and Energy 2015	Sectoral chapter of the Resilience Strategy of the CRGE. Focuses on water and energy
Water and Energy Climate Resilience Strategy 2015	Sectoral chapter of the Resilience Strategy of the CRGE. It assesses and addresses rainfall variability challenges to hydropower and food security
E-NDC 2015	Targeted at reducing GHG emissions by 64% (i.e. This constituted a 255 Mt CO2e reduction from the projected business-as-usual (BAU) emissions in 2030) and vulnerability as planned in CRGE through managing disasters caused by droughts and floods on farmers and pastoralists, integrating actions that improve the status of women and the welfare of children, the wellbeing of the elderly, persons with disabilities and environmental refugees.
	Aimed to limit net Greenhouse Gas (GHG) emissions in 2030 to 145 Mt CO2e or lower on the condition of full implementation of all the activities outlined in the CRGE strategy.

Climate Smart Indicators for GTP II Results Framework 2017	Handbook for Climate Smart Indicators: Part of the Agriculture Sector Indicator Handbook
Climate Smart Integrated Rural Development Project 2017	A four year project as 2017 aims to increase resilience to recurrent droughts in seven agro-ecological landscapes in Ethiopia by integrating water, agriculture and natural resource management interventions to achieve managed current and future drought risks, enhanced and secure access to potable water supply and small-scale irrigation, strengthened institutional capacity, strengthened awareness and ownership of adaptation and climate risk reduction processes at local level, and increased ecosystem resilience in response to climate change and variability-induced stress.
Guideline for Mainstreaming CRGE in Agriculture & Livestock Sectors 2018	This mainstreaming guideline is developed to provide guidance for the agriculture sector and particularly for the Ministry of Agriculture and Natural Resources and the Ministry of Livestock and Fishery to mainstream CRGE and climate smart agriculture (CSA) into different programs and projects in the sector as well as at policy level
Resilience Landscapes and Livelihoods Project (RLLP) 2018	help improve climate resilience, land productivity and carbon storage, and increase access to diversified livelihood activities in selected rural watersheds.
NFSDP 2018	The goal is to provide the master plan that serves as the roadmap for future forestry actions considering the mandate of National Regional Stares for natural resources management and other stakeholders.
Integrating CRGE Strategy in sectoral development plans: Guideline for ministries and regional CRGE Implementing entities 2018	The guide line provides check list and guidance to operationalize the CRGE strategy and the complementary green economy Strategies to support mainstreaming of climate change mitigation in sector development plans by updating mainstreaming tools in line with strategic priorities identified in NAP-ETH.
Lowlands Livelihood Resilience Project (Ethiopia) (LLRP) 2019	is aimed to enhance livelihood of pastoral and ago-pastoralists to external shocks with particular focus on the Arid and Semiarid land (ASAL) communities by implementing capital investment and rural livelihood subprojects.
Climate Smart Agriculture a field manual for extension workers 2019	Objective is to implement sustainable agriculture production system by capacitating the extension workers
Ethiopia's Climate Resilient Green Economy National Adaptation	The goal of NAP-ETH is to reduce vulnerability to the impacts of climate change by building adaptive capacity and resilience. It aims to strengthen holistic integration of climate change adaptation in Ethiopia's long-term

Plan, Federal Democratic Republic of Ethiopia (NAP-ETH) 2019	development pathway, supported by effective institutions and governance structures, finance for implementation and capacity development and strengthened systems for disaster risk management and integration among different sectors.
Revised Watershed Development Strategy of Ethiopia 2019	Identifies 'poor climate change adaptation' as a bottleneck to watershed development and proposes measures to address it.
Resource mobilization strategy for Eth-NAP 2020	The strategy aims to
Climate Resilient Green Economy (M & E) indicators (accessed at http://196.188.95.53:9090/crge-me/	This is an online tool providing CRGE- M & E indicator assessment and indicator reference sheet for agriculture and livestock, forest, health, transport, Industry, Energy, Urban, water and other crosscutting interventions.
10YPDP 2021-2030	10 YPDP anchors on the following pillars: Pillar 1: Building technology capacity and a digital economy, Pillar 2: Ensuring sustainable growth and development finance, Pillar 3: Ensuring the economic leadership of the private sector, Pillar 4: Ensuring reform of systems: including public attitude, the role of the government, Pillar 5: Ensuring developmental beneficiary and social inclusiveness, Pillar 6: Building justice accessibility and effective good governance, Pillar 7: Ensuring sustainable peace building and strong regional economic cooperation,
	Focus areas of 10 YPDP are finance sector development, growth of source of multisector economy, investment and business area, local and export trade sector, population and human resource development sector, infrastructure sector, urban development sector, good governance and justice sector as well as peace and security sector. The focus on the **agriculture** is detaching the agriculture from rainfall dependency by strengthening irrigation capacity; expanding mechanization service; upgrading production and productivity of small holder farmers; animals' resource development and healthy fodder development; horticulture; and climate change resilient sustainable agriculture and others. The focus on the **environment, forest and climate change sector** is to realize climate resilient green economic growth by developing, managing,

	conserving, sustainably managing forests, wildlife, biodiversity, and promoting healthy ecological balance. The sector's 10 YPDP goals are to: ▪ Establish a system for environmental protection; ▪ Identify alien invasive species in the country and progressively reduce their negative impact through research and studies; ▪ Increase access to technology, finance, and capacity building for realizing green economic growth through strong climate negotiations and diplomacy; ▪ Reduce emission from various economic sectors, and strengthen the conservation and development of forests, biodiversity, and wildlife by ensuring that the green economic growth strategy is mainstreamed and implemented in the country's development plan.
Updated NDCs 2021	Aims to reduce economy-wide GHG emissions under conditional and unconditional pathways to 125.8 MtCO2e in 2030 representing a reduction of 68.8% (-277.7 Mt CO2-e) as compared to the updated base year emission of 404 Mt CO2-e in 2010. of 2010 BAU scenario,
	Sets targets for a time horizon of 2021 and 2030;
	Disaggregates action plans as conditional (international support) and unconditional (domestic support) contributions regarding funding sources;
	It includes mitigation objectives with baseline set for 2018 and end-line for 2030 with about 45 adaptation interventions;
	For implementing the updated NDCs, the total estimated cost is about USD 316 billion; and out of this USD 40.5 billion and USD 275.5 billion goes to adaptation and mitigation activities, respectively.
	Its MRV and M&E frameworks seek to be fully compliant with Article 4 (Mitigation); Article 6 (Market Approaches), Article 7 (Adaptation), and Article 13 (Enhanced Transparency Framework) of the Paris Agreement.
B. Global/ UNFCCC conventions and protocols	
Conventions/protocols	Objectives and ratifications
UN Convention on Biological Diversity (CBD)	Ethiopia signed in 1993, ratified it in May 1994 (proc. 98/1994. CBD Signed 5 June 1992, parties 196; signatories 168; effective 29 December 1993.

CBD National Biodiversity Strategy and Action Plan (NBSAP)	Ethiopian NBSAP December 2005, Addis Ababa, Ethiopia.
Nagoya Protocol on Access and Benefit-Sharing (ABS)	Adopted on 29 October 2010, Interred into force on 12 October 2014
UN Framework Convention on Climate Change (UNFCCC)- Rio 1992	Opened for signature on May 1992, entered in to force on 21 March 1994, as of March 2014 has 196 parties.
UNFCCC National Communications (1st, 2nd, 3rd)	Ethiopia's first national communication 1994/95; second national communication 2015.
Kyoto protocol 1997	Ethiopia ratified in 2005 (proclamation No 439/2005
UNFCCC Nationally Appropriate Mitigation Actions (NAMA)	Negotiations pursuant to the Bali action plan concluded at COP 18 in Doha November, 2012
UNFCCC National Adaptation Plans of Action (NAPA)	As of Dec 2008, UNFCCC secretariat received NAPAS from all LDC; Ethiopia's NAPA received on June 2008
UN Convention to Combat Desertification (UNCCD)	Parties 196; drafted 17 June 1994; signed 14 October 1994; effective 26 December 1996.
UNCCD National Action Programmes (NAP)	Ethiopia developed the National Action Programme to Combat desertification in 1998
GEF National Capacity Self-Assessment (NCSA)	The first GEF-NCSA began in 2002; Ethiopia joined GEF SGP in 2005;
GEF-6 National Portfolio Formulation Exercise (NPFE)	Established in 1992; Ethiopia formulates its National Portfolio Identification document in 2011.
Strategic Action Programmes (SAPs) for shared international water-bodies	In 1995, the GEF Council-approved Operational Strategy (strategic action programmes, SAPs) for shared international water-bodies.
Nationally Appropriate Mitigation Actions (NAMAs)	Ethiopia submitted voluntary mitigation action, Nationally Appropriate Mitigation Actions (NAMAs) the UNFCCC 2010
Cancun Adaptation Framework (2010)	The Framework recommended that countries formulate a NAP as a means of identifying medium and long-term adaptation needs. In 2017, Ethiopia developed its National Adaptation Plan (ET-NAP) in compliance with Ethiopia's obligations under the Cancun Adaptation Framework (2010) of the United Nations Framework Convention on Climate Change (UNFCCC).
Intended Nationally Determined Contribution (INDC)	Ethiopia Submitted INDC to the UNFCCC, 2015

COP21 Paris agreement	Signed on 22 April 2016 and subjected ratification march 2017
SDGs	Ethiopia adopted the Sustainable Development Goals and crafted its 10 Years Perspective Development Plan (2021 – 2030) which is anchored on National Adaptation Plan
Sendai Framework	Ethiopia adopted the Sendai Framework into the 10-Years National Disaster Risk Management Plan.

3.2.2. E-NDCs and Updated NDCs at glance

These policy objectives (shown in Table 3, above) have been considered as policy interventions in developing updated NDCs in the agriculture and forest sector (Updated NDCs.2021). In order to align the reporting of updated NDCs with the UNFCCCs reporting system and IPCC's guideline, the agriculture and forest sector policy interventions are categorized as: (i) Livestock Sector Policy Intervention, (ii) Land Use Change and Forestry (LUCF) Sector policy Interventions and (iii) Managed Soil Sector. The agriculture and forest sector policy interventions are therefore named hereafter as Livestock Sector Policy Interventions, LUCF Sector Policy Interventions and Managed Soil Sector Policy Interventions (Table 4). The managed soil sector interventions integrate the livestock sector and crop sector due to the fact that policy interventions that boost crop production include use of inorganic and organic fertilizers (NPK, animal manure, green manure) where use of inorganic fertilizer increase soil GHG emissions, while use of green and animal manure increase soil fertility and decreases GHG emission. Crop residue on the other hand is used for livestock feeding, and this in turn increases GHG emission from enteric fermentation, which attributes to high share of GHG emission from the livestock sector (about 60% of BAU emissions in 2030). In contrast managed soils with application of manures replacing inorganic fertilizers attribute to reduced emission as low as 3.1%.

Table 4. Agriculture and Forest Sector Policy interventions considered in the updated NDCs-Agriculture and -Forest Sectors (Source: Updated NDCs. 2021).

A. Updated NDCs Agriculture Sector			
Agriculture policy interventions	**Indicator (Unit)**	**Responsible/Implementing sector**	**NDCs-reporting Sector category**
Dairy, red meat and poultry intervention packages	# of improved cows	Ministry of Agriculture	Livestock Sector

• Enhancing efficiency and productivity in livestock subsectors	GHG-intensity of agricultural GDP		
Agricultural mechanization • Replacing cattle/oxen by tractors for farmers and smallholders	# of heads of livestock reduced # of tractors distributed	Ministry of Agriculture	Livestock Sector
Increase in the share of poultry. • Replacing non-dairy cattle stock by chicken (supply side) and inducing a demand shift from beef to chicken	# of non-dairy cattle replaced	Ministry of Agriculture	Livestock Sector
Oilseed feeding • Improved feeding to reduce emissions from enteric fermentation.	Improved feeding deployed (tons)	Ministry of Agriculture	Livestock Sector
Sustainable agriculture • Increasing the share of agricultural land under sustainable management practices • Reducing pre-harvest losses and land converted for agricultural infrastructure.	Hectares of agricultural land under sustainable management practices (ha)	Ministry of Agriculture	LUCF Sector
Grassland improvement • Additional carbon sequestration through grassland improvement • Lowlands Livelihoods Resilience Project	Hectares of grassland improved (ha)	Ministry of Agriculture	LUCF Sector
Soil improvement • Enhancing *manure management,* • *Replacing use of fertilizers by use of organic fertilizers*	Hectares of farm land improved (ha)	Ministry of Agriculture	Managed Soil Sector
B. Updated NDCs- Forest Sector			
Forest Policy Interventions	**Indicator (Unit)**	**Responsible/Implementing sector**	**NDCs-reporting**

			Sector category
Reforestation: • Reforestation of 3 million ha of land (conditional pathway) by 2030 • 20% moist Afromontane, 60% dry Afromontane, 10% acacia-commiphora, 10% combretum-Terminalia)	Area reforested/afforested (ha) Share of forest area of total land area (%)	EFCCC	LUCF Sector
Restoration: • Restoration of 5 million ha of land (conditional pathway) by 2030 and 9 million ha by 2050 • 10% moist Afromontane, 60% dry Afromontane, 10% *Acacia-commiphora*, 20% *Combretum-Terminalia)*	Area reforested/afforested (ha) Share of forest area of total land area (%)	EFCCC	LUCF Sector
C. Energy Policy Intervention	**Indicator (Unit)**	**Responsible/Implementing sector**	**NDCs-reporting Sector category**
Household energy use: • Fuel switch: shift from residential biomass energy demand to electricity • Biomass efficiency: Improved cook stoves	Energy demand shifted (TJ) by type of fuel switch.	EFCCC, MoWIE	Energy Sector

Updated NDCs-2021 is quite different from E-NDCs-2017 in several aspects of implementation modality, financing sources, level of anticipated emission reductions and adaptation and mitigation targets. Comparison of E-NDCs and updated NDCs are presented in Table 5.

Table 5. Comparison of E-NDCs and updated NDCs in aspects of implementation, funding sources etc (First NDC 2017, updated NDCs. 2021).

Aspect	E-NDC (March 2017)	Updated NDC (March 2021)
Baseline emissions at 2010	150 MtCO2e	247 MtCO2e
BAU emissions projections by 2030	400 MtCO2e	403.5 MtCO2e
Proposed reduction over 20 years (2010-2030)	-255 MtCO2e (by 64%)	-277.7 MtCO2e (68.8%)
intended limit of net emissions by 2030	145 MtCO2e	About 125.8 MtCO2e
Mitigation budget	Over 20 years: $150 billion: Per year: $7.5 billion	Over 10 years: $275.5 billion Per year: About $27.75 billion
Target conditionality	Not specified	Conditional (80%) and unconditional (20%)
Adaptation aspects	Implementation strategies and priority sectors included; budget not qualified	Objectives, base-line & end-line targets, interventions and budget qualified

Furthermore, the conditional and unconditional pathways of the updated NDCs would result different magnitude of Emission reduction (Table 6).

Table 6. describes the contributions of the agriculture (Livestock, Managed Soils) and the forest (LUCF) sectors to aggregated unconditional and conditional emission reduction targets ordered by mitigation potentials in the respective sector.

Table 6. GHG emission projections in BAU, unconditional and conditional pathways in the Agriculture and forest sectors (Source: Updated NDCs 2021).

Sector	**BAU emission projection (Mt CO_2-e)**			**Unconditional emission projection (Mt CO_2-e)**		**Conditional emission projection (including unconditional) (Mt CO_2-e)**	
	2020	2025	2030	2025	2030	2025	2030
LUCF	125	133.8	140.2	112.6	91.8	21.4	-99.9
Livestock	146.4	169.5	194.8	168.7	192.9	162.8	180
Managed Soils	5.8	8.1	11	8	10.9	8	10.6
Total (Mt CO2e)	277.2	311.4	346	289.3	295.6	192.2	90.7

3.3. Setting Focus Areas and Targets for Updated NDCs and 10YPDP in the Agriculture and Forest Sectors

As shown in Annex 2-4 and summarized in Table 7 clear targets/milestones were set for Eth-NAP, 10YPDP and updated NDCs to be implemented by the Agriculture and Forest Sectors within the time horizon of 10 years (2021-2030). As shown in Table 7, action plans of 10YPDP and updated NDCs consist of 14 and 8 focus areas in the agriculture sector, respectively. For the forest sector the action plans of 10YPDP and updated NDCs focus on 5 and 7 areas of intervention, respectively. Eth-NAP has set targets for 18 identified adaptation options and 5 strategic priorities to be implemented between 2019 and 2030. Eth-NAP action plans were set to be implemented jointly and alternatively by the agriculture and forest sectors.

Concerning resource requirement for implementing updated NCDs, a total estimated budget of USD 316 billion is required for 10-years of implementation period (Updated NDCs 2021). Regarding the financial sources, focus areas/actions are categorized as unconditional (domestically financed) and conditional (funding from international support) with a share of 20% (USD 63.2 billion) and 80% (USD 252.8 billion) of total costs are expected to be covered by unconditional and conditional funding sources, respectively. Adaptation and mitigation costs are estimated in the order of USD 40.5 billion and 275.5 billion USD, respectively.

To successfully mobilize the estimated financial resources for meeting the proposed action plans, critical capacity development is highly required, particularly in the areas of accessing huge amount of climate finance from multiple international support mechanisms namely GEF, GCF, AF and other bilateral and multilateral sources.

Table 7. Summary of focus areas of 10YPDP and Updated NDCs for implementation period of 10 years 2021-2030. (Source: FDRE Plan commission 2020; EFCCC 2021).

A. Agriculture Sector
A.1. Focus areas of 10YPDP- Agriculture Sector
1. Ensuring the role of agricultural sector contribution to overall economic growth
2. Ensuring National food security
3. Increasing food crop production on small and large scale farms
4. Reducing post-harvest losses of various food crops (million quintal)
5. Increasing production of Livestock commodities/ products
6. Improving agricultural extension services and strengthening women's participation
7. Improved agricultural input supply

8. Expansion of agricultural mechanization
9. Organized and Strengthened cooperatives
10. Sustainable natural resource development and utilization
11. Improved water resource management and utilization
12. Increasing private sector investments in the agriculture sector
13. Strengthened and expanded natural resource management and land tenure security
14.Reduction of emission from agriculture
A.2. Focus areas of Updated NDCs – Agriculture Sector
1. Enhance food security by improving agricultural productivity in a climate-smart manner (promote yield increasing techniques)
2. Diversify livestock and animal mix, including promotion of poultry and small ruminants
3. Enhanced climate resilience in livestock
4. Prevent and control the spread of climate-driven vector-borne diseases
5. Improve rangeland and pasture-land management diversification, including selection of drought-resistant animal breeds
6.Expand the use of improved crop varieties with climate-resilient characteristics
7. Strengthen crop disease and pest monitoring systems in vulnerable areas
8. Strengthen drought and crop insurance mechanisms for climate risk management
B. Forest Sector
B.1. Focus areas of 10YPDP Forest Sector
1. Reduce greenhouse gas emission by 162.3 Mt CO2e by 2030.
2. Out of the 56 legal frameworks enacted in 2020 to promote law enforcement, by 2022 to 64.
3. Increasing the number of legal frameworks from 56 developed and implemented in 2020 to 64 by 2030 to strengthen environmental law enforcement.
4. Increase the coverage of preventing illegal activities in wildlife habitats from 62% in 2020 to 95 by 20230.
5. Increase national forest cover from 15.5% to 30% by 2030 and expand protected areas for wildlife from the current 8.6% to 14% by 2030.
6. Enrich species of wildlife and biodiversity from the current 311,470 to 743,447, and conservation work from 179,285 species to 764,361.
7. Increase the number of biodiversity licenses from 1,010 in 2020 to 2,024 in 2030.
B.2. Focus areas of Updated NDCs-Forest Sector (including land use and natural resources)
1. Restoration and reforestation through tree planting
2. Increase national forest coverage

3. Enhance sustainable forest management
4. Improve sustainable utilization of forest resources
5. Implement forest protection and health enhancement measures in natural forest ecosystems
6.Enhance climate resilient livelihoods of wildlife resource dependent communities in protected areas
7.Enhance sustainable natural resources development, management, and conservation

3.4. Alignments of Updated NDCs, 10YPDP and Eth-NAPs

3.4.1. Federal level alignments

Following the launching of CRGE strategy in 2011, the government of Ethiopia has developed set of Federal strategies and programs (namely: Livestock Road Map/LRM, Agriculture Growth Program/AGP, Reducing Emission from Deforestation and Degradation/REDD+, Productive Safety Net Program/PSNP, Sustainable Land Management/SLM, National Forest Sector Development Program/NFSDP), that were aiming to contribute to realizing the economic development goal of the country and to meeting the global climate agenda by minimizing sectoral greenhouse emissions, strengthening adaptive capacity. Anchoring on these programs/projects, the government currently developed three strategic plans and programs namely Ethiopian NDCs, Eth-NAP that integrate the various sectoral policy interventions, and synergize all governments' efforts towards meeting climate focused development goals that have both national and global significance in the areas of climate change adaptation and mitigation.

The planned activities of currently approved 10-Years Perspective Development Plan are stemmed from E-NDCs, CRGE, Eth-NAP and other sectoral programs and flagship projects. Using PESTLE[2] Framework PEGASYS 2021 conduced programs' alignment analyses and reported strong alignment among interventions of 10YPDP, Eth-NAP and other climate resilient programs/strategies in the updated NDCs report (Table 8, 9).

Accordingly, for the agriculture sector with 23 elements of PESTLE category criteria matched with 11 policy interventions in the agriculture sector with the overall average score value ranged between 50 and 60 out of 72 score (2.08 – 2.5 out of 3 point-scale) for 11 policy interventions. The least screened adaptation priorities are Applying climate resilient agricultural production and increase the use of organic fertilizers with score value of 37 (1.54) and 38 (1.58) out of 72 score, respectively. Regarding the land use and forest sector with 23

[2] PESTEL stands for Political, Economic (and financial), Social, Technological, Environmental and Legal (and Institutional) criteria for evaluating programs alignment.

elements of PESTLE category criteria matched with 12 policy interventions with the overall average score values ranged between 50 and 63 out of 72 score (2.08 – 2.62 out of 3 point-scale) for 12 policy interventions. The least screened adaptation priorities is area closures of degraded watershed lands and gullies to reduce soil erosion with score value of 27 out of 72 score (1.125 out of 3 point scale).

10YPDP, Eth-NAP, Sectoral climate resilient strategies and SDGs are very much aligned with each of policy interventions in the agriculture and Land Use and Forest sectors with average score value of 3 out of 3 point scale, implying the alignment is 100%. This perfect match is confirmed at consultative workshop by experts pooled from the agriculture and forest sector, and they expressed that 10YPDP is prepared by referring the entire document of Eth-NAP, SDGs and CRGE.

Table 8. Prioritization screening of adaptation and alignment among 10YPDP, Eth-NAP, SDG and other interventions in the Agriculture sector (Source: EFCCC 2021. Updated NDCs. 2021)

PRIORITIZATION CRITERIA	Criteria Category (in PESTLE Framework)	Criteria	Enhancing food security by improving agricultural productivity in a climate-smart manner	Livestock diversification, including selection of drought-resistant animal breeds	Improved animal breeding and feeding systems	Strengthen and expand animal health services	Prevent and control the spread of vector-borne diseases and macro parasites	Improve rangeland and pasture land management diversification, including selection of drought-resistant animal breeds	Apply climate-resilient agricultural practices	Increase the use of organic fertilizers	Expand the use of improved crop varieties	Strengthen crop disease and pest monitoring systems	Strengthening drought and crop insurance mechanisms
	Political	Alignment with the 10 Years Development Plan (10YDP)	3	2	3	1	1	3	3	1	2	2	2
		Alignment with the National Adaptation Plan (NAP)	3	3	3	3	3	3	3	3	3	3	3
		Alignment with relevant sectoral climate resilience strategy	3	3	3	3	3	3	3	3	3	3	3
	Economic (and Financial)	Cost-effectiveness	3	2	2	3	3	3	0	1	2	3	2
		Suitability for resource mobilization	3	3	3	3	3	3	2	2	3	3	2
		Suitability for private sector investment	3	3	3	3	3	3	2	2	3	3	3
		Economic development co-benefits	3	3	3	3	3	3	2	2	3	3	3
	Social	Alignment with Sustainable Development Goals (SDGs)	3	3	2	2	2	3	3	1	3	2	1
		Alignment with the Sendai Framework for Disaster Risk Reduction	1	1	1	1	1	1	1	1	1	1	1
		Gender-responsiveness and equity	2	2	2	2	2	2	2	2	2	2	2
		Ability to support sustainable livelihoods and job-creation	3	3	3	3	3	3	2	2	3	3	2
	Technological	Technological ease	2	2	2	2	1	2	0	2	2	2	3
		Technological trade-offs	2	2	2	2	2	2	0	2	2	2	2
		Technological risks	2	2	2	2	2	2	0	1	2	2	3
		Technological leap-forgging	3	3	3	3	3	3	2	2	3	3	2
	Legal (and Institutional)	Availability of CRGE indicator and baseline data	3	1	1	1	1	3	2	1	1	1	1
		Suitability for existing institutional arrangements	2	2	2	2	2	2	2	2	2	2	1
		Feasibility within existing legal and regulatory frameworks	3	3	3	3	3	3	3	1	3	3	2
		Alignment with regional and continental obligations	3	3	3	3	3	3	3	1	3	3	3
	Environmental	Ability to reduce vulnerability and build adaptive capacity	3	3	3	3	3	3	2	2	2	3	3
		Environmental co-benefits	3	2	2	2	2	2	0	2	2	2	2
		Mitigation co-benefits	2	1	2	1	1	1	0	1	0	2	2
		Environmental risks	2	2	2	2	2	2	0	1	0	2	2
		Total (out of a maximum possible score of 72)	**60**	**54**	**55**	**53**	**52**	**58**	**37**	**38**	**50**	**55**	**50**
		Total out of a 3-point scale (total / 24)	**2.5**	**2.25**	**2.29166667**	**2.20833333**	**2.16666667**	**2.41666667**	**1.54166667**	**1.58333333**	**2.08333333**	**2.29166667**	**2.08333333**

Scoring Scale: High (3), Moderate (2), Low (1), Unknown (0)

Table 9. Prioritization screening of adaptation and alignment among 10YPDP, Eth-NAP, SDG and other policy interventions in the land use and forest sector (Source: Updated NDCs. 2021).

PRIORITIZATION CRITERIA	Criteria Category (in PESTLE Framework)	Criteria	Strengthening sustainable natural resource management through safeguarding landscapes and watersheds	Improving soil and water harvesting and water retention mechanisms	Improving ecosystem resilience through conserving biodiversity	Enhancing sustainable forest management	Promote agrobiodiversity	Integrate climate change adaptation in natural resource management and planning	Rehabilitate deforested watersheds to reduce soil erosion	Area closures of deforested watersheds, land, and gullies to reduce soil erosion	Improve wildlife and biodiversity management	Plan and implement forest health measures	Community-based rehabilitation of degraded forests	Afforestation and reforestation of degraded forest land
	Political	Alignment with the 10 Years Development Plan (10YDP)	3	3	2	2	2	2	2	1	2	2	1	3
		Alignment with the National Adaptation Plan (NAP)	3	3	3	3	3	3	3	3	3	3	3	3
		Alignment with relevant sectoral climate resilience strategy	3	3	3	3	2	2	3	1	3	2	1	2
	Economic (and Financial)	Cost-effectiveness	3	3	3	3	2	3	2	0	2	3	3	3
		Suitability for resource mobilization	3	3	3	3	3	3	3	0	3	3	3	3
		Suitability for private sector investment	2	2	1	2	2	1	1	1	2	2	1	2
		Economic development co-benefits	3	3	2	3	3	3	3	0	3	3	2	3
	Social	Alignment with Sustainable Development Goals (SDGs)	3	3	3	3	2	2	2	1	3	2	2	3
		Alignment with the Sendai Framework for Disaster Risk Reduction	2	2	2	1	1	2	2	2	1	2	2	2
		Gender-responsiveness and equity	2	2	2	2	2	2	2	1	2	2	2	2
		Ability to support sustainable livelihoods and job-creation	3	2	3	3	3	2	3	1	3	3	3	3
	Technological	Technological ease	3	3	3	3	2	3	3	2	3	3	3	3
		Technological trade-offs	3	3	3	3	2	3	3	2	3	3	3	3
		Technological risks	3	3	3	3	2	3	3	2	3	3	3	3
		Technological leap-forgging	2	2	2	2	3	2	2	0	2	2	2	2
	Legal (and Institutional)	Availability of CRGE indicator and baseline data	3	1	1	3	1	1	3	0	1	3	2	3
		Suitability for existing institutional arrangements	2	2	2	2	2	2	2	0	2	2	1	2
		Feasibility within existing legal and regulatory frameworks	3	3	3	3	3	3	3	0	3	3	3	3
		Alignment with regional and continental obligations	3	3	3	3	3	3	3	0	3	3	3	3
	Environmental	Ability to reduce vulnerability and build adaptive capacity	3	3	3	3	2	3	3	3	3	3	3	3
		Environmental co-benefits	3	3	3	3	2	3	3	3	3	3	3	3
		Mitigation co-benefits	2	2	2	3	1	1	2	1	2	3	3	3
		Environmental risks	3	3	3	3	2	3	3	3	3	3	3	3
		Total (out of a maximum possible score of 72)	**63**	**60**	**58**	**62**	**50**	**55**	**59**	**27**	**58**	**61**	**55**	**63**
		Total out of a 3-point scale (total / 24)	**2.625**	**2.5**	**2.41666667**	**2.58333333**	**2.08333333**	**2.29166667**	**2.45833333**	**1.125**	**2.41666667**	**2.54166667**	**2.29166667**	**2.625**

Scoring Scale: High (3), Moderate (2), Low (1), Unknown (0)

3.4.2. Woreda Level alignments

Woreda level development action plans are yearly prepared based on the guidance provided from regional sector Bureaus. The development of Regional Sector Plans is guided by Overarching National Development Plan Prepared by Federal Line Ministries and Endorsed by the National Plan Commission. The plan commission at Region and Woreda Level is responsible for over sighting the development and implementation development action plans. For 2021-22 (2013/14 EC Budget Year), Woredas are guided to develop their 10YDP action plans, as evidenced by letters from Amhara Regional Government dated on 17/12 and 23/09/13 requesting the Delanta woreda for preparing a wredal level five- and ten- years perspective action plan in line with the national 10YPDP action plan (see Annex 2). This indicates that Woreda level development activities/interventions in the Agriculture and Environment, Forest and Climate Change Sectors are developed following the Federal Agricultural and Forest development interventions of 10YPDP. Because 10YPDP and Updated NDCs were developed considering the Eth-NAP roadmap and also in a way they are aligned with SDGs, Sendai Framework and other global initiatives; the woreda development interventions could be well aligned with updated NDCs, and Eth-NAP interventions; and hence, Woreda level development interventions in the Agriculture and Forest sector may have substantial contribution to the achievement of updated NDCs implementation.

4.4.3. Interpretation of the alignments

I. This perfect alignment/ match among 10YPDP, Eth-NAP, SDGs and with the agriculture and forest policy interventions is a clear indication that 10YPDP was developed in compliance with ETH-NAP and SDGs and would realize meeting the national economic development goals and Ethiopia's obligations towards achieving the core objectives of the Cancun Adaptation Framework (2010) of the United Nations Framework Convention on Climate Change (UNFCCC).

II. Highly aligned national programs and policy interventions provide multiple advantage, namely:

- Creates synergy and harmonizes the various policy activities towards achieving a common goal,
- Avoids unnecessary duplication and fragmentation of activities, public expenditures, human resources, etc., and there by reduces the overall costs,
- Enhances replicability, acceptability of project/policy implementation for further upscaling,

- Ensures that government's priority agendas are coordinated and well aligned with global agenda and initiatives, namely SDGs, Sandi Framework, CoPs Conventions etc.

3.5. Capacity gaps/needs identified by various capacity development studies in response to CRGE and NDCs implementation the Agriculture and Environment, Forest and Climate Change

In order to respond to the growing threat of climate change, the government crafted various sectoral development strategies with a focus on climate change adaptation and mitigation. Along with the development of strategic programs namely Eth-NAP, E-NDCs, CRGE, GTP2; key capacity development gaps and needs were identified and set of recommendations were made to address the capacity development needs supporting the implementation of climate focused strategies in the agriculture and forest sectors.

For example, Eth-NAP identify key capacity gaps and needs in relation to adaptation finance and other enabling activities that are instrumental in achieving the country's NAP within its timelines.

Key capacity development gaps and needs were identified and reported in:

- FDRE. 2015: Climate Resilient Green Economy National Capacity Development Program Gap Assessments and Findings. November 2015,
- EFCC, Plan Commission, UNDP,WRI, South South North, World Bank Group, Perspective Climate Group, UNIQUE, NDC support facility 2021. Technical Report: Supporting Ethiopia's Nationally Determined Contributions (NDC) Update. 31 March 2021,
- PEGASYS. 2020. Overview report: Ethiopia's Climate Resilient Green Economy (CRGE) Strategy (2011-2019) – Implementation Progress Assessment Report. 03 February 2020,
- UNDP. 2020. Training and Capacity Building Needs Assessment for REDD+ Investment Program
- FDRE. 2016. Ministry of Finance and Economic Cooperation Climate Resilient Green Economy National Capacity Development Program Investment Plan for Training 2016-2020.

Table 10. Summarizes key capacity development gaps and needs identified thus far with various initiatives in response to implementing climate change strategies and programs.

Table 10. Key capacity gaps and needs identified thus far in facilitating implementation of the varies climate change initiatives

A. Capacity gaps identified in "FDRE. 2015: Climate Resilient Green Economy National Capacity Development Program Gap Assessments and Findings. November 2015"	
Identified Major Capacity Gaps/Needs	**Capacity dimension category**
Absence of effective coordination vertically and horizontally	System/ Organizational
Absence of clear mandate, staffed personnel and structure	Organizational
Insufficient knowledge in project development	Human
Insufficient knowledge in planning (integration, risk assessment, cost benefit analysis, prioritizing investment)	Human
Absence of M&E system integrating climate change	System
Lack of knowledge management system (dissemination and sharing of information, formalized and structured communication)	System/ Organizational
Weak delivery management (absence of standards and quality assurance mechanism)	Organizational
Weak project development structure (coordination within organization and guideline)	Organizational
Insufficient climate science knowledge	Human
Insufficient knowledge on new technology and system of accessing information	Human/ system
B. Capacity gaps identified in "EFCC, Plan Commission, UNDP,WRI, South South North, World Bank Group, Perspective Climate Group, UNIQUE, NDC support facility 2021. Technical Report: Supporting Ethiopia's Nationally Determined Contributions (NDC) Update. 31 March 2021"	
Identified Major Capacity Gaps/Needs	**Capacity dimension category**
Government's commitment to both adaptation and mitigation measures should be replicated across sectoral strategies and at regional and Woreda levels, contributing to the implementation of enhanced NDC and 10YPDP.	Political commitment

The GEM is an on-going resource that can be used to continually refine and improve Ethiopia's NDC. As methodologies for calculating GHG emissions at a national level develop and become widely accepted, as new data becomes available and as new actions and policy responses emerge, the GEM should be updated so that refined BAU projections and scenarios can be tested and included in an updated NDC.	Updating the GEM
Streamline NDC implementation with current and future national and sectoral strategies and policies to derive maximum benefits and for effective utilisation of limited resources.	Policy processes
Build on early successes such as CRGE and 1st NDC implementation.	
A current and comprehensive national vulnerability and risk assessment, with regional differentiation and resolution, should be prepared. This could serve as a baseline for measuring adaptation progress and impact of interventions (to reduce vulnerability and increase climate resilience). This also applies to regional and Woreda level risk and vulnerability assessments that need to be updated to compliment previous assessments e.g., the Woreda vulnerability assessment (covering 400 Woredas) conducted by the National Disaster Risk Management Commission.	
Improve Ethiopia's climate change institutional architecture to unlock maximum beneficiation of current investments in climate change, including for climate change adaptation. This could include a refined institutional architecture, tailored more closely to the NDC, given that the role of the CRGE Facility has shifted considerably from its inception to the present day.	Institutional framework
Whereas the CRGE structures are working adequately at the national level, the capacity of regional and local institutions to discharge national climate policy or climate finance delivery mandate still needs to be strengthened.	
While this enhanced NDC provides a good foundation for a quantitative and qualitative adaptation baseline for 2018 with 2030 targets, there is a need to continually develop a robust monitoring and evaluation framework for adaptation and mitigation, at national and sub-national levels. Such a framework would benefit from periodic updating of information, for example by undertaking national and sub-national vulnerability and risk assessments every 3-5 years or updating and refining the national emissions inventory.	Monitoring and evaluation
Strengthen adaptation finance tracking.	
Adoption of the selected adaptation indicators for programme and project level monitoring. The indicators should be updated periodically as needed and communicated widely to stakeholders.	
Increasing accessibility to climate adaptation data at national, regional and Woreda levels. This information can be obtained from climate risk and vulnerability assessments at national, regional and Woreda level as well as project level data that will augment available national data.	
Strengthening an information portal or database for adaptation information and data to support policy development and implementation efforts.	

Continuing to develop and strengthen the transparency framework, with a focus on tracking progress on adaptation measures.	
All projects requiring climate finance will require detailed budgets with a clear demarcation between climate and development needs	Resource mobilisation
Training should be provided to project developers and government project sponsors on the difference between climate actions and economic development actions	
The resource requirement figures should be continually refined as more detailed data and information becomes available	
Adopt a blended financing approach to resource mobilisation to tap into all appropriate financing sourcing such as climate finance, private sector, development partners, internal resources etc.	
More deliberate effort is needed to improve coordination of all actors (development partners, development finance institutions, private sector, academia etc.) to identify synergies and avoid duplication of efforts.	Stakeholder engagement
Continue to strengthen efforts to engage stakeholders in climate adaptation policy development.	
Establish structured stakeholder engagement platforms for information exchange of information and lessons learnt.	
Strengthen public awareness around climate adaptation efforts.	
There is need to improve the capacity (human resource, technology, financing, training) for institutions directly involved in NDC implementation.	Capacity building
Promote embedding of capacity in institutions.	
C. Capacity gaps and recommended measures identified in "EFCCC et al., 2020. Overview report: Ethiopia's Climate Resilient Green Economy (CRGE) Strategy (2011-2019) Implementation Progress Assessment Report. 03 February 2020."	
Identified Major Capacity Gaps/Needs	**Capacity dimension category**
Gaps: The CRGE Facility does not appear to have a functional, integrated, searchable electronic archive of its documents and materials. This leads to the challenges of loss of institutional memory (since not all staff necessarily have access to the same content and guidance), as well as transaction costs in terms of repetitive effort to identify, track down, retrieve, and disseminate information and data when required.	Knowledge management systems

Recommendation moving forward: Develop a centralized user-friendly, interactive, ICT platform for knowledge and data management that allows for document archiving and record-keeping;	
Gaps: There is a lack of clarity and potential duplication in M&E. The M&E function sits with the Ministry of Finance, yet the programmatic element of CRGE efforts lie with the EFCCC. M&E is less effective when fragmented. This has been overcome in the past through joint field missions and joint evaluation activities, but a more holistic, unified, comprehensive M&E approach would be beneficial. **Recommendation moving forward:** Unify all M&E (programmatic and technical outputs as well as financial tracking and recording) in a single M&E unit within the Facility.	M&E systems:
Gaps: There is the multiplicity of performance indicators, which has hindered streamlined M&E. Indicators have been developed by the CRGE Facility itself, as well as by the ECRC at EDRI. In addition, the National Planning Commission has its own set of GTP indicators, and there is also a detailed indicator framework provided within the CRGE's own M&E manual. At present, there is no finality about which sets of indicators are final and official, which prevents resources from being directed at setting up the corresponding M&E systems and processes. **Recommendation moving forward:** Adopt a single set of indicators and adhere to this one set moving forward.	Proliferation of indicators:
Gaps: Prior to 2015, the CRGE Facility was responsible for resource mobilization, project and programme solicitation, selection, funding, and M&E of interventions in Ethiopia that supported the goals of the CRGE Strategy. This provided a clear institutional focus and resource-allocation. Since the mainstreaming of CRGE into GTP-II, there appears to be a more diluted sense of the CRGE Facility's precise role, beyond the development of guidance documents and building of capacity. There is room for re-envisioning the role of the CRGE Facility under GTP-II and moving forward, not only for resource mobilization but also as a centralized hub for the conceptualization, tracking, M&E, MRV, and assessment of all climate change related activities in the country, across different sectors. **Recommendation moving forward:** Reduce fragmentation in the institutional set up and re-structure the CRGE Facility to play a more proactive role in guiding and overseeing and tracking all climate related actions in the country. This redefinition could focus on the implementation and reporting of NDC progress.	Need for re-structured mandate:
D. Capacity gaps and recommended measures identified in "UNDP. 2020. Training and Capacity Building Needs Assessment for REDD+ Investment Program" and FDRE. 2016. Ministry of Finance and Economic Cooperation Climate Resilient Green Economy National Capacity Development Program Investment Plan for Training 2016-2020.	

Identified Major Capacity Gaps/Needs	Capacity dimension category
Generally the capacity gap is large at enabling environmental and organizational level in the availability of functional system, organizational set up and project implementing guidelines. Most relevant functional units such as finance units with its key experts are belonging to woreda finance office.	Need for re-structured mandate
➔ The training need and capacity gap is large both at individual & organization level in the number of well skilled local experts in the project as well as in other government sector offices which the project is directly or indirectly linked with. ➔ In some regions, Woreda level RIP projects do not have more than 3 professional experts but with less skill, indicating that it is currently hard to manage implementation of any forest development projects on several tens of thousands-hectare lands with only two or three experts. ➔ The gap is also big with functional units, systems and guidelines which are not yet fully developed to fully functional level for RIP implementation.	Human capacity Organizational capacity System
➔ Organizational level Capacity gap is existing with regards to both fully functional systems and units and amount of well skilled local experts dedicated to RIP project both at region and woreda level project offices and other sector offices (such as environment and forest, agriculture and natural resources etc) . ➔ Create a database, develop/ provide operational tools of different kinds, staff development plan for all RIP project offices at region and woreda level are examples of proposed actions to be taken to fully address the existing capacity gaps.	Organizational capacity System and Facility
➔ In the areas of project management capacity in undertaking intended project activities along project cycle, currently existing capacity gaps are similar in all studied project areas. When discussed and interviewed about the delivery of services with regards to procurement & purchasing, budget flow and staff hiring the majority of respondents claimed that: (i) budget is not released on time following the activity calendar, (ii) hiring technical staff is delayed too much, and (iii) number of technical staff do not match with the current work load and projects expectation. ➔ In order to get a better implementation of the project with on time delivery of intended project outputs/outcomes, respondents repeatedly suggested creating administration and financial management system that are strongly housed within the project office and avoid doubling of work load or pooling/sharing of technical staffs from other sectors.	Human, Project management, M & E system

➔ It is found necessary to have sufficient number of technical staffs to build technical capacity which would ensure the continuity of the activities without seeking for technical experts after the project period. ➔ Create a dedicated finance and administration unit which is tied strongly with and hosed in the project office where every purchase, procurement and budget release is easily facilitated for every RIP activity.	
➔ The gap in gender consideration was found very big in most RIP project activities along project cycle. The project activities that are critically lacking female engagement include among others: o (i)administrative and financial management (such as project management and administration including HR, procurement and purchasing, finance, accountant and cashier devotedly assigned to the project); o (ii) skill development through trainings and manual production/development tailored to gender specific forest development activities (such as establishing forest out grower-cooperatives); o (iii) sustaining tree planting activities (such as forest inventory and management); o (iv) project activities that are seeking for professional expertise such as setting up forest sector transformation unit (i.e., developing woredal guidelines on forest inventory, gender expert, forest land classification, forest management, forest certification etc). For example, only few (2) female experts in socio economic were participated in this capacity assessment meeting. ➔ Critically low gender representation in project activities along project cycles was highly factored by the fact that many of educated female experts may have low level of education that may not meet the required level of competency or may not pass the examination set by HR for screening best applicants, as articulated by participants of this capacity assessment discussion. ➔ Currently existing capacity gaps in the areas of project management, forest management and skill development capacity in undertaking intended project activities along project cycle are similar in all studied project areas.	Gender consideration and equity
➔ The training needs and gaps are very big, particularly with financial management and human resource development as well as monitoring and evaluation in the level of organizational and individual capacity, that need to be addressed to enhance effectiveness of the RIP projects' implementation across the project regions and woredas.	Human skill development

➔ The establishment of Finance, HR, M & E units within the project office were some of key recommendations from the assessment study. The findings informed due consideration of a capacity development strategy and trainings action plan along project cycle for project activities that need specialized skill and knowledge to make sure the necessary capacities are in pace across individual, organizational and enabling environment level to continue the functionality of project activities after it exit within a time limit set for.	
➔ One of the principles and strategic considerations articulated in the RIP project proposal was sustainability and exit strategy of the project. To ensure sustainability of RIP after the project exits, the specific strategies are outlined in the project proposal. There is critical capacity gaps and training needs in the project's basic exit strategy with respect to time limit, achieving project impacts & bench marks and monitoring and evaluation. ➔ Currently existing capacity of RIP project implementation at regions, zones and woredas were not fully capacitated to make sure comprehensive capacity at organizational, individual and enabling environment level is readily in place for project handover.	Project management Skill development
Recommendations on training needs **<u>Priority 1:</u>** Training with full scale training package and full scale system setup for project management in the priority areas: 1. Result based project management, 2. Financial and HR management, 3. Project Exit strategy, Needs improvement in bridging the capacity gap through enrichment training and providing manuals/guideline, Full scale package system establishment, checked with planned mentoring system in the priority areas: 4. MRV, 5. Data base program development and management, **<u>Priority 2:</u>** Tailored training supported with functioning facilities and working manuals and guidelines in the prioritized areas: 6. Specialized trainings for skill upgrading on forest management and related areas: **<u>Priority 3:</u>**	Training

Tailored training supported with functioning facilities and working manuals and guidelines in prioritized areas: 7. Environmental Social Impact Assessment, Safe guards, 8. Experience sharing and awareness creation training **Priority 4:** Tailored training for high level of technical capacity supported with proposal writing guidelines and formats of selected donors and with case studies on best and badly performed project proposals for the prioritized areas: **9.** Bankable Project proposal writing	

3.6. Capacity development gaps addressed so far in the Agriculture Sector

For the agriculture and natural resource sector, detail accounts of capacity gaps/needs were assessed and were reported in "Climate Resilient Green Economy National Capacity Development Program Gap Assessments and Findings (FDRE 2015. Reference[3],[4]). As shown in Table 11 large number of training themes were identified and eight areas of capacity building actions were recommended to meet capacity needs with regards to human capacity, organizational capacity and systemic capacity. KIIs were asked to provide information on "to what extent the identified capacity gaps are addresses as recommended". Accordingly, out of 29 recommended training themes 11 themes were recommended for addressing human capacity needs. Recommended training themes specific to bridging organizational and systemic capacity gaps include: (i) Prepare guidelines and mandates to create the right system structures at sector ministries and administrative structures, and (ii) Train elected officials, decision makers and experts on implementation of the system; respectively. The remaining 18 training themes were specific neither to systemic, organization nor human and were recommended for addressing cross cutting capacity gaps. Key human capacity building addressed through training include among others:

- Climate science and policy response
- Climate finance

[3]FDRE. 2015: Climate Resilient Green Economy National Capacity Development Program Gap Assessments and Findings. November 2015

[4] FDRE. 2015: Climate Resilient Green Economy National Capacity Development Program (CRGE-NCDP). November 2015.

- GHG accounting and MRV
- Knowledge management and ICT
- Monitoring and Evaluation

Large set of organizational and systemic capacity gaps remained unaddressed include among others:

- Preparation of guidelines and mandate areas,
- Training on system for policy makers
- CRGE mainstreaming and prioritization,
- Establishment of standard knowledge management system

Table 11. Capacity gaps/needs identified in capacity assessment report, recommended capacity building actions and efforts made to address the capacity gaps/needs.

Identified Major Capacity Gaps	Capacity dimension category	Recommended Training Themes	Agriculture Sector		Environment, Forest and Climate Change Sector	
			Capacity gaps/needs addressed thus far	Capacity gaps/needs remained unaddressed	Capacity gaps/needs addressed thus far	Capacity gaps/needs remained unaddressed
Capacity building action 1. Training and knowledge development						
1. Insufficient knowledge on climate science and response measures	Human	1.Climate change: Science, impacts, and policy responses	✓		✓ x	
		2. Climate finance	✓			✓ x
		3. GHG accounting and MRV (sector-specific)	✓	(not enough)		✓ x
		4. Investment plan preparation (sector specific)	✓			✓ x
		5. Programme design and participatory planning	✓		✓ x	
		6. Partnership and contract management		✓		✓ x
		7.Financial control and management	✓			✓ x

		8. Knowledge management, ICT and CRGE Registry	✓		✓	
		9. Basic research techniques and macroeconomic analysis		✓		✓ x
		10.Monitoring and evaluation	✓			✓
Capacity building action 2: System design and implementation						
2.No organizational mandate for monitoring progress and learning from delivery or from research and innovation is not captured and used for delivery improvement	Organization	12.Prepare guidelines and mandates to create the right system structures at sector ministries and administrative structures	✓	(not enough)	✓	
3. Staff have less access to M&E data or the mandate/motivation to use M&E results to amend their work plans	Human	13.Facilitate and monitor the implementation of recommended system		✓		✓
4. No systems for capturing or making available to staff relevant technologies and practices that may improve response to CRGE priorities	System	14.Train elected officials, decision makers and experts on implementation of the system		✓	✓	
Capacity building action 3: Development of guidelines and manuals						
5. Lack of guidance on safeguard measure	Organization	15. Prepare Guidelines:	✓		✓	

inclusion in planning		-Safeguard measure inclusion in planning -CRGE mainstreaming -Prioritizing of CRGE financing -Risk Assessment, -Participatory Planning, -Quality Assurance, -Stakeholder Engagement - Financial Proposal 16.. Train decision makers and experts on implementation of the system 17. Facilitate and monitor the implementation of recommended system				
6. Lack of risk assessment guideline	System					
7. Lack of CRGE mainstreaming guideline, Lack of guidance on participatory planning	system					
8. Absence of systems and guidance for preparing budgets and financial proposals, lack of guideline for prioritizing CRGE financing	system					✓
9. Lack of quality assurance guideline	organization					✓
10. Absence of cross sector coordination guideline, Lack of guidance on partnership management	system					
Capacity building action 4: Experience sharing and exposure						
11. No organizational process to identify or awareness of resilience and growth options and climate techniques	Organization	18. Facilitate training on various issues for decision makers, elected officials and experts 19. Create a system for ongoing capacity	✓	(not enough)	✓	

and technologies relevant to CRGE		building Programme at sectoral level				
12. Lack of human resources for analytical work related to defining CRGE options	Human		✓	(not enough)	✓	
13.No system for prioritizing funding opportunities and no funding comes from external sources	System					
Capacity building action 5: Designing knowledge management system						
14.No knowledge management strategy is followed by the entity and no staff have knowledge management responsibilities	Organization	20.Establish standardized knowledge management system 21. Prepare guidelines on use of Knowledge management system. 22. Disseminate KM system at federal and regional level 23. Training of end users	✓	(not enough)		✓ x
15.No staff have skills/competence to establish or manage shared filing or information management systems.	Human					
16.No functional system or coordination structures on CRGE related issues	System					

Capacity building action 6: Hosting of international experts						
17.No knowledge management strategy is followed by the entity and no staff have knowledge management responsibilities	Organization	24. Prepare guidelines and mandates to create the right system structures at sector ministries and administrative structures 25. Train decision makers and experts on implementation of the system 26. Facilitate and monitor the implementation of recommended system	✓			✓ x
18.No staff have skills/competence to establish or manage shared filing or information management systems.	Human					
19.No functional system or coordination structures on CRGE related issues	System					
Capacity building action 7: Web/ IT based learning tools						
20.Lack of IT equipment's and Internet Access in organizations	Organization	27. Establish web-based IT system for self-guided trainings 28. Dissemination and capacity building of the tool	✓	(not enough)	✓	
21.No staff have skills/competence to establish or manage shared filing or information management systems.	Human				✓	
22.No system for compiling,	System					

managing information and sharing new knowledge / lessons between bureaus/ entities in place						
Capacity building action 8: Learning workshops						
23. Low level of awareness at all level on CRGE	Human	29. Create a system for ongoing learning workshop 30. Conduct ongoing learning workshop at federal and regional level on Monitoring, feedback and improvement mechanism				✓
24.No system in place for compiling, managing information and sharing new knowledge / 25.Lessons between sector ministries and universities	System					
26. Facilitate better coordination among sector ministries	Organizational/ system					

The success of capacity building efforts made so far are presented in Table 12. In the Agriculture sector, the success of human capacity building was high, and from 11 recommended training themes 8 trainings were delivered, suggesting a success of more than 70%. Additionally, there was high level of performance in capacity building with regards to meet organizational, indicating large set of identified capacity needs are solved, as recommended; while with regards to systemic, very low and identified issues remained unresolved. In the forest sector, capacity building actions recommended in the three dimensions and cross cutting issues were fully performed and were far exceeding what has been recommended.

Table 12. Showing "to what extent capacity building needs in the agriculture and forest sector are addressed thus far".

Capacity dimension category	Number of Recommended Training Themes specific to the capacity category	Agriculture Sector				Environment, forest and climate change sector			
		Number of Recommended Training themes delivered	Number of Training Themes Undelivered	Level of capacity building achievement (%)	Achievement category	Number of Recommended Training themes delivered	Number of Training Themes Undelivered	Level of capacity building achievement (%)	Achievement category
Human	11	8	3	72.7	(high)	7	4	63.3	3 (moderate)
Organizational	1	1	1	100	(very high)	4		400	4 (very high
System	1		1	100	(very high)	2		200	4 (very high)
Cross Cutting (across systemic, human, organizational	16	7	10	24		16		100	(very high)
Total	29	16	15		Very high				Very high and far exceeding the recommendation

Furthermore, capacity building trainings on climate smart agriculture (CSA) and CRGE were delivered along the implementation of flagship programs, namely: SLMP, AGP, PSNP, DRSLP (Drought Resilience Sustainable Livelihood Project), AFP (Adaptation Fund Project) and GCF Fund Project.

In order to do decision if additional training is required or not, the level of capacity building achievements made so far were categorized in to four categories of priority:

- Achievement % < 25% very low and are priority 1 for urgent attentions to provide full-scale training;

- Achievement % 25 – 49% Low and are priority 2 need additional training for substantial improvement;
- Achievement % 50 – 75% medium are priority 3 have currently good capacity but requires some support through training;
- Achievement % > 75% High and are fully capacitated and requires no additional training; may be high level of new trainings on immerging knowledge.

According to the results shown in Table 11, it was recommended that those capacity development needs identified earlier needs to be addressed by providing full-scale training on respective training themes.

3.7. Capacity development gaps addressed so far in the Environment, forest and climate change Sectors

For the Environment forest and climate change sector, similar set of capacity gaps/needs were assessed and reported in the "Climate Resilient Green Economy National Capacity Development Program Gap Assessments and Findings; and similar set of training themes and capacity building actions were recommended to meet the human capacity, organizational capacity and systemic capacity needs (Table 11, 12).

Experts selected for KIIs from the forest sector were asked to provide information on "to what extent the identified capacity gaps are addresses as recommended". Accordingly, the success of human capacity building was relatively low, and from 11 recommended training themes 7 trainings were delivered, suggesting an overall success of not more than 25%. Additionally, there was only 15% success in organizational and systemic capacity building. Large set of identified capacity building actions (55%) are remaining unsolved.

Furthermore, human, organizational and systemic capacity buildings were performed along the implementation of CRGE program (2012-2019) and Regional Capacity Support program (SCIP) (2015-2016). Human capacity building performed include awareness training on MRV, Climate Change mainstreaming in the development programs for federal and regional offices. With regards to systemic capacity, supports were made to strengthening CRGE facility. Concerning organizational capacity building, CRGE and SCIP implementation provide material support. SCIP supported capacity building scheme trained trainer of trainees in ISO standards for Environmental Auditing, Environmental Management System and GHG MRV.

Box 1

- ➔ As described in Table 10 section D, capacity gaps and training needs for REDD+ Investment Program (RIP) implementation were identified; and key areas of trainings for capacity building were recommended. Towards addressing the identified capacity gaps and training needs, four packages of trainings in the areas of sustainable forest management, Result Based Project Management, Forest-based value chain analysis and Payment for Ecosystem Services were organized for 56 experts. The trainee experts were from federal EFCCC and regional RIP project offices. The training package includes modular based training manuals and bankable project preparation. From the list of training needs identified by UNDP 2020, and summarized in Table 10 section D, training course modules on four thematic areas were prepared and respective trainings were organized by EFCCC during 2020. Furthermore, a five-days training on Environmental and Social Impact Assessment and Environmental Auditing was organized in 2019 for federal and regional staffs working in the areas of environmental impact assessment and sage guards.
    - **Module I**: Sustainable forest development, management and utilization (SFM) (2020),
    - **Module II**: Result Based Project Management (RBPM) including project exit (2020),
    - **Module III**: Forest-based value chain analysis, value chain development and implementation (VCD) (2020),
    - **Module IV**: Payment for Ecosystem Services and Valuation (PES) (2020).
    - **Module V**: Environmental and Social Impact Assessment and Environmental Auditing (2019)
- ➔ From the list of identified capacity gaps/needs (Table 10. Section D), the following priority areas need a training with full scale training package and full scale system setup.
    - Financial and HR management,
    - MRV,
    - Data base program development and management,
    - Experience sharing and awareness creation training, particularly on updated NDCs, 10YPDP, Eth-NAP,
    - Mentoring the trainees who have taken the training on the five modules as per follow-up guideline provided with the training report, and organize enrichment (Level 3) training.

BOX 2

- From a combination of capacity gap assessment report review and KIIs, it was found that large set of capacity gaps/needs are still existing. There were capacity building initiatives undertaken supporting the implementation of CRGE. The success in addressing the already identified capacity needs were not adequately addressed. From the view of points of achieving the targets of updated NDCs and 10YPDP in the agriculture and forest sector, generally the capacity gap is remaining large at organizational level, Systemic level and human capacity level; and these capacity development needs need to be addressed if Updated NDCs and 10YPDP should meet its strategic objectives.
- Capacity gaps that were not adequately addressed but are still remaining critical for implementing updated NDCs and 10YPDP include among others:
  - **Human capacity needs:**
    - Lack of adequate knowledge on climate change science and climate finance for high-level policy makers and experts at various level;
    - GHG accounting and MRV for technical experts and awareness training on MRV policy for policy officials,
    - There is a need of providing full-scale training on respective training themes
  - **Organizational capacity:**
    - Office level infrastructure and field equipment and staff safety (availing hardware and software including computer and ICT facilities).
  - **Systemic:**
    - Establishment of CRGE facilities at respective federal ministries aligned with regional and woreda level offices

3.8. Capacity development gaps identified and recommended actions by this study for implementing updated NDC in the Agriculture Sector

The existing and required training needs and capacity gaps assessment for implementation of updated NDCs, 10YPDP and Eth-NAP in the agriculture sector were conducted using close-and open-ended questionnaires that were completed by experts from federal ministries, woreda and kebel experts of the two sectors (Annex 2. Questionnaire check list). Training needs and capacity gaps assessment have been have been done at three levels following UNDP capacity assessment frame work as described in section 3: (i) Enabling environment level, (ii) Organizational level and (iii) Individual level. The training needs and capacity gaps at three levels were evaluated in terms of: (i) institutional arrangements; (ii) leadership; (iii) knowledge; (iv) accountability; (v) creating and managing policies, legislations, strategies and programs; (vi) engage stakeholders; (vii) assess a situation and define a vision and mandate; (ix) financial management (i.e., budget, manage and implement);

(x) evaluate and monitor (M&E). For the Agriculture Sector the results of capacity development gap assessment at federal and woreda level are described as follows.

3.8.1. Capacity gaps identified and recommended actions at federal level in the agriculture sector

Capacity development gaps and needs at federal level were assessed along seven focus areas of implementing capacity (Table 13) that foster the implementation of updated NDCs, 10YPDP and Eth-NAP within a time horizon set for. These focus area of implementing capacity include: (1) Existing Plans and Strategies, (2) Support Needs Implementation, (3) Political and institutional frameworks, (4) Methodological approaches, (5) Financing, (6) Data management/sharing and Transparency and (7) Human resource development.

Key capacity gaps and needs identified were technical limitations in mainstreaming and conducting CSA, CRGE, MRV, M&E and lack resource mobilization and functional institutional structures linked horizontal and vertically. Key recommended actions for bridging the capacity gaps were indicated to be undertaken; and these include full-scale, enrichment and awareness training on Resource mobilization and accessing funding opportunities, MRV, M&E, Updated/E-NDCs, 10YPDP, Eth-NAP. Further recommended actions for systemic capacity building were suggested, and these include establishment of robust national M&E, MRV, Human resource management system including incentive and promotion system.

The training package can be categorized in to three level depending on the target groups:
Level 1= Full scale training including in depth knowledge, attitude and practice; and this level targets at producing knowledgeable and technically skill expert that can work in the field and also train others.
Level 2 = Practical geared tailored training for frontline staffs working at woreda and kebele level. The training content would focus on how to use practically field data collection manuals, data entry and reporting,
Level 3 = Awareness training targeting at changing the attitude of policy makers.

Actors of the capacity development and Institutions supporting the capacity development actions are universities and research organization for developing package of training manuals, guidelines, protocols etc, and organizations of international support mechanism for climate change (WB, UNDP, GEF,GCF, AF etc) for accessing finance and technology; and federal and regional sector organizations for identifying need based trainees so that to ensure that there is no miss match of the right trainees to the right task.

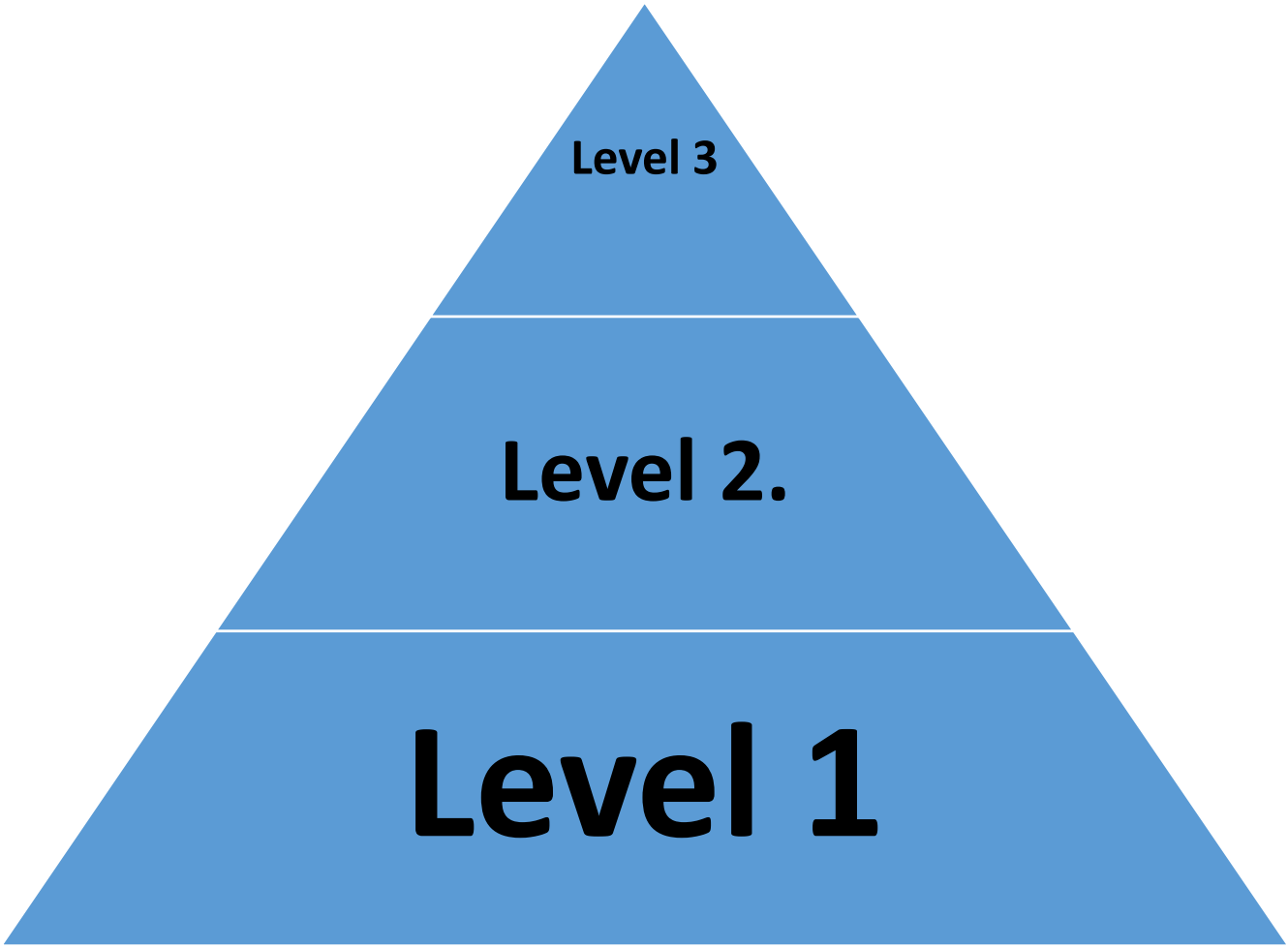

Fig. 3. Conceptual framework showing the depth of the three level trainings

Table 13. Capacity gaps/needs identified and recommended actions to meet capacity gaps that are challenging the implementation of updated NDCs, 10YPDP, Eth-NAP in the Agriculture Sector.

Focus areas of implementing capacity	**Key Elements for implementation of Updated NDCs, 10YPDP, Eth-NAP**	**Capacity gaps/needs identified**	Recommended actions to meet capacity needs/gaps	Institutions supporting capacity building
1) Existing Plans and Strategies	National Climate Change related plan (e.g. CRGE, Negotiation, MRV, etc)	• limited capacity in mainstreaming CSA mitigation and adaptation intervention in to development planning • limited capacity to conduct M&E and MRV • CRGE facility's limited capacity to mobilize resource from different national and international sources, • Limited monitoring and evaluation system, • Limited capacity to mainstream CSA interventions in to development planes at all level,	• Improve planning, M&E and MRV capacity via providing problem driven capacity development and training at all level, • Improve CRGE facility resource mobilization capacity, • Establish robust national monitoring and evaluation system, • Improve capacity to	• Planning commission, • MoF • EFCCC • Reginal bureau, zonal and woreda agriculture offices, • Development partners, donors privet sectors, • Research institutes • Universities
	Sectoral Mitigation			
	National Adaptation plan			
2) Support Needs Implementation,	mobilizing resources (Domestic, access to international financing mechanisms etc)			
	developing monitoring and evaluation system			
	developing implementation plan			
	building institutional structures			
	estimating implementation costs			
	building awareness			
	assessing development impacts			
3) Political and institutional frameworks,	Strengthening capacity in partnership development			
	Building climate expertise in sector/line ministries			
	Reinforcing government ownership and buy-in			
	Fostering stakeholders engagement (e.g. private sector and civil society, academia)			
	Ensuring linkages of updated NDCs with long-term strategies (10YPDP)			
4) Methodological approaches,	Identification of priority sectors and of best practices for the updated NDC implementation			
	The updated NDC Implementation assessment and promotion			
	Demonstration of action on the ground"			

	Approaches to linking projects and programs to climate goals	• Lack of institutional structures to implement CRGE interventions at all level, • Limited resource to fully implement CRGE interventions	mainstream CSA interventions in to development planes at all level, • Establish institutional structures to implement CRGE interventions at all level, • Improve resource to fully implement CRGE interventions, • Establishing staff career structure	• International support mechanisms (such as GEF,GCF, WB, UNDP et)
5) Financing,	Strengthening and development of domestic financial instruments			
	Identification of national and international, public and private funding sources			
	Development of investment strategies and measures to support updated NDC implementation			
	Strengthened financial instruments for scaling up best practices			
	Resource (public and private sector partnership), community participation			
6) Data management /sharing and Transparency	Development of systems for tracking and monitoring of achievements			
	Strengthening and building MRV and GHG accounting systems, projections and scenarios			
	Data collection, data processing, report generation and consumption			
	Registry systems			
	M & E system			
7) Human resource development	Risk of staff turnover			
	Mechanisms Strengthening Staff retention: Incentives/salary scale / career improvement			
	Staff capacity building program: Long term training (staff development),			
	Staff capacity building program: Short term tailored training (On-job training) etc			

3.8.2. Current status of three dimensional capacities in implementing updated NDCs, 10YPDP and Eth-NAP in the agriculture sector

Following the UNDP-Capacity assessment framework, further analyses of capacity gaps/needs were conducted to determine at what extent the sector's three dimensional capacities are capable of implementing updated NDCs, 10YPDP and Eth-NAP; what new and additional capacities are required. Four set of open-ended questions were formulated for each category of three dimensional capacity assessment framework (i. individual level, ii. organizational level, iii. enabling environment level) along four core issues (i) institutional arrangements; ii) leadership; iii) knowledge; and iv) accountability) and along five key areas of functional and technical capacities (i) engage stakeholders, ii) assess a situation and define a vision and mandate, iii) formulate policies and strategies, iv) budget, manage and implement and v) monitor and evaluate. A 5-point scale was used to score 10 set of questionnaires formulated as " To what extent the organization and its staffs have:

i. Clear institutional arrangement functional to Updated NDCs, 10PDP, ETH-NAP?

ii. Leadership role in implementing Updated NDCs, 10PDP, ETH-NAP?

iii. Learning domains in terms of knowledge, attitude and practice/skill tailored to implement Updated NDCs, 10PDP, ETH-NAP?

iv. System of Accountability applied to Updated NDCs, 10PDP, ETH-NAP?

v. The system and courage to engage stakeholders to foster the implementation of Updated NDCs, 10PDP, ETH-NAP?

vi. the mandate and knowledge to formulate police, strategy and programs applied to implement Updated NDCs, 10PDP, ETH-NAP?

vii. The capacity to conduct situational analyses and define vision and mandate aligned with the objectives and targets of Updated NDCs, 10PDP, ETH-NAP?

viii. Robust Finance, Budget and Manage and Implement system for facilitated implementation of Updated NDCs, 10PDP, ETH-NAP?

ix. Monitor and Evaluation system

x. Enabling environment suitable for implementing Updated NDCs, 10PDP, ETH-NAP?

Each of the ten questions were scored to indicate the level of the current capacity to implement the updated NDCs, 10YPDP, and Eth-NAP.

The results of the assessment are presented in Fig. 4 and Table 14.

As shown in Fig. 4 and Table 14 the score values were ranging between 3 and 5 with a percentile value of 60 and 100, respectively. This implies that the Agriculture Sector had high- very high capacity to implement the

three strategic programs of climate change national development. Medium capacity dimensions were reported by KII in the areas of technical capacity with regards to the capacity in conducting and understanding situational analyses and defining vision and mandate. This may call for preparation/development of training package for Level 2-3.

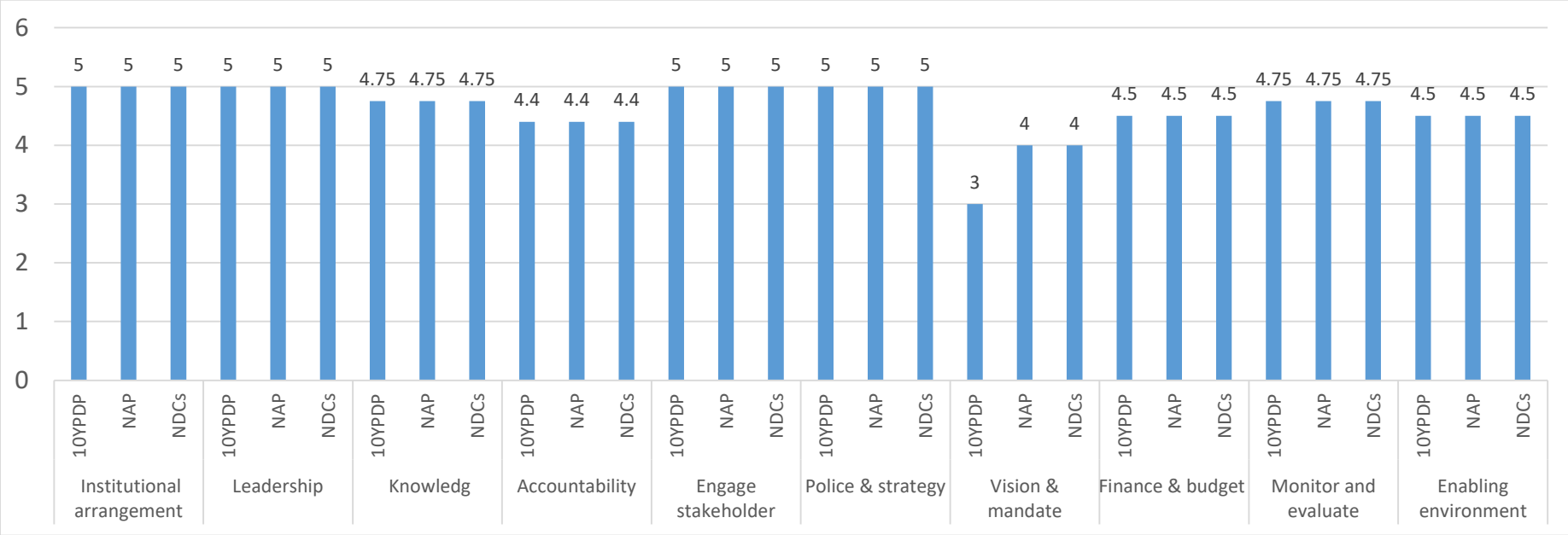

Fig. 4. Score values indicating current status of three dimensional capacities in implementing updated NDCs, 10YPDP and Eth-NAP in the Agriculture Sector.

Table 14. Score and percentile values for three dimensional capacities of the sector in implementing updated NDCs, 10YPDP and Eth-NAP in the Agriculture Sector

Capacity dimensional category	Key elements of capacity	Score and percentile vales the capacity to implement 10YPDP, Updated NDCs and Eth-NAP					
		10YPDP		Eth-NAP		Updated NDCs	
		Score	Per cent	Score	Per cent	Score	Per cent
Core Issues	Institutional arrangement	5	100	5	100	5	100
	Leadership	5	100	5	100	5	100
	Knowledge	4.75	95	4.75	95	4.75	95
	Accountability	4.4	88	4.4	88	4.4	88
Technical capacities	Engage stakeholder	5	100	5	100	5	100
	Formulate police strategy	5	100	5	100	5	100
	Assess situation and define vision and mandate	3	60	4	80	4	80
	Finance, budget and manage and implement	4.5	90	4.5	90	4.5	90
	Monitor and evaluate	4.75	95	4.75	95	4.75	95
Enabling environment	Infrastructure	4.5	90	4.5	90	4.5	90

3.8.3. Areas of training, system establishment, infrastructure building and actions to be taken

Further assessment was conducted by requesting KIIs to list key areas of training, system establishment, infrastructure building and actions to be taken for enhancing capacity development towards effective implementation of updated NDCs, Eth-NAP and 10YPDP in the agriculture and sector. Areas of training needs, system establishment and infrastructure building for each of action plans of 10YPDP, Updated NDCs and Eth-NAP were identified. Since there is strong alignment among the milestones of 10YPDP, Updated NDCs and Eth-NAP, all identified areas of training needs, system establishments and infrastructure buildings were packaged and redundant needs and actions were reduced. Detail accounts on areas of training, system establishment and infrastructure needs are presented in Table 15. Often reported areas of training needs include technical training on MRV, 10YDPD, Updated NDCs, Eth-NAP, Action plan preparation, M&E, knowledge management, CSA for officials and front line experts at federal, and woreda level. With regards to areas of system establishment, establishment of capacity, the following systems are urgently required:

- robust MRV, M&E system to properly monitoring and reporting of 10YPDP/NAP/NDC targets achievement,
- Establishing robust knowledge management system to properly share knowledge & experiences regarding 10YPDP/NAP/NDC implementations,
- Establishing and strengthen robust data management system to properly managing and communicating 10YPDP/NAP/NDC implementations

Concerning infrastructure building, automated robust data and information management system for MRV, HR etc and locally adaptive CSA technology supply.

Table 15. Areas of training, system establishment and infrastructure building needs and actions to be taken to foster the implementation of 10YPDP, updated NDCs and Eth-NAP in the agriculture sector.

Suggested Training areas	Suggested areas of system establishment	Suggested areas of infrastructure building including technology	Actions to be taken
1. Institutional arrangement			
• Organize training on 10YPDP, updated NDCs, Eth-NAP targets and focuses areas at different level (Federal, Regions, Woredas) • Organize training how to properly monitoring and evaluation the 10YPDP, updated NDCs, Eth-NAPs targets and achievements, • Organize training on MRV, M&E, • Organize hands-on and problem driven training at different level (Federal, Regions, Woredas) • Organize training based on survey findings at different level (Federal, Regions, • Organize training based on existing of knowledge, skills and attitudes gap at different level (Federal, Regions, Woredas) for successful implementations of 10YPDP/NAP/NDC targets •	• Establishing and strengthen robust MRV, M&E system to properly monitoring and reporting of 10YPDP/NAP/NDC targets achievement • Establishing robust knowledge management system to properly share knowledge & experiences regarding 10YPDP/NAP/NDC implementations • Establishing and strengthen robust data management system to properly managing and communicating 10YPDP/NAP/NDC implementations	• Establishing automated robust data and information management system to properly managing and communicating 10YPDP/NAP/NDC implementations from Federal to Woreda level • Generate and adopt effective CSA technologies to enhance 10YPDP/NAP/NDC implementations capacity • Promote agro-ecological based context specific effective technology for enhancing implementing capacity, • Build robust infrastructure that enhance HR/staff surveys for successful implementations of 10YPDP/NAP/NDC targets, • Build robust infrastructure that enhance Regular analyses of human resource needs in terms of knowledge, skills and attitudes applied for successful	• Improve institutional arrangement and enhancing implementing capacity at all level • Establish dedicated units/directors for the implementing of CRGE-NAP/NDC related issues at regional and woreda level • Fully mainstream CRGE-NAP/NDC interventions & targets in development plan at all level • Promote effective & context specific CSA technologies which indicated in 10YPDP • Allocate enough budget & mobilize resources • Provide problem driven capacity building & tanning • Enhance genuine participation of the comminutes & relevant stakeholders, • Improve integration & coordination among CRGE actors, • Identify human resource needs and existing knowledge, skills and attitudes gap needs to be addressed at all level (Federal, Regions, Woredas

		implementations of 10YPDP/NAP/NDC targets	• Designing and conducting periodic staff surveys to evaluate NDCs, 10YPDP, Eth-NAP implementation capacity and efficiency is critical for enhancing the success of NDCs, 10YPDP, NAP,
2. Leadership			
• Organize consultation meetings and trainings to improve relationship and cooperation among key stakeholders to enhance implementation of 10YPDP/NAP/NDC targets	• Establishing consultation and training systems to improve relationship and cooperation among key stakeholders at all level to enhance implementation of 10YPDP/NAP/NDC targets , • Establishing robust networking systems among key/relevant stakeholders to improve relationship and cooperation among key stakeholders at all level to enhance implementation of 10YPDP/NAP/NDC targets, • Establishing robust baseline and benchmark systems before starting the implementation of 10YPDP/NAP/NDC targets	• Establishing all-inclusive platform to engage professional associations, representative organizations and interest groups to enhance implementation of 10YPDP/NAP/NDC targets •	• Identify key stakeholders to improve relationship and cooperation among key stakeholders, • Identify key/relevant stakeholders and networking to improve relationship and cooperation among key stakeholders for better implementation of 10YPDP/NAP/NDC targets, • Conduct baseline survey and establish benchmark before starting the implementation of 10YPDP/NAP/NDC targets, • Identify locally available existing communications schemes with regards to developing key message and provide trainings on key message and information to generate public awareness to enhance implementation of 10YPDP/NAP/NDC targets
3. Knowledge			
• Organize training how to prepare activity action plans and budget • Organize training on best and effective technology and scaling up • Organize consultation meetings and trainings to improve knowledge generation and generation,	• Establish learning and training platforms and systems • Establish best knowledge management/generation and scaling up systems at all level		• Identify effective and context specific technology and knowledge management/generation based on individual needs and agro-ecological zones

• Organize training how to prepare activity action plans and budget • Organize training on best and effective technology and scaling up • Organize consultation meetings and trainings to improve knowledge generation and generation			
• Organize training how to prepare activity action plans and budget • Organize training on best and effective technology and scaling up • Organize consultation meetings and trainings to improve knowledge generation and generation, • Organize training on appropriate CSA technology and, • Organize training **K**nowledge management and sharing and scaling up • Identify existing formal and informal communication for effective implementation of NDCs, 10YPDP, NAP,	• Establish Knowledge management and sharing system at all level, • Establish self-evaluating systems		
4. Accountability			
Identify existing multi-stakeholder participation for effective implementation of NDCs, 10YPDP, NAP	Establish accountability mechanisms and system that ensure multi-stakeholder participation		
Identify existing gapes on program budgeting and utilization, and provide capacity building training based on identified gapes	Establish appropriate/legal program budgeting and management system at all level		

Provide capacity development training on international agreements indorsed and accepted as the nation	Establish legally accountability systems which comply with international agreements		
Identify existing financial and audit problems, and provide capacity building training based on identified gapes	Establish robes and appropriate audit systems		
Identify existing bad practices and properly organize, document and scaling up	Establish robes knowledge documented systems		
5. Engage stakeholder:			
Identify existing stakeholders and establish in the process of developing policies and legal issues	Establish systems that could engage stakeholders in the process of developing policies and legal issues	Establish stakeholders platform	
Identify existing system to engage relevant stakeholders in evaluating project implementation of NDCs, 10YPDP, Eth-NAP roadmap	Establish systems that could engage stakeholders in the process of evaluating project implementation of NDCs, 10YPDP, Eth-NAP roadmap	Establish strong M&E to in evaluating project implementation of NDCs, 10YPDP, Eth-NAP roadmap	
Identify stakeholders that have legal and technical capacities for effective implementation of NDCs, 10YPDP, NAP	Establish inclusive stakeholders platform and systems		
Identify available resource for implementation of NDCs, 10YPDP, NAP	Establish effective resource mobilize systems		
6. Formulate police strategy:			
Design and implement a comprehensive analysis of the national/ Regional/local level policies and legal environment in the context of Updated NDCs, 10YPDP, Eth-NAP roadmap	Establish relevant and comprehensive system which enable analysis of the national/ Regional/local level policies and legal environment in the context of Updated NDCs, 10YPDP, Eth-NAP roadmap		

7. Assess situation and define vision and mandate			
Provide training on the vision, mission and values with regards to updated NDCs, 10YPDP, Eth-NAP Roadmap in order to improve implementations			
Improve resources mobilization from different stakeholders to improve and realize implementation of updated NDCs, 10YPDP, Eth-NAP roadmap			
8. Finance, budget and manage and implement			
Implement existing policy, legal frameworks and strengthen CRGE facility to supports financing and implementation of financial flow/transaction for implementing updated NDCs, 10YPDP, Eth-NAP roadmap	Develop system which properly link government and donors to improve relationships and enhance resource mobilization	Upgrade CRGE facility capacity to mobilize more resources	
Enhance budget allocation from different sources to properly implement updated NDCs, 10YPDP, Eth-NAP roadmap at all level			
Enhance partnership with private sectors, development partners and donors to improve relationships and enhance resource mobilization			
9. Monitor and evaluate			
Establish robust financial monitoring and evaluation system at all level			
10. Enabling environment			

Improve teamwork and coordination for implementation of updated NDCs, 10YPDP, Eth-NAP roadmap			
Establish motivation system to enhance employees delivery and reduce turnover			

3.9. Capacity development gaps and recommended actions identified by this assessment for implementing updated NDC in the Forest Sector

Using the same approach as in the case of the Agriculture Sector, the existing and required training needs and capacity gaps assessment for implementation of updated NDCs, 10YPDP and Eth-NAP in the environment, forest and climate change sector were conducted using close-and open-ended questionnaires. The questionnaires were completed by experts from federal commission (Annex 3). Training needs and capacity gaps assessment have been done at three levels following UNDP capacity assessment frame work as described in section 3: (i) Enabling environment level, (ii) Organizational level and (iii) Individual level. The training needs and capacity gaps at three levels were evaluated in terms of: (i) institutional arrangements; (ii) leadership; (iii) knowledge; (iv) accountability; (v) creating and managing policies, legislations, strategies and programs; (vi) engage stakeholders; (vii) assess a situation and define a vision and mandate; (ix) financial management (i.e., budget, manage and implement); (x) evaluate and monitor (M&E). For the Environment, Forest and Climate Change Sector the results of capacity development gap assessment at federal and woreda level are described as follows.

3.9.1. Federal Level of current implementing capacities and recommended actions towards addressing the capacity needs in the forest sector

Like the agriculture sector, capacity development gaps/needs as well as capacity building actions for the Environment, Forest and Climate Change actions at federal level were assessed along seven focus areas of implementing capacity (Table 17) that foster the implementation of updated NDCs, 10YPDP and Eth-NAP within a time horizon set for. These focus area of implementing capacity include: (1) Existing Plans and Strategies, (2) Support Needs Implementation, (3) Political and institutional frameworks, (4) Methodological approaches, (5) Financing, (6) Data management/sharing and Transparency and (7) Human resource development; detail accounts on identified gaps and recommended actions are presented in Table 17.

Accordingly, Key capacity gaps/needs identified were largely technical limitations in MRV, M&E, resource mobilization and utilization, coordination of functional institutional structures linked horizontal and vertically as well as lack of clear adaptation and mitigation plan, lack of adequate budget allocation and efficiency in budget utilization, lack of incentive mechanisms, lack of GHG tracking systems, High risk of staff turnover due

to absence of Incentives/salary scale / career improvement. Technical limitations with regards to forest management and forest disease and pest were reported.

Key recommended actions for bridging the capacity gaps were to undertake full-scale, enrichment and awareness training on the following areas: Resource mobilization and utilization; and accessing funding opportunities; GHG MRV; Monitoring and evaluation of projects including project exit ; Updated and earlier -NDCs; Preparation and execution of 10YPDP and Eth-NAP; developing career structure, regular training plan, awareness training on strategic polices and strategies (10YPDP, Updated NDCs, Eth-NAP). Further recommended actions include also human resource management system including incentive and promotion system, Career structure, tracking system.

The training package can be categorized in to three level depending on the target groups:

Level 1= Full scale training including in depth knowledge, attitude and practice; and this level targets at producing knowledgeable and technically skill expert that can work in the field and also train others.

Level 2 = Practical geared tailored training for frontline staffs working at woreda and kebele level. The training content would focus on how to use practically field data collection manuals, data entry and reporting,

Level 3 = Awareness training targeting at changing the attitude of policy makers.

The three training package can be implemented in short-, medium and long term HR plan.

Actors of the capacity development and Institutions supporting the capacity development actions are universities and research organization for developing package of training manuals, guidelines, protocols etc, and organizations of international support mechanism for climate change (WB, UNDP, GEF,GCF, AF etc) for accessing finance and technology; and federal and regional sector organizations for identifying need based trainees so that to ensure that there is no miss match of the right trainees to the right task.

Table 17. Capacity gaps/needs identified and recommended actions to meet capacity gaps that are challenging the implementation of updated NDCs, 10YPDP, Eth-NAP in the Environment, forest and climate change sectors.

Focus areas of implementing capacity	Key Elements for implementation of Updated NDCs, 10YPDP, Eth-NAP	Capacity gaps/needs identified	**Recommended actions to meet capacity needs/gaps**	**Institutions supporting capacity building**
1: Existing Plans and Strategies	National Climate Change related plan (e.g. CRGE, Negotiation, MRV, etc)	-Lack of capacity at regional level to estimate the region level base line of GHGs emission/MRV base line and to prepare region level emission reduction action plan, -Lack of long term plan for resource mobilization, - Even if the achievement of CRGE is not satisfactory, there is lack of aligning Negotiation and MRV plans with sectorial annual plan.	-Intensive training to regions about MRV (Level 1-2) -Intensive training about long term strategy on resource mobilization, - Sectors must align CRGE-MRV plans with their annual action plan. However as climate Negotiation agendas are set by UNFCCC it might be difficult to align negation with MRV.	EFCCC and CRGE Implementers, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	Sectoral Mitigation	-Capacity gap in preparing clear Mitigation plan that is stretched to woreda level, -Lack of capacity at regional level about • Dry land forest management and utilization • Land scape restoration /Rehabilitation with regards to management of AR and ANR and PES - Sectors are planning to reduce GHG emission annually, but the implementation and reporting system is not consistence, because the sectors we structured are different from GHG reporting sectors e.g. there is no	-Intensive training about mitigation plan preparation particularly, mitigation actions, targets, way of measurement that are aligned with the national plan of mitigation actions. - training to regions and lower level staffs about dry land forest management and utilization; - Reporting of performance of mitigation action should also	EFCCC and CRGE Implementers, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)

		agriculture and forest sector for GHG reporting it is livestock and LUCF, managed soil sectors.	include annual GHG emission reporting. - Training on sectoral GHG emission reporting and alignment of federal and regional sectors with GHG emission reporting sector categories.	
	National Adaptation plan	-Capacity gap of preparing clear adaptation plan, -Lack of adequate awareness and skills, -Capacity gap of Forest disease , pest and invasive alien species prevention and control ,Sustainable Forest Management (PFM),Forest ecosystems valuation ⁝Sustainable utilization of forest resources & Forest management planning preparation, - CRGE implementing sectors are incorporate adaptation plan in their annual plan to cop climate change impact. But in the ground most adaptation actions are not implemented,	Intensive training about particularly adaptation, targets, way of measurement, Provide awareness creation training and developing skill, -Tailored training on forest management and protection, -	EFCCC and CRGE Implementers, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
2. Support Needs Implementation	mobilizing resources (Domestic, access to international financing mechanisms etc)	-Lack of capacity to intensively identifying and mobilize the international source -Lack of focus to consider and calculate the internal finance sources -Lack of strong linkage b/n negotiation and resource mobilization both in planning and implementation -lack of capacity at regional level to mobilize resource at international source and calculating the internal contribution,	-Intensive training and long term capacity building programme how to identify the available financial sources and utilize them efficiently -Short term and long term strategy for resource mobilization and considering of internal source of finanace both in kind and cahs	EFCCC, MoF, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)

		-Limited capacity in proposal development , engagement &negotiation skill with resources partner and knowledge management communication and advocacy,	- creating system to integrate negotiation and resource mobilization including ministry of finance -Intensive training for regional experts, - Enhancing the capacity of implementing and executing entities through conducting awareness creation workshop and training,	
	developing monitoring and evaluation system	- Dismayed of power to carry out the M and E actions -Lack of considering and use in decision making as well as legalizing the finding/Investigation of M and E. - The system is not well functioning,	-Intensive long term and short term capacity building measure in preparation of M and E plan/long term and short term plan -Strengthening the available M and E sytem both interm of employees number, capacity, -Establishing system to integrate with other departments like negotiation and other institutions such as MoF, CSOs, Privates, - Updating and supporting the operationalization of the system	EFCCC, MoF, CSOs Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et) .
	developing implementation plan	-Lack of attention to plan long term M and E implementation strategy and implementing it as well as Evaluating the strategy itself, - Updating and supporting the operationalization of the system, - Absence of adequate skill and experiences regard development of implementation plan,	-Preparation of long term strategy with inclusive approach, - Equipping the capacity of implementing and executing entities preparation of implementation plan through	EFCCC, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)

			conducting training and experience sharing,	
	building institutional structures	-Lack coordination among departments, - Lack of sufficient skills and experiences, - Most sectors have no institutional structures up to the grass root level. -There is no CRGE experts at zone and werda level.	-Creating system to strength integration of work, - Enhancing the capacity of institution in building institutional structure, - Set up institutional arrangement up to the grass root level is very important for the better achievement of CRGE plan.	EFCCC, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	estimating implementation costs	-Lack of allocating necessary budget for capacity building as well as resource mobilization activities -Lack of focus and budget for M and E measure -lack of budget for intensive training both for federal and regional level	-Allocating enough budget, - Enhancing the capacity of institution in cost estimation,	EFCCC, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	building awareness	- Absence of sufficient skill and experiences	- Building awareness through conducting awareness creation workshop	EFCCC Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	assessing development impacts	-Lack of continuous measure to evaluate regularly the gaps and challenges faced in resource mobilization and taking necessary correction measure,	-Strengthening system to evaluate regularly preparation of guideline to monitor it,	EFCCC Research institutes Universities International support mechanisms (such as

		- Lack of sufficient skills, qualification and experiences in the area	- Enhancing the capacity of institution and experts in assessment	GEF,GCF, WB, UNDP et)
3. Political and institutional frameworks	Strengthening capacity in partnership development	-Absence of focus for development of partnership and capacity building actions -Absence of officially delegate expert to handle partnership actions -lack/absence of regular and continuous capacity development actions regard on partnership -lack of integration among relevant stakeholders - Absences of adequate skill & knowledge in partnership development,	-Delegate official partnership responsible expert in addition to negotiation department -Regular and continuous capacity development and evaluating the result achieved -Long term strategy together with resource mobilization and implementing and evaluating it, - Developing skills of institution and experts in partnership,	EFCCC, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	Building climate expertise in sector/line ministries	-lack of long term capacity development strategy -lack of Monitoring and evaluation of capacity building actions -lack of knowledge management and knowledge transfer from expert to expert -lack of capacity need assessment specific to each tittles, - Lack of climate expertise in sector/ line ministries,	- formulating long term strategy of capacity development in participatory manner -preparing of capacity need assessment in participatory manner - regular monitoring and evaluation action, - Building the capacity of line ministries in the area of climate	EFCCC , Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	Reinforcing government ownership and buy-in	-Lack of awareness, -		
	Fostering stakeholders engagement (e.g. private sector and civil society, academia)	-Lack of monitored engagement of stakeholders and considering the feedback of public	-Establishing system to receive feedback form public and also incentive mechanism	EFCCC, Research institutes Universities

		-Lack of secured and easy system to receive feedback of public, -Lack of incentive mechanism to public, Lack of clear role and responsibility of stakeholders and common consensus on it , - The engagement of stakeholder (e.g. private sector and civil society, academia) has been low,	-Identify the roles and responsibility of stakeholders and common understanding on it, - Strengthen the engagement of stakeholders ((e.g. private sector and civil society, academia),	International support mechanisms (such as GEF,GCF, WB, UNDP et)
	Ensuring linkages of updated NDCs with long-term strategies (10YPDP)	-Lack of continuous monitoring whether the plan is really cascaded to regional and local level -lack of regular follow up in implementation of long term plan whether it align with NDC or not, - The linkages of the updated NDCs with long term strategies is not adequately considered at sub national level,	-Conducting Regular monitoring and evaluation in implementation of the plan, both at federal and regional level -Giving necessary technical support for implementer ministries and regions in regular manner, - Supporting sub national offices to ensure linkages of updated NDCs with long-term strategies of regions,	EFCCC, Environmental protection bureaus as well as CRGE implementer ministries, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
4. Methodological approaches	Identification of priority sectors and of best practices for the updated NDC implementation	- Best practices have not been well considered and identified	- Documenting and disseminating best practices	Sectoral organizations, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	The updated NDC Implementation assessment and promotion	-	Regular Monitoring the implementation of update NDC	EFCCC, Research institutes Universities

				International support mechanisms (such as GEF,GCF, WB, UNDP et)
	Demonstration of „action on the ground"	-lack of capacity from regional to kebele level both environmental protection and CRGE implementer sectors -Lack of regular and continuous technical support for regions -lack of proper structure at different regions eg. Afar,Tigray, benishangul…	Capacity building from regional to kebele level both environmental protection and CRGE implementer sectors -Giving necessary technical support for regions in implementation of NDC -Giving regular and continuous technical support for regions	EFCCC, CRGE Implementer federal and regional institution, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	Approaches to linking projects and programs to climate goals	- Linking of climate goals to project /program have not been adequately considered,	- Guideline and checklist that ensure the linking of projects/program to climate goals,	- Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et), Sectoral organizations,
5. Financing	Strengthening and development of domestic financial instruments	-perception or attitude for NDC and CRGE as project and source of finance -lack of Considering and calculating the internal contribution in kind, human resource(labor and expertise), - Domestic financial instruments has not been adequately assessed and identified,	-Training that able to achieve the paradigm shift of the attitude -focus on calculating and considering the domestic contribution in various ways, - Assessing identifying and implementing domestic financial instruments,	EFCCC, MoF, NGOs, Privates.

	Identification of national and international, public and private funding sources	-lack of capacity in both identification and intensively mobilizing international funding source at -Limited engagement of privates in actions resource mobilization -limited cooperation b/n resource mobilization and negotiation or diplomacy actions, - National and international, public and private funding sources have not been exhaustively assessed and identified,	--Regular and continuous capacity development measures for resource mobilization departments both in planning, identification of funding source and mobilizing it., - Strong collaboration b/n negotiation and resource mobilization -Strong collaboration with ministry of finance, - Assessing and identifying all funding sources (national and international, public and private) engaging with them,	EFCCC, MoF, NGOs, Privates.
	Development of investment strategies and measures to support updated NDC implementation	-Limited capacity and focus in preparation of long term strategy for resource mobilization as well as implementing it. -	Regular and continuous capacity development measures for resource mobilization departments both in planning, identification of funding source and mobilizing it., - Strong collaboration b/n negotiation and resource mobilization -Strong collaboration with ministry of finance	EFCCC, MoF, NGOs, Privates, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	Strengthened financial instruments for scaling up best practices	- financial instruments for scaling up best practices has not been well assessed and identified	- Assessing and identifying for scaling up financial instruments for scaling up best practices,	International support mechanisms (such as GEF,GCF, WB, UNDP et)

	Resource (public and private sector partnership), community participation	-Limited participation of private sectors Limited capacity of private to mobilize resource at international source of finance, - Public and private sector partnership and community participation have not been well developed and strengthen,	-Establishing system and capacity development for privates and the public in general for their active engagement in resource mobilization, - Developing and strengthening Public & private sector and community partnership,	EFCCC, Privates, and public
6. Data and Transparency	Development of systems for tracking and monitoring of achievements	-lack of system to track progress -lack of habit from expert to leaders level to track progress, - Systems for tracking and monitoring of achievements has not been well developed , integrated and strengthened,	Continuous awareness creation that able to achieve behavioral change in tracking of progress -Establishment of system for track progress, - Update , integrated and strengthened Systems for tracking and monitoring of achievements,	EFCCC, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	Strengthening and building sectoral MRV and GHG accounting systems including the forest sector (LUCF), livestock sector, managed soil sector; Projections and scenarios of climate change,	-lack of capacity for MRV and GHGs counting both at federal CRGE implementers and regional level, -lack of baseline data at regional level, - MRV and GHG accounting systems, projections and scenarios has not been well strengthened and not actively function,	-Intensive Capacity development measure - conducting capacity need assessment related with MRV, - Strengthening and operational MRV and GHG accounting systems,	EFCCC
	Data base and data management system including: data collection, data processing, report generation and consumption	-Lack of strong relation in reporting and exchange of information both in environmental protection structure and CRGE implementer ministries and line regional bureaus, - System for sectoral data collection, data processing, data sharing, data archiving report	-Strengthening sectoral relationship and coordination, - Develop/update well integrated data collection, data processing, report generation and consumption mechanisms,	EFCCC, line ministries and Regional bureaus

		generation and consumption has not been sufficiently developed and integrated,		
	Registry systems	-Absence of registry system, - The system has not been well operating and strengthen, - Absence of ecosystem registry system,	-Establishing registry system, -Strengthened and make actively functioning the system,	EFCCC, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	M & E system	-Lack of strong monitoring and evaluation, mainly in capacity building actions whether it achieve the intended goal or not, - The system is not well functioning and strengthen,	-Conducting monitoring and Evaluation for the whole capacity building measures, - Strengthening and make the system well operating,	EFCCC, line ministries and Regional bureaus, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
7. Human resource development	Risk of staff turnover	-High turnover due to limited incentive and encouragement system, - High risk due to staff turnover mainly low salary not sufficient to cover living cost,	-Establishing incentive system, - Revising the salary scale and introducing other benefit mechanisms and hiring highly qualified professional on contractual bases,	**EFCCC,** Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	Mechanisms Strengthening Staff retention: Incentives/salary scale / career improvement	-Absence of Incentives/salary scale / career improvement, - Not available Staff retention: Incentives/salary scale / career improvement mechanisms,	Establishing incentive system and career improvement,	EFCCC,

			- Introducing Staff retention: Incentives/salary scale / career improvement mechanisms,	
	Staff capacity building program: Long term training (staff development),	-Absence of monitoring the long term capacity development programme achievements -Lack of knowledge management system -Limited experience in knowledge sharing, - Long term training (staff development) is not conducted in a coordinated and planned manner with the objective of achieving long term human resource development,	-M and E of the long term result Establishing system for knowledge management and knowledge sharing, - Introducing long term human resource development program,	EFCCC, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	Staff capacity building program: Short term tailored training (On-job training) etc.	-Absence of monitoring for capacity building measures, - The staff short term capacity development program (Short term training (On-job training) is well designed, organized, coordinated and integrated .It is also not aligned with the objective of assignment and its achievement and impact is not properly evaluated,	-Strong M and E of the training delivered, - Developed mechanisms which ensure & evaluate the training /work shop is well designed, organized, coordinated and integrated according to set of accepted criteria,	EFCCC, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)

Furthermore, implementing capacity at organizational, individual and system level was assessed using 5- point scale score values and is presented in percentile values (Fig 5.)

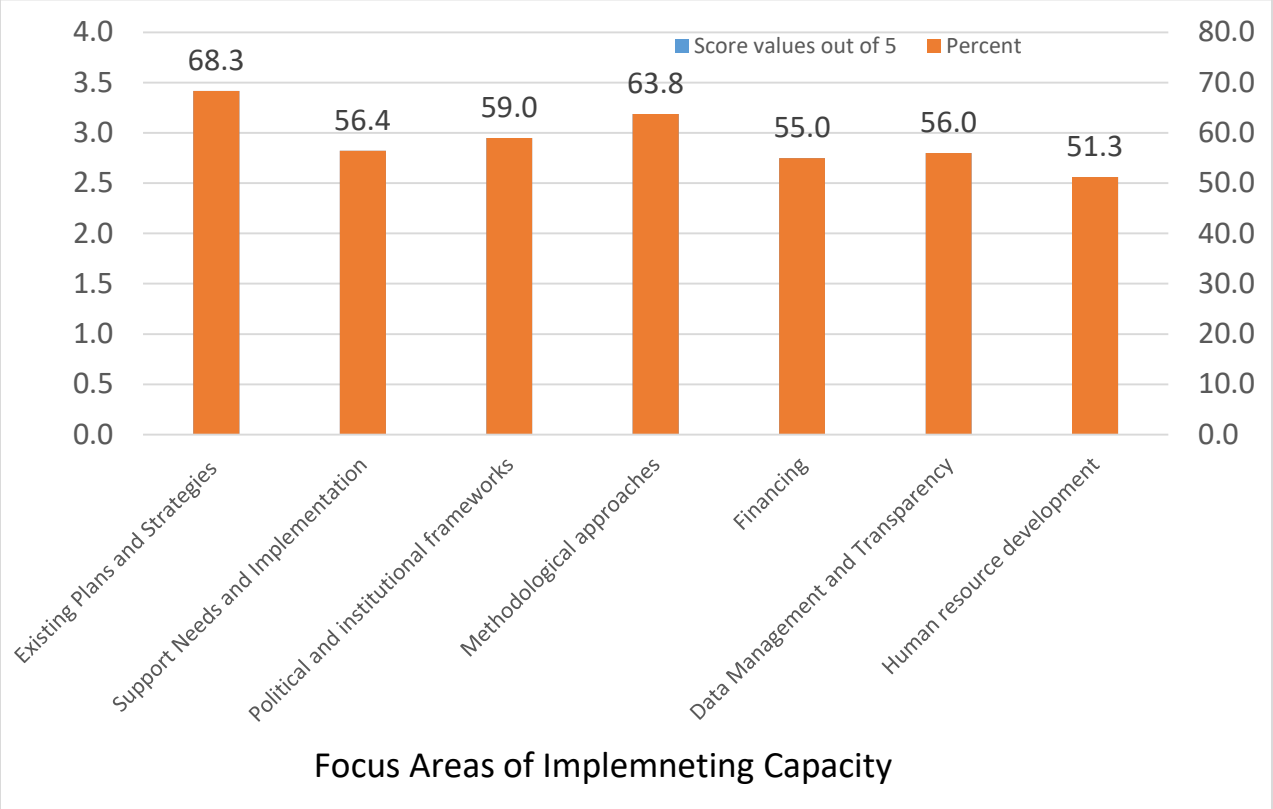

Fig. 5. Level of currently existing capacity to implement 10YPDP, updated NDCs and Eth-NAP.

Fig 5 presents both score values and corresponding percentile values that were converted from a 5-point scale score. The score or percentile values shown in Fig.3 are average of four questionnaire formulated under each key implementing capacity. Both score values and percentile values were used to denote cutting points in categorizing the level of current implementing capacity as very low (<25%), low (25-50%), medium (51-75%) and high (>75) implementing capacity.

In this respect, currently existing technical capacity, system capacity, and organizational capacity as well as enabling environment capacity were evaluated as medium level with average score values of 51- 68.3).

However there were some key elements of implementing capacity with very low percentile values, which may need full-scale training for capacity building. This may indicate that anticipated capacity building actions may fall within level 2 to capacitate the woredal and kebele level technical staffs assigned as frontline staff, which is in close agreement with the results of open-ended questionnaire completed by KIIs.

3.9.2. Federal level current status of the three dimensional capacities in implementing updated NDCs, 10YPDP and Eth-NAP in the forest sector

Following the UNDP-Capacity assessment framework, further analyses of capacity gaps/needs were conducted to determine at what extent the sector's three dimensional capacities are capable of implementing updated NDCs, 10YPDP and Eth-NAP; what new and additional capacities are required. Four set of open-ended questions were formulated for each category of three dimensional capacity assessment framework (i. individual level, ii. organizational level, iii. enabling environment level) along four core issues (i) institutional arrangements; ii) leadership; iii) knowledge; and iv) accountability) and along five key areas of functional and technical capacities (i) engage stakeholders, ii) assess a situation and define a vision and mandate, iii) formulate policies and strategies, iv) budget, manage and implement and v) monitor and evaluate. A 5-point scale was used to score 10 set of questionnaires formulated as " To what extent the organization and its staffs have:

i. Clear institutional arrangement functional to Updated NDCs, 10PDP, ETH-NAP?
ii. Leadership role in implementing Updated NDCs, 10PDP, ETH-NAP?
iii. Learning domains in terms of knowledge, attitude and practice/skill tailored to implement Updated NDCs, 10PDP, ETH-NAP?
iv. System of Accountability applied to Updated NDCs, 10PDP, ETH-NAP?
v. The system and courage to engage stakeholders to foster the implementation of Updated NDCs, 10PDP, ETH-NAP?
vi. the mandate and knowledge to formulate police, strategy and programs applied to implement Updated NDCs, 10PDP, ETH-NAP?
vii. The capacity to conduct situational analyses and define vision and mandate aligned with the objectives and targets of Updated NDCs, 10PDP, ETH-NAP?

viii. Robust Finance, Budget and Manage and Implement system for facilitated implementation of Updated NDCs, 10PDP, ETH-NAP?

ix. Monitor and Evaluation system

x. Enabling environment suitable for implementing Updated NDCs, 10PDP, ETH-NAP?

Each of the ten questions were scored to indicate the level of the current capacity to implement the updated NDCs, 10YPDP, and Eth-NAP.

The results of the assessment are presented in Fig. 6 and Table 18.

As shown in Fig. 5 and Table 18 the score values were ranging between 2.3 and 3.1 with a percentile value of 48.2 and 62.1, respectively. This implies that the sector has low-medium capacity to implement the three strategic programs of climate change national development. Low capacity dimensions were reported by KII in the areas of knowledge which include lack of attitude/awareness, skill/practice and scientific knowledge. This may call for preparation/development of full-scale training package (Level 1) and Level 2-3.

Table 18. Score and percentile values three dimensional capacities of the sector in implementing updated NDCs, 10YPDP and Eth-NAP

Capacity dimensional category	Key elements of capacity	Score and percentile values of the capacity to implement 10YPDP, Updated NDCs and Eth-NAP					
		10YPDP		Updated NDCs		Eth-NAP	
		Score	%	Score	%	Score	%
Core Issues	Institutional arrangements	2.7	53.3	2.8	55.0	2.8	55.0
	Leadership	2.7	53.8	2.9	57.9	2.9	57.9
	knowledge	2.4	48.3	2.3	45.8	2.3	45.8
	Accountability	2.9	57.3	2.9	57.3	2.9	57.3
Technical capacities	Engage stakeholders,	3.0	59.6	3.1	62.1	3.1	62.1
	Assess a situation and define a vision and mandate,	3.1	62.2	3.1	62.2	3.1	62.2
	Formulate policies and strategies,	3.0	60.0	3.0	60.0	3.0	60.0
	Budget, manage and implement and monitor and evaluate.	3.0	59.2	3.0	59.2	3.0	59.2
	Monitor and evaluate.	3.0	60.0	3.0	60.8	3.0	60.0
Enabling Environment	Infrastructure	2.6	52.5	2.6	52.5	2.6	52.5

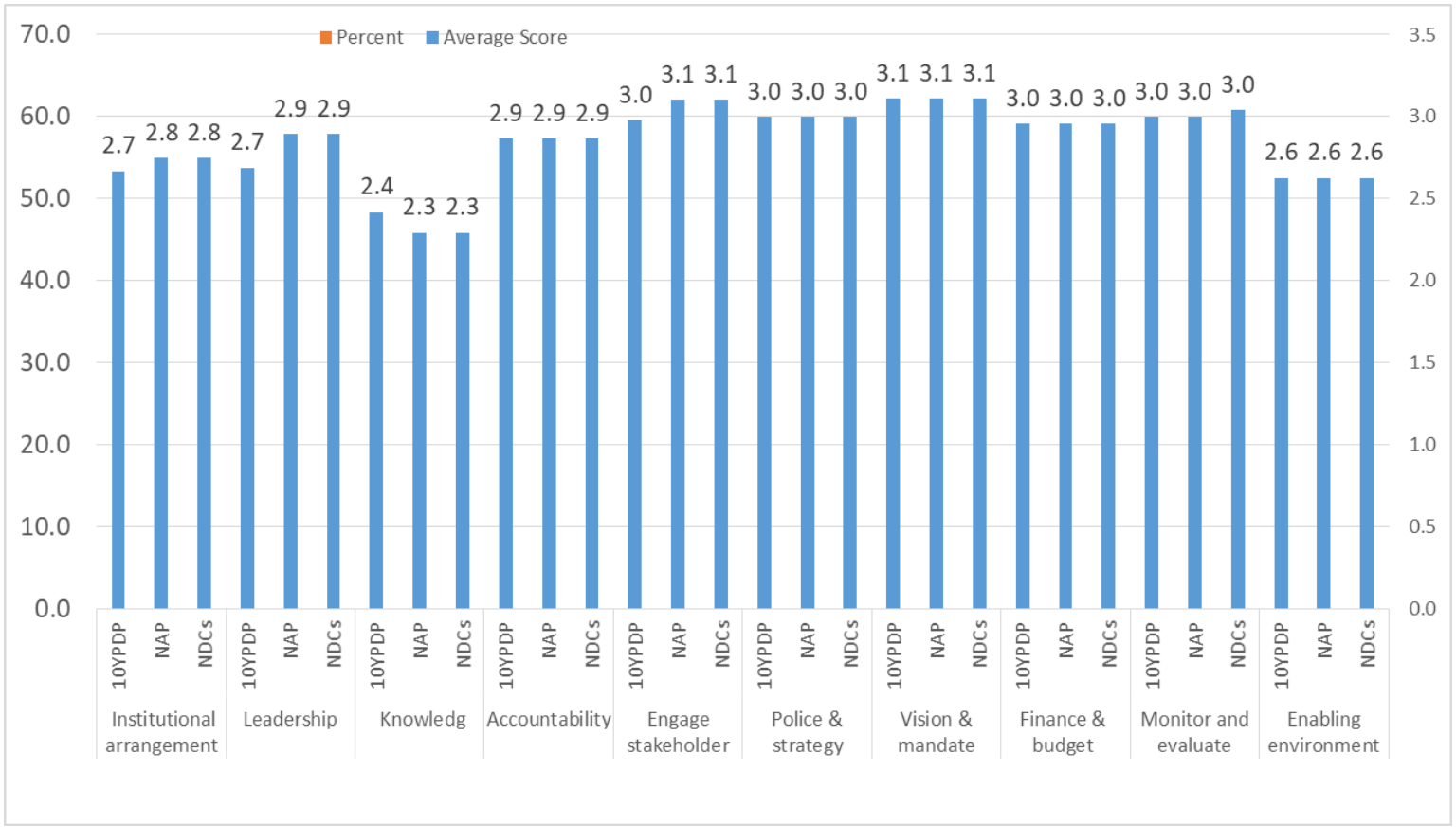

Fig. 6. Score values indicating current status of three dimensional capacities in implementing updated NDCs, 10YPDP and Eth-NAP.

3.10. Capacity gaps/needs identified at Woreda level in the Agriculture and Forest Sector

3.10.1. Description of livelihoods and farming system in the visited woredas

For Woredal level capacity gaps/needs assessment three Woredas were selected, and these were Ada, Delanta and Amibara from Oromia, Amhara and Afar regional states, respectively. The Ada woreda ideally represents the capacity of urban and periurban farming systems that consist of open cereal-livestock mixed farming system with/without small scale woodlots at homesteads, farm boundaries, degraded lands that are owned privately or communally. The Delanta Woreda was selected to represent the same farming and livelihood systems in remote rural settings. Additionally, UNDP supported REDD+ afforestation/reforestation (AR) and Assisted Natural Regeneration (ANR) projects are currently undertaken; and this would provide opportunity to infer the impact of afforestation and reforestation of degraded highlands on rural livelihoods and its contribution to meet objectives of updated NDCs at local level. Furthermore, climate smart technology needs and availability in rural and urban farming systems as well as pastoral and agro pastoral areas were documented. Woredal level capacity gaps/needs for implementation of updated NDCs, 10YPDP and Eth-NAP are presented in the following section.

3.10.2 Staff profile and technical capacity of human resource in the three visited woredas

Human capacity gaps and needs were documented with staff profile assessment at the woredas visited for this assignment. The staff profile assessment was categorized by level of education, areas of expertise and gender (See Annex 4-6; and Figs 7-13 for details).

3.10.2.1. Delanta woreda

The Delanta woreda agriculture office has a total staff of 95. Member of the staffs with MSc degree were 3% Male and 0% Female. The second relatively high level of education (i.e., BA/BSc degree holders) were 60% Male and 9% Female. Staff members with basic education (grade 10) were very few in number and were 4% and 0% male and female respectively. The second larger number of the staff were diploma holders with a share of 11% and 8% Female and Male, respectively.

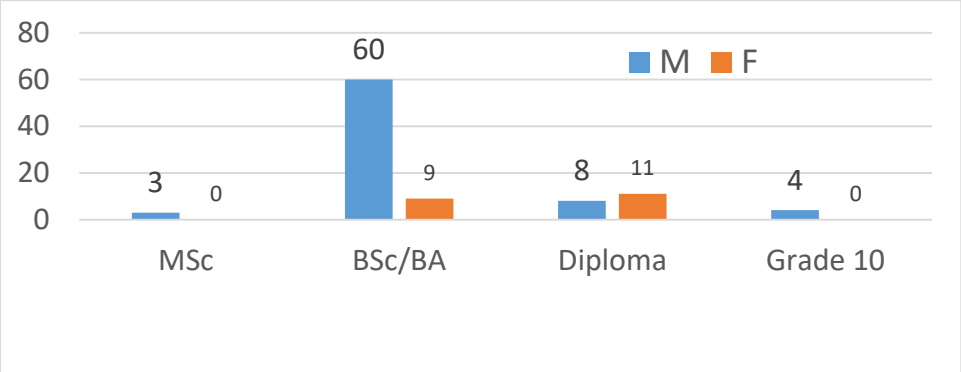

Fig. 7. Staffs of Delanta Woreda Agriculture Office by level of education and gender (Source: Annex 4).

In addition to basic education, the staffs have specialized training (Fig 7xx). Staff members with specialized training in the areas of SWC, nutrition, agriculture input supply, beekeeping, DRR, high land fruit production; PRA, GIS, value chain, SLM etc were 26%; and form these 24 and 2% were male and female, respectively. While staff members who did not have specialized training were relatively larger 78% with a share of 58% and 20% male and female.

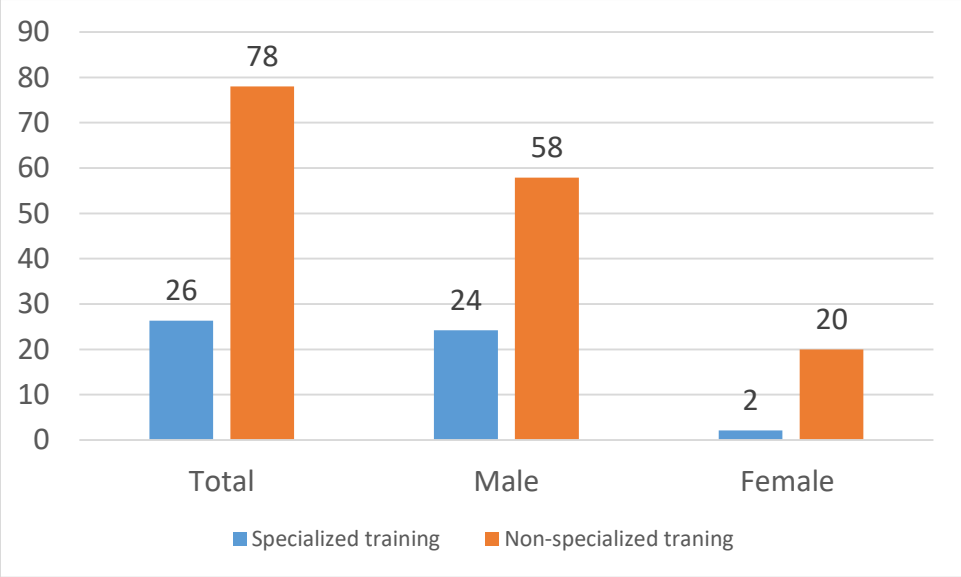

Fig 8. Staffs of Delanta Woreda Agriculture Office with specialized training (Source: Annex 6xx).

Furthermore, the Delanta woreda agriculture office had staffs with 18 areas of expertise as shown in Fig. From these ten of them were male dominated expertises, which include among others forestry, geography, horticulture, NRM and more others. Female preferred expertise was only one that is Agricultural extension.

Highly male dominated expertise were health & production and management & accounting; while database and ICT were highly female dominated.

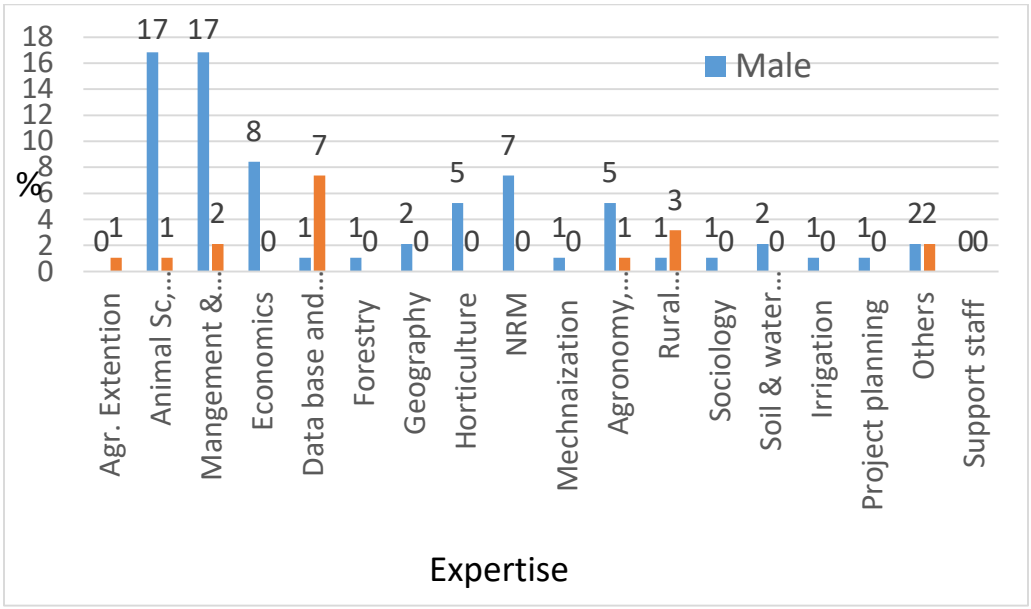

Fig. 9. The distribution of staffs by areas of expertise and gender.

3.10.2.2. Ada woreda

The Ada woreda agriculture office has a total staff of 109. Member of the staffs with MSc degree were 2% with equal share of Male vs Female. The second relatively high level of education was a BA/BSc degree with 39% Male and 9% Female. Staff members with basic education (grade 5-8, 9-12) were very few in number and were 6% and 0% male and female for grade 5-8 and 3% male and 1% female for grade 5-8, respectively. The third larger number of the staff were level 4 with a share of 15% and 11% Female and Male, respectively. Diploma holders were 8 and 6% for male and female, respectively.

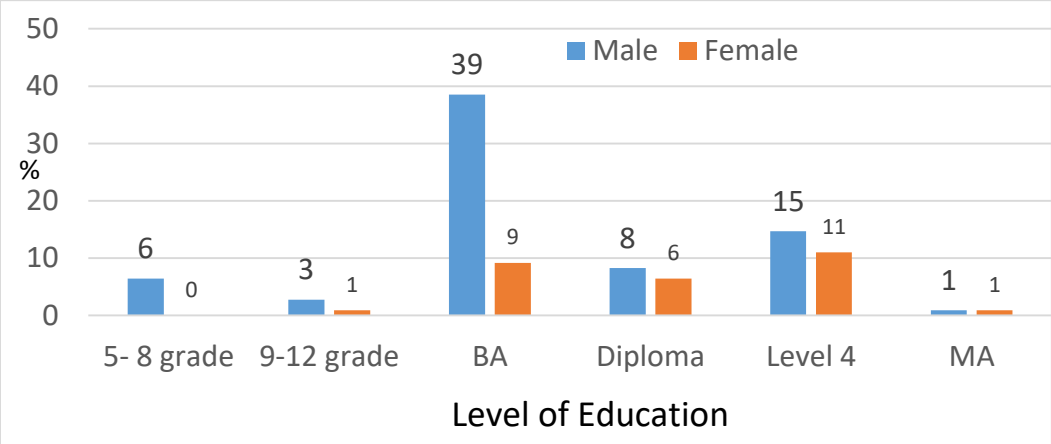

Fig 10 Staffs of Ada Woreda Agriculture Office with level of Education (Source: Annex 5).

Furthermore, the Ada woreda agriculture office had staffs with 20 areas of expertise as shown in Fig 10xx. From these three of them were dominantly NRM experts (34%) and were largely male dominated (28%) with relatively low engagement of female experts (6%). The second sector with relatively larger pool of extorts was plant sciences with a share of 15% male and 11% female experts. General service providers (guard, cleaners etc) with school certificate were large enough (9%). Each of the remaining 17 areas of expertise were occupied by below 5% of the total expert pool. In contrast to Delanta woreda, Ada woreda has large NRM experts and nil ICT experts.

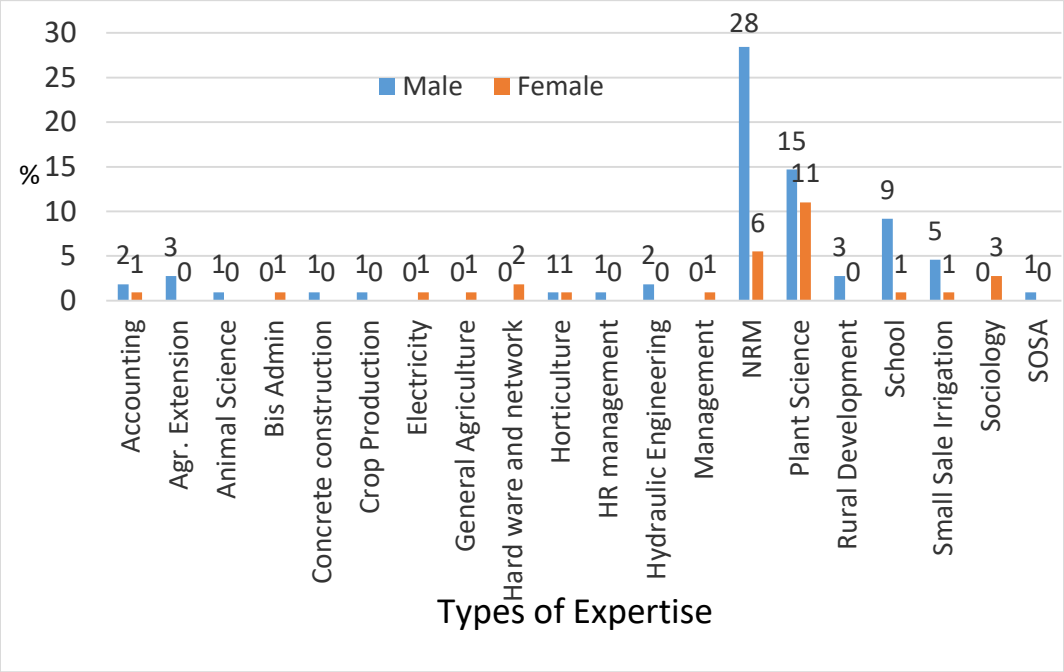

Fig. 11. The Ada woreda Agriculture Office Staff distribution by areas of expertise and gender (Source: Annex 5).

3.10.2.3. Amibara woreda

The Amibara woreda agriculture office has a total staff of 28. Member of the staffs with MSc degree were only male (7%). The second relatively high level of education was a BSc degree with 46% Male and 21% Female, and was followed by BA degree holders who were 14% male and 4% Female. Diploma holders were 7% of the total expert pool and were only male.

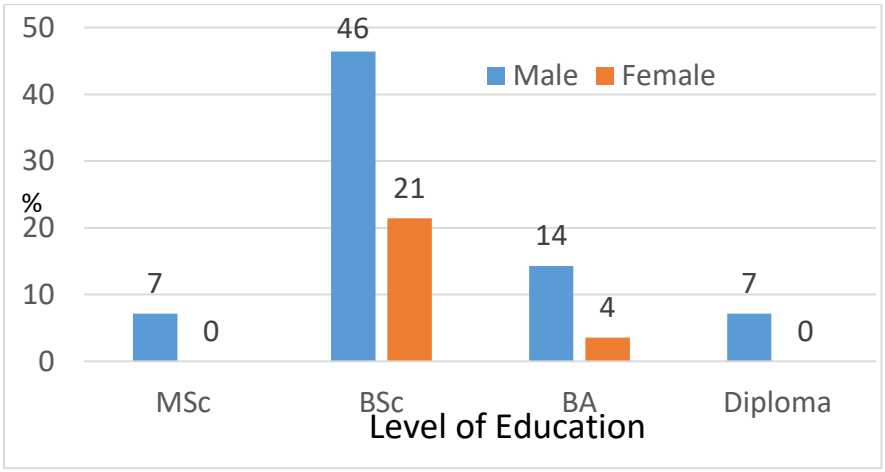

Fig 12. Staffs of Amibara Woreda Agriculture office with level of Education (Source: Annex 6).

Furthermore, the Amibara woreda agriculture office had staffs with ten areas of expertise as shown in Fig 12xx. From these, plant science was the dominant sector with the largest number of expert's team (29%) and all of them were male. There were more staffs who were covering the tasks of more than two experts, and these were the experts who were working as expert of plant science + irrigation; SWE +Irrigation +mechanization. These group to experts were only male and were 3 and 7% of the total expert pool, respectively. In contrast to Ada and Delanta woredas, the Adaw woreda Agriculture office has a dedicated unit with experts in the areas of DRR, Irrigation and mechanization.

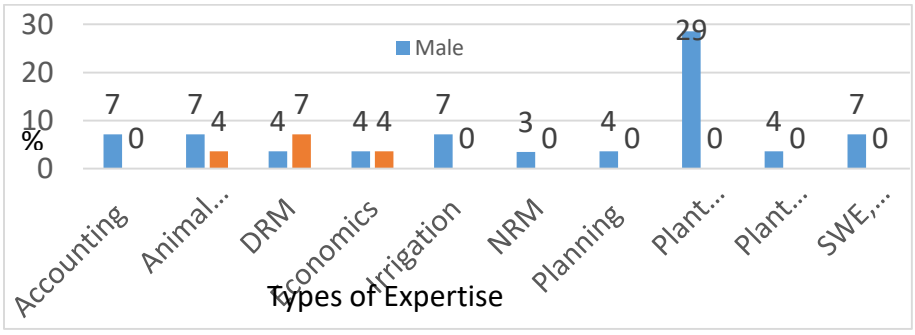

Fig. 13. The Amibara woreda Agriculture Office Staff distribution by areas of expertise and gender (Source: Annex 6).

3.10.3. Kebele level institutional arrangement and technical capacity of human resource in the Agriculture and Forest sector in the visited woredas

At Kebele level, the agriculture and forest sector is structure with 3-5 functional units headed by Kebel agricultural office head who leads undertakings of key development interventions in the areas of plant science/ crop production, natural resources management, animal science/ animal production, animal health/ veterinary (Table 19). The qualification of the staff at Kebel Agriculture office ranges from Level 3-4 to Degree level. The majority of these experts have a BSc/BA degree. Most Kebeles in Delanta woreda have 5-6 functional units including cooperatives.

At all kebeles and woredas, the forest sector is embedded within the Natural Resources Sector. This sector at Kebele level is lacking forest expert dedicated to undertake sustainable forest management interventions. As reported by interviewed staffs of the kebele Agriculture office, there is no much need for employing additional and new technical staffs. However, it was reported by the same that there is mismatch of qualification and position. Large number of DAs are degree holders in accounting but are employed at a position for which a diploma/ level 3-4 holder is qualified; and this mismatch of qualification and position requirement attributed to lack of budget for career promotion. For the same reason, several positions and functional units at keble level were vacant, but are highly relevant for updated NDCs implementation; and these include Land administration, Environment and forest, Irrigation, Mechanization and Artificial Insemination.

Table 19. Kebele level institutional arrangement and qualification of technical staff

Functional Unit/ Kebel level Agr. and forest sector	**Qualification of technical staff in sample Kebeles (Diploma, Degree, Level 1-4)**		
	Ada woreda	**Amibara woreda**	**Delanta woreda**
Plant Science (Crop production)	Diploma	Degree	Degree
Natural Resources	Level 4 / Degree	Degree	Levl 3, Degree
Animal Science/ Animal production	Diploma	Degree	Degree
Animal Health/ Veterinary		Diploma	Degree/Diploma
Kebele Agriculture office head	--	--	Degree

Cooperative office	--	--	Degree
Total staff per Kebele	3	3-4	5-6

3.10.4. Three dimensional capacity gaps/needs and recommended actions towards addressing woreda level capacity gaps/needs in the agriculture and forest sector

The UNDP-Capacity assessment framework was used to further assess the capacity gaps/needs at three visited woredas in order to determine:

- To what extent the sectors' three dimensional capacities in the woreda agriculture and forest sector are capable of implementing updated NDCs, 10YPDP and Eth-NAP?
- What new and additional capacities are required?

Four set of open-ended questions were formulated for each category of three dimensional capacity assessment framework (i. individual level, ii. organizational level, iii. enabling environment level) along four core issues (i) institutional arrangements; ii) leadership; iii) knowledge; and iv) accountability) and along five key areas of functional and technical capacities (i) engage stakeholders, ii) assess a situation and define a vision and mandate, iii) formulate policies and strategies, iv) budget, manage and implement and v) monitor and evaluate. Each category of capacity, currently existing capacity gaps and set of recommended actions were identified and are presented in Table 20.

The capacity gaps existing at woreda and kebel level were very much the same as those identified at federal level. Large set of capacity gaps were identified in the areas of knowledge gap which demands preparation of series of training materials and guide lines in the areas of forest management, GHG MRV, value chain development, animal fattening and feeding, artificial insemination etc. Infrastructure building as part of enabling environmental level capacity was reported as critical capacity gap at woreda level, and these include largely lack of internet access and computer facilities, field vehicles. Staff turnover due to lack of career structure was as critical as it does at federal level. It was also reported that trainings conducted so far as part of human capacity building were more redundant, offered for very few days (usually 3-5 days); and these need to be improved.

Table 20. Capacity gaps in three dimensional capacities at woreda agriculture and forest sector and recommended actions for enhancing implementations of updated NDCs, 10YPDP and Eth-NAP at woreda level.

Capacity dimensional category	Key elements of capacity	Capacity gaps / needs adversely affecting implementation of 10YPDP, Updated NDCs and Eth-NAP	Recommended actions for strengthening capacity to implement 10YPDP, Updated NDCs and Eth-NAP
Core Issues	Institutional arrangements	-Lack of vertical institutional arrangement and alignment and horizontal coordination, -Absence of dedicated forest institute at woreda, and region level with no forest expert assigned for forest sector development, -loosed coordination between the agriculture and livestock sector at woreda level (e.g Ada woreda), -	-Revise the existing vertical institutional arrangement and alignment as well horizontal coordination - Through revising the existing vertical institutional arrangement, establish dedicated forest office at woreda and kebele level with dedicated budget and staff that is replica of the federal - Follow the same arrangement as federal
	Leadership	Relations with key stakeholders namely research organizations, development partners is medium, Encourages team work,	-Strengthen the partnership with research organizations and NGOs
	knowledge	-Lack of skill and knowledge on GHG MRV, Biogas, forest cover data generation/reporting, medicinal herbs, cow dung management, value chain, gum and resin, -Lack of climate knowledge and indigenous rainfall on forecasting knowledge, -Lack of knowledge on post-harvest loss reduction technology, -Training conducted so far were redundant in terms of content and trainer, lacking practices (fully lecture and power point	-Prepare training and practical manuals and conduct training on GHG MRV, Biogas, forest cover data generation/reporting, medicinal herbs, cow dung management, value chain, gum and resin for woreda /kebele level experts, -Document indigenous climate forecasting knowledge and prepare hands-on training for woreda and federal experts, -Prepare guide lines post-harvest loss management and conduct training for woreda and kebele level experts,

		presentation based), and were conducted for note more than 5 days, -There is lack of knowledge on animal fattening and feeding, -Lack of cow dung/animal manure and slurry management for energy and soil improvement,	-Prepare training materials on current knowledge based on need assessment, and conduct two weeks training with in-depth practical exercises for Woreda and keble experts. -Prepare training manual, guidelines on animal feeding, fattening and nutrition based on local needs and conduct the training for two weeks for woreda and kebele level experts with in-depth practical exercises, -Prepare training manual and guideline on manure management, slurry application for soil improvement and conduct a two weeks training based on local need assessment for frontline technical staffs (i.e. woredal level experts)
	Resource mobilization	Lack of knowledge and skills on bankable project proposal writing and communication	-Prepare training manuals and guidelines the preparation of proposal writing and communication for Woreda and federal level experts,
	Accountability	-There is lack of clearly articulated ToR and job description for each position and expert,	-Develop ToR for each expert and position
Technical capacities	Engage stakeholders,	-There is good partnership with research organizations and universities in technology and knowledge transfer, - For example, Short term trainings are conducted by ATA, Oromia Beauro for extensions, and Debre-Zeit research Center for Ada woreda Agriculture office.	-Should be strengthen by establishing farmers managed demonstration of new technology and knowledge application annually, - Prepare short term training manual and conduct the training in the areas of forest management, environment management, Climate technology, irrigation, climate smart small scale farm machinery,

	Assess a situation and define a vision and mandate,	-Lack of understanding on the mandates of sectoral institutions, particularly overlaps of mandates of the agriculture and forest sector,	Conduct one week awareness training on differences and overlaps of sectoral mandates and how to overcome institutional conflicts of interest arising from mandate overlaps
	Formulate policies and strategies,	-Lack of awareness and knowledge on designing implementation of 10YPDP, Updated NDCs and Eth-NAP,	Conduct awareness and skill training on the designing and preparation of action plan and budget for implementing 10YPDP, Updated NDCs, Eth-NAP followed by mentoring the trainees.
	Budget, manage and implement and monitor and evaluate.	-Lack of skill and knowledge on project management including budget planning, and action plan, -Access to technology from research organization is medium-high for Ada and Amibara woreda, but is insufficient for Delanta woreda, -There is lack of dedicated finance unit at woreda agriculture office level, and this attributed to delay of budget release when it is needed, - Annual budget close-up is in June 30 EC, and budget-release is much later after June,	-Prepare training manual and conduct a two weeks training on project management and financial management for woreda level experts and finance personnel, -Strengthen access to technology through partnership with research and higher learning institutions, - Assign a finance officer focal person for agriculture office in the woreda finance office, and this may facilitate the delay of budget release, -Revise budget release or design options budget release in two blocks in July and September.
	Monitor and evaluate.	-Lack of skill and knowledge on monitoring and evaluation of projects including project exit strategy and performance indicator, -Quarterly M&E are conducted at woreda and kebele level.	Prepare training manual and conduct a one week training on project monitoring and evaluation for woreda level experts, Establish and conduct peer evaluation system

Enabling Environment	Infrastructure	-lack of career management system staff promotion and salary improvement and benefits, - Due to lack of budget for employing new and additional staffs, there is lack of staff replacement, -Lack of incentives and hardship allowances, -Lack of training opportunity, -Lack of salary scale alignment with education and experiences (there are cases where diploma salary scale is higher than degree salary scale), and this is serious case for more frequent staff turnover and changes in profession at all levels and sectors, -Lack of access for post-harvest technology and Artificial insemination facilities, -Lack of access for new livestock breads, -Lack of maintenance for tractors and farm machinery, -Lack of field vehicle at woreda and kebele level. -Lack of livestock market center -Lack of slaughtering center, -Lack of office facilities including internet,	-Revise the GAG manual and develop robust HR management manual for career structure and benefits applied to technical staffs, - Secure supply of agricultural inputs, Post-harvest and AI storage facilities as well as saving and credit, -Securing improved livestock breads, -Secure climate smart tractors and farm machinery supply, - Establish livestock marketing center at appropriate place where transport and distance is optimum for all, -Establish slaughtering center at optimum distance for urban and peri urban residents, -Secure/ equip Woreda offices with WiFi and server for internet access and data base, laptops and desktops, printers, scanners etc, -Secure field transport by providing atleast two motor cycles per Kebele with sufficient fuel budget,

3.10.5. Technology supply and demand for household level interventions towards making GHG emission sectors climate smart

As discussed in section 4.2.2. and shown in Table 6, updated NDCs noted three GHG emission policy interventions and GHG emission sectors within the Agriculture and Forest Sectors: (i) Livestock GHG emission sector, (ii) Land Use Change and Forestry (LUCF) GHG emission sector and (iii) Managed Soil GHG emission sector. As these policy objectives have been considered as policy interventions in developing updated NDCs in the agriculture and forest sector (Updated NDCs.2021), available technologies and technology needs were assessed/evaluated for making climate smart livestock-, forest- and soil management systems towards meeting Updated NDCs, Eth-NAP roadmap and 10YPDP actions. Assessment criteria were developed and the level of technology supply and demand were evaluated as high, medium and low (Table 21).

The visited woredas were compared in terms of availability and demand for using climate smart technologies that are proven to reduce GHG emission and at the same time increase animal products (meat, milk etc).
In Amibara woreda, generally there was high demand for various types of climate smart livestock feeding managing technologies, and they are very really available as compared to others two Woredas; and this may attribute to the livelihood system (pastoral and agro pastoral systems) as well as the seasonality of herd mobility may make the supply of concentrated feeds inaccessible. Additionally, lack of diversity in crop farming (where only few food crops e.g. maize farming on limited plot) may have contributed to generally low availability of lives stock feeds.

In Ada and Delanta woredas, almost similar pattern of demand for and availability of climate smart livestock feeding management interventions.

In all three woredas the demand for climate smart livestock feeding technology is much lower as compared to supply. This call for serious consideration of improving livestock feedstuff management during the implementation of updated NDCs. Improvements in livestock feed system is clearly articulated in the 10YPDP and livestock master plan (LMP). The findings of this assessment was in close agreement with the action plan set for in the livestock development strategy document and 10YPDP action plan.

Table 21. Assessment of household level supply and demand for climate smart technologies that would make the sectors with high GHG abatement potentials climate smart.

Interventions used as assessment criteria		Visited Woredas and technology availability and demand (Low/nil L, medium M, high H)								
		Ada woreda			Delanta Woreda			Amibara Woreda		
		Availability	Remark	Demand	Availability	Remark	Demand	Availability	Remark	Demand
A. Livestock GHG Emission Sector										
1.Interventions to improve productivity of livestock and reduce GHG emissions										
1.1.	Introducing high yielding planted forages into existing systems	L		H	L		H	L		H
1.2.	Integrating leguminous fodder trees and shrubs into existing systems	L		H	L		L	L		L
1.3.	Enhancing the use of food – feed crop varieties as livestock feeds (Roots and tubers, Sweet potato, Cassava, Banana, Fodder roots and tubers, turnips, beetroots etc).	N		L	L		L	L		L
1.4.	Rang/pasture land improvement	L		L	L		L	L		H
2.Interventions that improve feed efficiency through processing and diet manipulation										
2.1.	Better utilization of local feed resources	H		L	L		L	L		H
2.2.	Enhancing quality and utilization of concentrate feeds on the market	H		H	N		H	N		H
2.3.	Enhancing the utilization of cereals and legumes crop residues (Maize Stover, Rice straw, Wheat straw, Bean, cow pears, groundnut haulms etc.)	H		L	H		H	N		H

2.4.	Utilization of industrial by products in rations for livestock (Brewers' waste, Biofuel waste)	L		L	N		L	N		H
2.5.	Supplementation using oilcakes; (Whole cotton seed, Cold-pressed canola meal, Sunflower meal, Brewers grain, Groundnut cake)	L		L	N		L	N		H
3.Interventions that reduce GHG emissions through targeting the rumen environment										
3.1.	The use of Feed additives: plant extracts and rumen modifiers (condensed tannins, essential oils; yeast, bacterial direct fed microbial, and enzymes)	L		L			L	N		L
3.2.	Technologies for reducing GHG emissions from livestock manure through use of anaerobic digestion; i.e, Producing biogas for energy and nutrient rich organic slurry for fertilizer are the products from these technologies	L		L			L	N		H
4. Intervention that improves breads										
4.1.	Selective breeding among indigenous breed for heat tolerant, adaptation increased temperature	L		H			H	N		H
4.2.	Availing scaling up climate services for Agriculture	L		L			H	L		H

3.11. Good Practices and Lessons learned from Visited Woredas and other case studies

3.11.1. Manure management for household energy and soil improvement

Manure is ample resource largely available within a vicinity of a homesteads of every farming or pastoral households (Photo 2), who owns a cattle herd ranging from a single cow to more than 50 per household. It is being used for energy and soil improvement for millennia. It is therefore central for enhancing Livestock based supports to farming systems and energy uses.

Photo 2. Heaps of manure and Teff straw (Ada woreda) and open barn with large cattle herd in Pastoral areas (Amibara).

During the assessment, KIIs with farming and pastoral/ agro pastoral households were conducted. One of the key findings of the KIIs was the household level manure management interventions for energy and soil improvement in the pastoral and sedentary agriculture community. Manure management interventions observed during this assessment and other studies was found interestingly climate smart intervention in relation to both adaptation and mitigation in the areas of managing agriculture, energy, health, forestry and waste. This intervention was considered as good practice for meeting adaptation and mitigation targets of updated NDCs. Good practice (case study I) and other case studies (case study II) are presented as follows.

CASE STUDY I:

W/ro Doro Adu is a biogas user (Photo 3) pastoralist living in Amibara woreda, Afar regional State. She with her family owns large cattle herd (more than 50). Since very recently she is using biogas energy for meeting her household energy demand for cooking and lighting. She expressed her feeling in appreciating the biogas and management of the cow yard manure she obtains daily from her large cattle herd. She articulated that household with few number of cattle (about 2 cattle) are using clean and health energy from biogas and effective manure management, while we with large livestock resource (> 50 cattle) are using fuelwood collected from long walk distance. Fire wood collection takes much of our time, which we otherwise can use it to do something else productive for generating additional household income.

She keeps the slurry far away from homesteads considering it as a waste and she does not use it organic fertilizer to improve soil conditions at farm or pasture land.

Photo 3. Wro Doro Adu.

Ato Geta Girma a farmer from Ada woreda living in urban and peri-urban settings uses biogas for energy (cooking and lighting). He uses the bio slurry as compost/organic fertilizer for improving soil conditions of his cropland. Cow yard manure management system for energy and soil fertility provided multiple benefits to farming communities, as reported by KIIs. As presented in Table 22, it reduces fuel wood consumption by 100% in pastoral communities and by 30% in sedentary agriculture communities, increases grain and straw yields by 150 and 60%, respectively. Furthermore it resulted changes in the grazing system, where by grazing lands could be reduced as a result of high straw feed production and the intention of the farmers to restrict the cattle mobility for accessing large collection of cow dung. Restricting cattle mobility and availing sufficient straw feedstuff would enhance animal production.

However, many of the biogas plants in the community are not functional for various reasons (getting old, damaged, lack of maintenance, etc) as reported by development agents. Whatever the case may be, it is highly recommended to ensure the continuity of the biogas to function well.

Table 22. Household benefits obtained from use of biogas.

Livestock type	N	Cooking types	Fuel wood consumption (Kg/week)		Yield after biogas (Kg/ha) (with slurry)		Yield before biogas (Kg/ha (without slurry)		Changes in grazing system	
			Before biogas	With biogas	Grain	Straw	Grain	Straw	Before biogas	After biogas
W/ro Dor Adu: a Pastoralist living in Amibara woreda, Afar region										
Cattle	45-52	Cooking and light	32	nil	No data	No data	No data	No data	No data	No data
Sheep	16-24									
Goats	45-54									
Camel	37-48									
Ato Geta Girma: a farmer living in peri-urban resident farmer in Ada woreda, Oromia region; producing maize on 0.125 ha of land										
Cattle	6	Cooking and light	58	40	40	640	16	400	yes	yes

CASE STUDY II

CORDAID supports a project that aims at: (i) Promoting animal manure and human waste management for improving soil conditions and increasing crop and feed yield through using Biogas scheme; and (ii) Promoting Roof water harvesting. The project was implemented in Argoba special woreda, Amhara region. Ato Seid Yimam, beneficiary of the project, owns a pair of ox and a cow and uses the biogas since March 2020 to meet household energy demand and the bio-slurry as organic fertilizer to improve the fertility of his crop land.

Human waste was connected with the wet manure inlet into the biogas dome (Photo 2); and its contributions to health is substantially high. He installed roof water harvesting as source of water for mixing the cow dung for the biogas. From the view of points of meeting the objectives of updated NDCs, household level cow yard manure management scheme (bio-gas/-slurry) would provide multiple benefits; and these are described as follows.

Photo 4. Showing the biogas plant and biogas inputs, outputs and process from manure supply to methane gas production at Mr Seid Yimam household. (Source: Zewdu Eshetu. 2020).

Implications for achieving updated NDCs through reducing deforestation and CO_2 emission:

Before the instalment of the biogas plant, Ato Seid Yimam was using 40 kg of wood daily for cooking and lighting, and yields to annual tree harvest of 14600 kg/household (Table 23). This would produce annual emission of 26718 kg CO_2 eq per household.

Following the establishment of the biogas, the household of Ato Seid uses 40 kg fuel wood per week as a supplementary energy source, i.e., about 5.71 kg fuel wood per day per household. The annual fuelwood requirement for supplementing the biogas energy has been estimated to 2,086 kg per household. This would result in annual emission reduction of 22901 kg CO_2 eq and annual saving of a tree harvest of 12514 kg.

Table 23. Reduction in fuel wood consumption and CO_2 emissions as a result of using biogas.

Fuel and emission	Fuel wood and CO_2 emissions before Biogas establishment		Fuel wood and CO_2 emissions since biogas establishment		Fuel wood and emission reduction
	Kg/day	Kg/year	Kg/day	Kg/year	Kg/year
Fuel wood	40	14600	5.714286	2085.714	12514.29
CO_2	73.2	26718	10.45714	3816.857	22901.14

Lessons learnt from Success: The biogas scheme provides several benefits to the household. The community's demand for the biogas is becoming so huge and is scalable at larger numbers across the nation to meet the updated targets in the areas of Livestock GHG reporting sector, LULCF GHG reporting sector and Managed soil GHG reporting sector. The households who had a failed biogas scheme need to have a well designed and constructed biogas plant.

Lessons learnt from Failures: Many biogas plants were not established as it was initially planned/identified for various reasons. The other challenge that attributes to the establishment of limited biogas plant was lack of commitment or interest from the Woreda Administration Office which is supposed to facilitate the biogas establishment process, support budget and requirements from the government side. Lack of skilled personnel in the community contributes to improper functioning of more biogas plants.

Recommended actions to address the challenges: For upscaling biogas to have wider coverage within a time horizon of updated NDCs implementation, it is highly recommended to conduct a consultative meeting that brings the Woreda Administration office and the Target households onboard. Additionally, the month of January is very ideal time for conducting consultative meetings as most households and Woreda Administration office personnel and concerned experts/officers have less busy schedule.

3.11.2. Integrated biophysical interventions for rehabilitation of degraded mountain slopes enhances livelihoods supports and meets climate objectives

CASE STUDY III

During the field visits to Delanta woreda, assessment on RIP project interventions and project beneficiary households of cereal-livestock mixed farming community was conducted. Few of the most successful RIP project supported interventions were small holder commercial woodlots established at farmers former crop land, amazing biophysical soil conservation works at very steep mountainous gorges, accessing gravitation irrigation along the mountain slope, and integrating sheep fattening, apiculture, agroforestry and fruit crops production

with soil and water conservation structures (Photo 5). The project supports AR and ANR activities in 25 Kebeles since 2008 EC (2015/16 GC) with financial support obtained from Norway and Sweden.

The project beneficiaries were 1526 female and 2762 male. The project generated a total income of Birr 7,900,545 from various income generating activities including: sheep fattening, construction wood harvest, fruit production, honey production, sell of grass harvested from woodlots, improved cook stove production. Income generation per capita can be estimated to Birr 1842.

Photo 5. Various income generation activities supported by RIP project in Delanta woreda.

4. CAPACITY DEVELOPMENT ACTION PLAN

The institutional capacity development action plan is prepared based on the identified and prioritized capacity gaps/needs of the Agriculture and Forest sector for implementing 10YPDP, Updated NDCs and Eth-NAP with in the time horizon of 20 Years (2021-2030). Along each of capacity development dimensions, the action plan consists of strategic objectives, implementable activities, and performance/achievement indicators and estimated indicative budget with responsible and supportive organizations for the implementation. It should be noted that indicative budget estimates and timelines shown in the following section are preliminary and will be updated during the implementation. The action plan was prepared based on the following assumptions:

Assumption 1. Capacity development actions are undertaken within a time line of two years as of early 2022, because each of identified capacity gaps/needs are critical for the successes and on time completion of the updated NDCs actions within a time horizon of 10-Years,

Assumption 2. human development action plan is geared to practical oriented enrichment training tailored to identified knowledge and skill gaps, because right now there is no much need for employing new and additional technical or support staff at federal or woreda/kebel level,

Assumption 3. Indicative budget is estimated based on current market price for determining unit costs,

Assumption 4. Budget estimation, quantification of fixed assets and number of trainees are guessed based on the total number of rural woredas and rural kebeles that currently the rural settings of Ethiopia is administratively divided into 546 rural woredas and rural kebeles 21,149 (Ethiopia, CSA, 1998;

https://www.google.com/search?q=how+many+Rural+kebeles+in+Ethiopia); and 10% of the total rural woredas (i.e 60 woredas randomely selected from regions) and 5% of the total rural kebele (i.e, 1060 kebeles randomly selected from regions) are proposed to be considered for updated NDC capacity building that need to be completed within two years. For federal and region level capacity building, a total of 36 trainees are proposed to be nominated from 10 regions and two city administration.

4.1. Capacity development action plan and indicative budget for the Agriculture sector

Based on the above assumptions the indicative budget and unit costs were calculated as follows (Table 23):

- For each training activity a total of 100 trainees are suggested, as these will serve trainer of trainees
- Consultant fee for preparation of training manual/material and conduct of training lump-sum of Eth Birr 400,000
- DSA for trainees, Training venue, accommodation etc, Eth Birr 4000 per trainee per day
- Average training duration 15 days including travel day
- Total training cost = (4000 birr * 100 trainees * 15 days)+400,000 consultant fee = Eth Birr 6,400,000
- Monthly salary of 16, 000 for dedicated staff whenever necessary for a project period of 10 years = Birr 16,000 * 12 months * 10 years = Eth Birr 1,920000,
- Media communication cost @ Birr 50000/yr = 50000 * 10 years = Eth Birr 500000,
- Motor cycle cost @ Birr 70000

The unit costs were obtained from market survey for the price of equipment, and modest salary rate and consultancy fees used by NGOs.

Table 24. Capacity building action plans with indicative budget and time line along strategic capacity building objectives towards meeting the implementation of updated NDCs, 10YPDP and Eth-NAP actions in the Agriculture Sector. Ministry of Agriculture and its wing at region, woreda and kebele level are implementing entities.

Identified Major Capacity Gaps	Recommended Activities to address the capacity gaps	Capacity dimension addressed[5]	Indicative budget (Eth Birr)		Priority	Time frame (Y1, Y2)	KPI[6]	Support org.
			[7]Unit cost	Total cost				
Grand total project cost				138,760,000				
A. Strategic capacity development objective: **Institutional arrangement**				10640000				
A1. Lack of vertical alignment and horizontal coordination between/among sector ministries/bureaus/offices ,	A1.1. Establish dedicated units/directors that are fully aligned at all levels for the implementation of updated NDCs/10YPDP/Eth-NAP/related issues at regional and woreda level.	Sectors were functionally aligned horizontally and vertically at all levels		1920000	2	2	Dedicated units at federal, regional, woreda	EFCCC, MoF, NPC
	A1.2. Fully mainstream Updated NDCs/Eth-NAP interventions & targets in the 10YPDP	Updated NDCs and Eth-NAP actions were included in the		1920000	1	1	Allocated budget and assigned staff	EFCCC, MoF, NPC

[5] Capacity dimension category in this report refers to capacity building organizational level capacity, human capacity individual level), functional system capacity, infrastructure capacity, policy environment etc)

[6] Key Performance Indicator

[7] Unit costs are as per the assumption described under 5.1

	development plan at all level by assigning dedicated staff and allocating the required budget.	10YPDP annual plan						
	A1.3. Conduct training on the integrated objectives of updated NDCs/Eth-NAP, 10YPDP in line with mandate of the organization	Awareness training on updated NDCs, 10YYPDP, Eth-NAP given to Woreda staffs		6400000	1	1	Number of trainings and participants from federal, regional, woreda, kebele	EFCC, MoF, NPC Consultant
A2. Lack of institutional structures to implement CRGE interventions at all level	A2.1. Revise existing organizational structure towards establishing institutional setup that is fully aligned with its wing at regional and woreda level	CRGE directorates were established at regional bureaus and woreda offices in the same as it organized at Federal level		400000	2	2	Institutional representative units established at region, woreda or kebele	EFCCC, NPC
B. Strategic capacity development objective: **Leadership**				7700000				
B1. Lack of leadership role in building relationship and coordination with key stakeholders	B.1.1. Identify key relevant stakeholders and partners including key priority sectors with best practices to establish collaboration and networking for the	Leadership at regional and woreda level were play vital coordination role with wider partner in the sam way as		400000	1	1	Partner organizations	Consultant

	updated NDC implementation.	political leadership play.						
	B.1.2. Establish all-inclusive platform with professional associations, representative organizations, private and public sector to enhance their support to the implementation of 10YPDP/NAP/NDC targets	The existing platforms working on climate related issues were becoming more proactive to work on updated NDCs/10YPDP.		400000	2	2	Members of plat form and performed activities	UNDP, WB, GIZ, etc
	B.1.3. Identify locally available existing formal and informal communications schemes with regards to communicating key message and provide trainings on key message and information to generate public awareness to enhance implementation of 10YPDP/NAP/NDC targets	Local training and research institutions and NGOs were engaged in providing training on immerging knowledge		500000	2	1-2	Identified and used communication schemes and communicated messages	ETV media, EBC
	B.1.4. Conduct consultation meetings and trainings for partner organizations on the	Trainings on 10YPDP, Updated NDCs were given to		6400000	2	1-2	Performed consultative meetings and trainings	EFCCC, MoF, NPC

	implementation of 10YPDP/NAP/NDC targets	various stake holders and public insitions at woreda level						
	B.1.5. Establish team work and conduct weakly performance evaluation and idea exchange meetings	Weekly performances evaluations were performed by peer to peer evaluation	00	00	1	1	Meeting minutes	Peer
C. Strategic capacity development objective: Knowledge and knowledge/data management, sharing and transparency : (Individual and organizational level capacity)				55200000				
C.1. Lack of knowledge and skills in GHG reporting, climate smart technology, climate science knowledge, climate negotiation, project action planning and more others	C.1.1. Prepare training manuals and conduct need based training on Tier 2 GHG MRV in Livestock and managed soil sector for federal and woreda level experts	Tier 2 GHG MRV training manual in livestock sector was prepared and trainings were given to woreda staffs in pastoral and and agro pastoral areas pastoral		6400000	2	2	Number of trainees, training manuals	Universities, EIAR, UNDP, ILRI
	C.1.2. Prepare training manuals and conduct need based training on climate smart technology applicable to	Training manuals on climate smart technology for livestock and		6400000	2	2	Number of trainees and training material produced	Universities, EIAR, UNDP, ILRI

	livestock and managed soil sectors for woreda and keblele level experts	managed soil MRV sector prepared and training were given to staffs at woreda and region level						
	C.1.3. Prepare training manuals and conduct need based training on the science of climate change including projections scenarios, negotiations and on how to link national projects and programs to climate goals for federal level policy makers and experts	Training mannuals prepared and training cinducted for woreda and region staffs		6400000	2	2	Number of trainees and training material produced	NMA, Universities, EIAR, UNDP, ILRI
	C.1.4. Prepare training manual and conduct training on how to prepare project activity action plans, budget, investment framework, and implementation strategy for federal and woreda level experts,	Training manual prepared and training on project planning conducted		6400000	1	1	Number of trainees and training material produced	MoF, NPC,
C.2. Limited GHG measurement equipment and protocol	C.2.1. Avail automated GHG measurement equipment for livestock and soil emissions.	Automated GHG measurement equipment was		2000000	2	2	Purchased Equipment, and trained personnel	NMA, EFCCC, Universities, ILRI, EIAR

		in place in regional Livestock laboratory /universities						
	C.2.2. Prepare users' manual and conduct hands-on training on how to use the GHG measurement equipment for federal level experts	Uers manual prepared and training conducted		6400000	2	2-3	Practical oriented (Tier 1-Tier 3) GHG MRV training manual, number of trainees	NMA, EFCCC, Universities, ILRI, EIAR
C.3. Limited data/information sharing and tracking system	C.2.1. Develop and establish systems for tracking and reporting GHG emission reduction achievements	System was in place		2000000	1	1	GHG MRV system established	Sectoral ministries, CSA Universities, ICT center, Research organization, NMA, INSA, NPC
	C.2.2. Develop sectoral tailored data collection, data processing, report generation and consumption protocols/tools and conduct training on knowledge management, sharing and scaling up for federal level and woreda level experts,	Protocols were developed		6400000	1	1	Data collection protocol, training manual, number of trainees	Sectoral ministries, CSA Universities, ICT center, Research organization, NMA, INSA, NPC
C.4. The need for registry is critical	C.3.1.Establish robust database system that captures real-time	Data base was in place at regions and		3000000	1	1	Real-time data uploading facilities,	Sectoral ministries, CSA Universities,

	information and compatible with sectoral data base and feeding information to the national registry,	networked with federal sectors						ICT center, Research organization, NMA, INSA, NPC
	C.3.2. Develop users' manual, database administration protocol and data sharing policy,	Data sharing policy and management established		400000	1	1	Produced data sharing policy, database admin and guideline, Organizations member of datasharing,	Sectoral ministries, CSA Universities, ICT center, Research organization, NMA, INSA, NPC
	C.3.3. Avail the necessary facilities including computer, server, dedicated internet access etc with a dedicated space and lab technician	Soft and hardware Facilities were in place		3000000	1	1	Purchased computer accessories, softwares, internet modems, servers, and dedicated space	Sectoral ministries, CSA Universities, ICT center, Research organization, NMA, INSA, NPC
	C.3.4. Organize consultative meetings with partners and concerned stakeholders on data sharing, management, generation and consumption policy etc.	Data sharing partners platform established and networked		6400000	2	2	Participated stakeholders and their role in data sharing	Sectoral ministries, CSA Universities, ICT center, Research organization, NMA, INSA, NPC
D. Accountability				7700000				
D.1. There are limited accountability mechanisms and system which comply with national polices and	D.1.1. Establish accountability mechanisms and system	Accountability system was established		400000	2	2	Transparency and accountability system established and applied	MoF, NPC, EFCCC, WB, UNDP

international agreements with regards to accountability, responsibility and transparency of project management and implementation.	that ensures transparency							
	D.1.2. Identify existing gapes and bad practices on program budgeting and utilization, and provide capacity building training based on identified gapes for federal and woreda level project managers/implementers	Gaps in program budgeting identified and training conducted		6400000	2	2	Assessment report	MoF, NPC, EFCCC, WB, UNDP
	D.1.2. Establish appropriate/legal program budgeting and management system dedicated to updated NDCs implementation at federal and woreda level	Program budgeting management system in place		400000	2	2	Established program budgeting	MoF, NPC, EFCCC, WB, UNDP
	D.1.3. Establish robust and appropriate audit systems with a clear user's manual/guideline	Audting manual /guideline training conducted		500000	1	1	Established system, produced users' manual	MoF, NPC, EFCCC, WB, UNDP
E. Engage stakeholder:				800000				
E.1. Stakeholders' engagement in project initiation, implementation and execution is lacking	D.1.1. Identify existing multi-stakeholder participation for effective implementation of NDCs, 10YPDP, NAP	Stakeholder platform established		400000	2	2	Participated stakeholders and their role plaid on	EFCCC, Local NGOs, Universities, Research organization, NMA, NPC
	D.1.2. Establish inclusive stakeholders platform and	Same as D.1.1.		400000	2	2	Established platforms, member	EFCCC, Local NGOs, Universities,

	stakeholder engagement systems that could engage stakeholders in the process of evaluating project implementation of updated NDCs, 10YPDP, Eth-NAP and other programs/projects.						stakeholders and their tasks,	Research organization, NMA, NPC
	D.1.3. Develop stakeholders' selection criteria	Criteria developed			2	2	Developed criteria	EFCCC, UNDP,
F. Formulate police strategy:				19600000				
F.1. Lack of knowledge on the various polices and strategies including NDCs, CRGE, Eth-NAP, 10YPDP, SDGs	F.1.1. Conduct comprehensive review and analysis of the national/ Regional/local level policies and legal environment in the context of Updated NDCs, 10YPDP, Eth-NAP roadmap	Federal and regional policy algnemnts reviewed and training conducted		400000	2	2	Assessment/review report	EFCCC, PM office, Civil Service, Sectoral standing committee of parliament, NPC
	F.1.2. Conduct awareness training on key polices, strategies, development plans and sectoral institutions mandate (particular on NDCs, Eth-NAP, 10YPDP) for federal and woreda experts/heads and kebele level Das	Training conducted		6400000	2	2	Number of trainees and training material produced	EFCCC, PM office, Civil Service, Sectoral standing committee of parliament, NPC

	F.1.3. Conduct awareness training on alignment and mismatch between sectoral federal policies/strategies and programs with polices, strategies and programs of respective sectoral regional bureaus for federal, woreda level experts and kebele level DAs.	Sectoral polices alignment reviewed		6400000	2	2	Number of trainees and training material produced	EFCCC, PM office, Civil Service, Sectoral standing committee of parliament, NPC
	F.1.4. Conduct awareness training on sectoral climate change adaptation and mitigation plans and its alignment with the development plan for woreda level experts and unit heads.	Awareness training conducted		6400000	2	2	Number of trainees and training material produced	EFCCC, PM office, Civil Service, Sectoral standing committee of parliament, NPC
G. Assess situation and define vision and mandate				12800000				
G.1. Lack of awareness the vision, mission and objectives and intended outcomes of sectoral organization tasks with regards to implementing updated NDCs, Eth-NAP and 10 YPDP	G.1.1. Provide awareness training on the vision, mission and values with regards to updated NDCs, 10YPDP, Eth-NAP Roadmap in order to improve implementations,	Training conducted		6400000	2	2	Number of trainees and training material produced	EFCCC, PM office, Civil Service, Sectoral standing committee of parliament

	G.1.2. Conduct training on how to develop/formulate vision, mission, and objectives and intended outcomes harmonized with organizations' mandate areas.	Training conducted		6400000	2	2	Number of trainees and training material produced	EFCCC, PM office, Civil Service, Sectoral standing committee of parliament
H. Finance, budget and manage and implement				9920000				
H.1. Delays and lack of financing and of financial flow/transaction for implementing projects are commonly occurring challenges in project implementation.	H.1.1. Identify currently existing financial flow constraints with possible mitigation measures (including financial transaction policy changes)	Financial flow constraints identified and mitigation actions mapped		400000	2	2	Assessment report	MoF, NPC, EFCCC, UNDP,
	H.1.2. Map International Support Mechanisms and identify potential donors interested in supporting NDCs, Eth-NAP and 10 YPDP and other programs.	Bankable project proposal writing conducted		400000	2	2-3	Number of interested/ supporting potential donors	MoF, NPC, EFCCC, UNDP,
	H.1.3. Establish partnership and conduct consultative meetings with key development partners, private and public sectors, donors and international support mechanisms for finance allocation from different sources,	Partnership with donors established		400000	2	2	Report on consultative meeting and number of partners and finance granted	MoF, NPC, EFCCC, UNDP,

	H.1.3. Establish dedicated project office with financial management system compatible with national and international financing and audit system.	Project office established		1920000	Not urgent	3	Project office with dedicated staff	MoF, NPC, EFCCC, UNDP,
	H.1.4. Provide training on bankable project proposal write up and on project write-up and management template/guidelines of the various International Support Mechanisms for federal experts.	Training conducted		6400000	2	2	Number of trainees and training material produced	MoF, NPC, EFCCC, UNDP,
	H.1.5. Conduct review on good practices of financial instruments applied to address the existed financial management challenges/gaps and improving domestic financial management instruments/system.	Practices and criteria of financial mechanisms reviewed and training conducted		400000	2	2	Assessment Report	MoF, NPC, EFCCC, UNDP,
I. Monitor and evaluate				13600000				
I.1. Monitoring and evaluation system is limited and not robust	I.1.1. Developing and establish monitoring and evaluation system functioning in line with M & E framework of updated NDCs,	System established		400000	2	2	M & E system established	EFCCC, MoF, NPC

	10YPDP, Eth-NAP roadmap.							
	I.1.2. Identify existing financial and audit problems, challenges and good practices and mitigate actions	Challenges and good practices identified		400000	2	2	Assessment Report	EFCCC, MoF, NPC
	I.1.3. Conduct training on result based project management including M & E and Project Exit Strategy, and M & E of NDCs	RBM training conducted		6400000	2	2-3	Number of trainees and training material produced	EFCCC, MoF, NPC
	I.1.4. Conduct training on M & E framework and guideline for NDCs implementation for sectoral finance personnel	Training conducted		6400000	2	2	Number of trainees and training material produced	EFCCC, MoF, NPC
J. Enabling environment				800000				
J.1. High risk of staff turnover for various reasons including uncompetitive salary scale and others	J.1.1. Develop and establish career structure system that captures career development based promotion, education and training opportunity etc, horizontal and vertical salary scale promotion etc.,	Career structure with annual plan developed		400000	1	1	Career development structure with indicator	Civil Service, NPC, MoF, EFCCC
	J.1.2. Identify short (few days to few months)- and long-term (2-4 Years) training needs	Long term training needs identified and planned		400000	2	2	Areas of short and long term training scheduel	Civil Service, NPC, MoF, EFCCC, Universities,

	that are tailored to updated NDCs and Eth-NAP							
	J.1.3.Conduct selection of experts eligible for the short- term and long term trainings	Staff development program developed		00	1	1	Number of trainees	Civil Service, NPC, MoF, EFCCC
J.2. Lack of clear and frequently changed HR policy	J.2.1. Assign /appoint staffs based on the qualification and experience that matches very well to the job description	Staffs are appointed with merit and dedicated budget		00	1	2	Number of staff	Civil Service, NPC, MoF, EFCCC

4.2. Capacity development action plan and indicative budget for the Forest sector

In the same way as in section 5.1., the indicative budget and unit costs were calculated based on the above assumptions as follows (Table 24):

- For each training activity a total of 100 trainees are suggested, as these will serve trainer of trainees
- Consultant fee for preparation of training manual/material and conduct of training lump-sum of Eth Birr 400,000
- DSA for trainees, Training venue, accommodation etc, Eth Birr 4000 per trainee per day
- Average training duration 15 days including travel day
- Total training cost = (4000 birr * 100 trainees * 15 days)+400,000 consultant fee = Eth Birr 6,400,000
- Monthly salary of 16, 000 for dedicated staff whenever necessary for a project period of 10 years = Birr 16,000 * 12 months * 10 years = Eth Birr 1,920000,
- Media communication cost @ Birr 50000/yr = 50000 * 10 years = Eth Birr 500000
- Motor cycle cost @ Birr 70000

The unit costs were obtained from market survey for the price of equipment, and modest salary rate and consultancy fees used by NGOs.

Table 25. Capacity building action plans with indicative budget and time line along strategic capacity building objectives towards meeting the implementation of updated NDCs, 10YPDP and Eth-NAP actions in the Forest Sector. EFCCC and its wing at region, woreda and kebele level are implementing entities.

Identified Major Capacity Gaps	Recommended Activities to address the capacity gaps	Capacity dimension addressed[8]	Indicative budget (Eth Birr)		Priority (priority 1,2)	Time frame (Y1, Y2)	KPI[9]	Support org.
			[10]Unit cost	Total cost				
Grant total project cost				131600000				
A. Strategic capacity development objective: **Institutional arrangement**				9200000				MoA Research institutes, Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et)
A.1. Lack coordination among departments, institutional structures up to the grass root level (woreda)	A.1.1. Set up institutional arrangement up to the grass root level	Institutional arrangement to the grass root level was in place in all regions and woredas		400000	1	1		MoA Research institutes, Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et)

[8] Capacity dimension category in this report refers to capacity building organizational level capacity, human capacity individual level), functional system capacity, infrastructure capacity, policy environment etc)

[9] Key Performance Indicator

[10] Unit costs are as per the assumptions described in 5.2.

	A.1.2. Conduct regular capacity of institution and experts capacity assessment	Regular staffs capacity/performance assessment conducted		400000	2	2		GEF,GCF, WB, UNDP et)
	A.1.3. Equipping the capacity of implementing and executing entities with computer, networking facilities	Implemneting and executing entities were linked		2000000	2	2		MoA, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	A.1.4. Conduct training and experience sharing with regards to preparation and implementation of action plans.	Train and experience sharing conducted		6400000	2	2		MoA, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
B. Strategic capacity development objective: **Leadership**				15200000				
B.1. Lack of leadership role in decision making	B.1.1. Conduct training on project leadership and decision making with regards to project development and implementation plan	Local level sectoral leaders were empowered through training		6400000	2	2		MoA, NPC, MoF Research institutes Universities International support
	B.1.2. Conduct regular monitoring on the system is functioning	Regular performance monitoring was conducted		400000	1	2-10		

	B.1.3. Developed mechanisms to evaluate and mentor training work shop is well designed, organized, coordinated and integrated according to set of accepted criteria,	Establish mentoring system for staff trainees		6400000	2	2		
B.2. Lack of priority areas and experiences of good practices	B.2.1. Identify key priority areas and document best practices applied to updated NDCs implementation	Best practices identified regularly for scale up		400000	1	2-10		Sectoral organizations, Research institutes Universities as International support mechanisms (such GEF,GCF, WB, UNDP et)
B.3. Lack of technical support from federal sectoral ministries and regional sectoral bureaus to woreda and Kebele sectoral offices	B.3.1. Establish vertical institutional from federal sectoral ministry to respective woreda/kebele sectoral offices	Vertically linked institonal was established in all regions and woredas		400000	1	1-3		MoA, Research institutes Universities International support
	B.3.2. conduct regular capacity gap assessment and take appropriate action to capacitate woreda/kebe sectoral offices with human resource and facility, and budget etc.	Regular capacity assessment conducted		400000	1	2		Consultant, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et)
	B.3.3. Prepare capacity building action plan for woreda/kebele sectoral offices	Capcity action plan throughout the implementation plan prepared		400000	1	2-10		Consultant, MoA, Research institutes Universities

								International support, GEF,GCF, WB, UNDP et)
	B.3.4. Harmonize activities in a way to use available experts for providing services to more than one kebele	Keble lebel activities of forest sector were harmonized with agriculture sector		400000	1	2-10		NPC, Research institutes Universities International support,
C. Strategic capacity development objective: Knowledge and knowledge/data management, sharing and transparency : (Individual and organizational level capacity)				55200000				
C.1. Lack of knowledge management system and Limited experience in knowledge sharing, and documentation	C.1.1. Prepare action plan for long term (1 -3 years) and short term (few days to few months) staff training program (staff development program) tailored to updated NDCs and Eth-NAP	Regular staff training program developed, and conducted as planned		6400000	1	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et)
	C.1.2. Establish partnership with relevant academic institutions	Partnership with universities and research centers established		400000	1	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes

								Universities International support, GEF,GCF, WB, UNDP et)
	C.1.3. Establish system for knowledge management and knowledge sharing,	Knowledge management and sharing policy and system was established		400000	1	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et)
C.2. Absence of registry system,	C.2.1. Establish registry and tracking system (database system) compatible with federal sectoral ministries for accessing	Database tracking system established		2000000	1	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et) ICT center
	C.2.2. Develop a protocol and conduct training on data collection, data processing, report generation and consumption	Data collection protocol certified by EFCCC was published		400000	1	2		MoA, line ministries and Regional bureaus

	C.2.3. Conduct awareness, consultative meetings on data sharing, and tracking policy	Training was conducted		400000	2	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et)
	C.2.4. Policy on data/ information sharing, processing, dissemination and utilization	Data sharing policy was developed		400000	1	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et)
C.3. MRV and GHG accounting systems is not as expected or as it should be , projections and scenarios	C.3.1. Prepare hands-on training manual on GHG accounting/MRV system and conduct practical supported training for federal and woreda level experts,	Training manual was prepared		6400000	2	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et)
	C.3.2. Develop hands-on training materials on climate change science including projection scenarios for	Training for regiona and woreda experts was conducted		6400000	2	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA,

	federal, regional and woreda level experts and officer							Research institutes Universities International support, GEF,GCF, WB, UNDP et)
	C.3.3. Develop training material and conduct tailored training on mitigation and adaptation plan in the areas of Dry land forestry and Land scape restoration /Rehabilitation for regional, woreda/ kebele experts/DAs	Training on dryland forest management was conducted for woreda experts		6400000	1	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et)
C.4. Lack of awareness on climate change negotiation and international agenda on climate change,	C.4.1. Prepare training material and conduct awareness training on climate change negotiations including opportunities, responsibilities and obligations for federal and regional officers/experts, .	Regular training on climate negotiation following annual COPs meeting was conducted for regions		6400000	2	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et)
	C.4.2. Conduct practical training on national communication of GHG accounting	Traion national GHG communication was conducted to regions and academic and research organized		6400000	2	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support,

								GEF,GCF, WB, UNDP et)
C.5. Lack of skil and knowledge on sustainable forest management at woreda/kebele level	C.5.1. Develop training material and conduct practical training on sustainable forest management for woreda/kebele experts/DAs	Sustainable forest management training was conducted for more regions and woredas		6400000	2	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et)
	C.5.2. Conduct awareness training on Eth-NAP, 10YPDP, Updated NDCs for woreda/ kebele experts/officers/DAs	Training on Eth-NAP, 10YPDP conducted for Woredas		6400000	1	1		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et)
D. Accountability				7600000				
D.1. Lack of clear accountability mechanisms and system which comply with national polices and international agreements with regards to accountability, responsibility and transparency of project	D.1.1. Establish accountability mechanisms and system that ensures transparency	Accountability and transparency system was in place		400000	1	2	Transparency and accountability system established and applied	MoF, NPC, MoA, WB, UNDP,
	D.1.2. Identify existing gapes and bad practices on program budgeting and utilization, and provide capacity building training	Gaps on program budgeting use identified		6400000	1	2	Assessment report	MoF, NPC, EFCCC, WB, UNDP

management and implementation.	based on identified gapes for federal and woreda level project managers/implementers							
	D.1.2. Establish appropriate/legal program budgeting and management system dedicated to updated NDCs implementation at federal and woreda level	Legal Program budgeting management system was in place		400000	2	2	Established program budgeting	MoF, NPC, MoA, WB, UNDP
	D.1.3. Establish robust and appropriate audit systems with a clear user's manual/guideline	Appropriate audit system established		400000	2	2	Established system, produced users' manual	MoF, NPC, MoA, WB, UNDP
E. Engage stakeholder:				2000000				
E.1. Lack of stakeholders engagement in the climate related action plans	E.1.1. prepare clear role and responsibilities of various stakeholders to engage in Eth-NAP, Updated NDCs and 1Oypdp	Stakeholders' role in implementing updated NDCs were clearly stated		400000	2	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et), professional society, Local NGOs
participation Fostering stakeholders engagement (e.g. private sector and civil society, academia)	E.1.2. Conduct regular stockholders' consultative meetings for experience and knowledge sharing	Regular experience sharing with stakeholders was conduced		400000	1	2-10		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes

								Universities International support, GEF,GCF, WB, UNDP et), professional society, Local NGOs
	E.1.3. Prepare stakeholder's engagement guideline and conduct Stakeholder mapping	Stakeholders engagement guideline prepared and training conducted		400000	1	2		Consultant, Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et), professional society, Local NGOs
	E.1.4. Establish stakeholders' roster and networking	Stakeholders roster and networking established		400000	1	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et), professional

								society, Local NGOs
	E.1.5. Assign dedicated personnel for stakeholders' engagement and networking	Communication /public relation office engaged stakeholders and were networked		400000	2	2		Consultant, CSA, INSA, NMA, Mapping agency, MoA, Research institutes Universities International support, GEF,GCF, WB, UNDP et), professional society, Local NGOs
F. Formulate police strategy:				800000				
F.1. Lack of link between development programs/projects with international climate change goals etc.	F.1.1. Aligning national and sectoral development plans/programs with global climate change mitigation goals aiming at accessing adequate funding,	Forest and agriculture sectoral development targets were developed in line with global climate target		400000	1	1		MoA, Environmental protection bureaus as well as CRGE implementer ministries, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
	F.1.2. Conduct training on linking national and sectoral policy/ development	Training on policy development was conducted		400000	2	2		MoA, Environmental protection bureaus

	programs with global climate change mitigation goals for experts and officers of regional sectoral bureaus and woreda/kebele sectoral offices,							as well as CRGE implementer ministries, Research institutes Universities International support mechanisms (such as GEF,GCF, WB, UNDP et)
G. Assess situation and define vision and mandate				6800000				
G.1. Lack of awareness the vision, mission and objectives and intended outcomes of sectoral organization tasks with regards to implementing updated NDCs, Eth-NAP and 10 YPDP	G.1.1. Provide awareness training on the vision, mission and values with regards to updated NDCs, 10YPDP, Eth-NAP Roadmap in order to improve implementations,	Training conducted for regions		6400000	1	2	Number of trainees and training material produced	MoA, PM office, Civil Service, Sectoral standing committee of parliament
	G.1.2. Conduct training on how to develop/formulate vision, mission, and objectives and intended outcomes harmonized with organizations' mandate areas.	Training on policy formulation conducted		400000	1	2	Number of trainees and training material produced	MoA, PM office, Civil Service, Sectoral standing committee of parliament
H. Finance, budget and manage and implement				7600000				
H.1. Lack of financing attributed lack of experience and	H.1.1. Map International Support Mechanism and domestic financial	-Intrnational support mechanisms were mapped		6400000	1	2		MoF, NPC, MoA UNDP

knowledge on resource mobilization.	instruments dedicated to support climate change related projects,							
	H.1.2. Compile funding policy, requirements and application templates, guidelines of International Support Mechanisms and conduct raining to project managers and experts at federal sectoral ministries,	Funding policy requirement of international public and private funding institutions were compiled		400000	2	2		MoF, NPC, MoA UNDP
	H.1.3. Establish dedicated expert for resource mobilizing with clear ToR geared towards preparation of long term financing strategy.	Dedicated staff with clear job description for resource mobilization was assigned		400000	2	2		MoF, NPC, MoA, UNDP
	H.1.4. Identify seasonality of adequate budget release and conduct partners meeting for pledging project support.	Partners meeting for inviting parnters to support new and ongoing projects were regulary conducted		400000	2	2		MoF, NPC, MoA, UNDP
I. Monitor and evaluate				14000000				
I.1. Lack of strong M & E system	I.1.1. Conduct regular monitoring on the implementation of update updated NDCs,	Regular prformamce evaluaition and monitoring was conducted		400000	2	2	M & E system established	MoA, line ministries and Regional bureaus, Research institutes Universities International support

								mechanisms (such as GEF,GCF, WB, UNDP et)
	I.1.2. Developing and establish monitoring and evaluation system functioning in line with M & E framework of updated NDCs, 10YPDP, Eth-NAP roadmap.	Monitoring and valuation system was inplace		400000	2	2	M & E system established	MoA, , MoF, NPC
	I.1.3. Identify existing financial and audit problems, challenges and good practices and mitigate actions	Financial auditing problems were identified		400000	2	2	Assessment Report	MoA, , MoF, NPC
	I.1.4. Conduct training on result based project management including M & E and Project Exit Strategy, and M & E of NDCs	Training on RBM was conducted		6400000	2	2	Number of trainees and training material produced	MoA, , MoF, NPC
	I.1.5. Conduct training on M & E framework and guideline for NDCs implementation for sectoral finance personnel	Monitoring and evaluation framework established		6400000	2	2	Number of trainees and training material produced	MoA, , MoF, NPC
J. Enabling environment								
J.1. High risk of staff turnover for various reasons including uncompetitive salary scale and others	J.1.1. Develop and establish career structure system that captures career development based promotion, education and training opportunity etc, horizontal and vertical salary scale promotion etc.,	Staff career structure system was established		400000	1	2	Career development structure with indicator	Civil Service, NPC, MoF, MoA

	J.1.2. Identify short (few days to few months)- and long-term (2-4 Years) training needs that are tailored to updated NDCs and Eth-NAP	Short and long term training needs were identified		6400000	1	1-2	Areas of short and long term training scheduel	Civil Service, NPC, MoF, MoA, Universities,
	J.1.3.Conduct selection of experts eligible for the short-term and long term trainings	Eligible trainees identified and trained		6400000	2	2	Number of trainees	Civil Service, NPC, MoF, MoA
J.2. Lack of clear and frequently changed HR policy	J.2.1. Assign /appoint staffs based on the qualification and experience that matches very well to the job description	Staffs assigned to perform the jobs for which they are qualified		00	2	2	Number of staff	Civil Service, NPC, MoF, MoA

4.3. Capacity development action plan and indicative budget for the woreda and kebel level Agriculture and Forest sector updated NDCS interventions

In the same way as in section 5.1and 5.2, the indicative budget and unit costs for woreda and kebele level implementation of the updated NDCs-forest and agriculture actions were calculated based on the above assumptions, and are presented in Table 26.

- For each training activity a total of 100 trainees are suggested, as these will serve trainer of trainees
- Consultant fee for preparation of training manual/material and conduct of training lump-sum of Eth Birr 400,000
- DSA for trainees, Training venue, accommodation etc, Eth Birr 4000 per trainee per day
- Average training duration 15 days including travel day
- Total training cost = (4000 birr * 100 trainees * 15 days)+400,000 consultant fee = Eth Birr 6,400,000
- Monthly salary of 16, 000 for dedicated staff whenever necessary for a project period of 10 years = Birr 16,000 * 12 months * 10 years = Eth Birr 1,920000,
- Media communication cost @ Birr 50000/yr = 50000 * 10 years = Eth Birr 500000
- Field vehicle for DAs 1 motor cycle for 1060 model kebeles @ price of 70,000 = 70000 *1*1060 = 74,200,000
- Motor cycle cost @ Birr 70000

The unit costs were obtained from market survey for the price of equipment, and modest salary rate and consultancy fees used by NGOs.

Table 26. Woreda level capacity building action plans with indicative budget and time line along strategic capacity building objectives towards meeting the implementation of updated NDCs, 10YPDP and Eth-NAP actions in the Agriculture Sector. Ministry of Agriculture and Environment, Forest and Climate Change Commission and respective wings at region, woreda and kebele level are implementing entities.

Identified Major Capacity Gaps	Recommended Activities to address the capacity gaps	Capacity dimension addressed[11]	Indicative budget (Eth-Birr)		Priority (Priority 1, 2)	Time frame (Y1, Y2)	KPI[12]	Support org.
			[13]Unit cost	Total cost				
Grand total project cost				48840000				
A. Institutional arrangements				2320000				
A.1. Lack of vertical institutional arrangement and alignment and horizontal coordination,	A.1.1. Revise the existing horizontal institutional arrangement and alignment as well horizontal coordination	Institutional set up was vertically well aligned between federal-region- woreda		400000	1	2		MoA, EFCCC Research institutes, Universities, International support mechanisms (such

[11] Capacity dimension category in this report refers to capacity building organizational level capacity, human capacity individual level), functional system capacity, infrastructure capacity, policy environment etc)

[12] Key Performance Indicator

[13] Unit costs are as per the assumptions described under 5.3

								as GEF,GCF, WB, UNDP et)
A.2. Absence of dedicated forest institute at woreda, and region level with no forest expert assigned for forest sector development,	A.2.1. Establish dedicated institute/woreda level project office which play coordination role	Dedicated forest and climate change office was established in all woredas		1920000	1	2-3		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
B. Leadership				400000				
B.1. Relations with key stakeholders namely research organizations, development partners is medium, Encourages team work,	B.1. 1. Strengthen the partnership with research organizations and NGOs	Partnership with academic and research organization was established		400000	2	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI,

								EDRI, ATA, NMA
	B.1.2. CRGE coordination between the federal agriculture sector and livestock sector at region and woreda level are not aligned (e.g Ada woreda),	Federal agriculture CRGE directorate had its branch CRGE in region livestock sector		00	1	2		
C. knowledge				26000000				
C.1. -Lack of skill and knowledge on GHG MRV, Biogas, forest cover data generation/reporting, medicinal herbs, cow dung management, value chain, gum and resin,	C.1.1. -Prepare training and practical manuals and conduct training on GHG MRV, Biogas, forest cover data generation/reporting, medicinal herbs, cow dung management, value chain, gum and resin for woreda /kebele level experts, -	Training on livestock MRV and biogas management conducted at woreda		Budget is shown at federal level	1	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
C.2. Lack of climate knowledge and indigenous rainfall on forecasting knowledge,	C.2.1. Document indigenous climate forecasting knowledge	Indigenous climate		Budget is shown at	2	3		MoA, EFCCC Universities,

	and prepare hands-on training for woreda and federal experts,	forecasting was documented		federal level				International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
C.3. Lack of climate knowledge and indigenous rainfall on forecasting knowledge,	C.3.1. Prepare guide lines post-harvest loss management and conduct training for woreda and kebele level experts,	Post-harvest loss management conducted		400000	1	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
C.4. Lack of climate knowledge and indigenous rainfall on forecasting knowledge,	3.4.1. Prepare training materials on current knowledge based on need assessment, and conduct two weeks training with in-depth	Knowledge need assessment was conducted for woreda experts		Budget is shown at federal level	2	2		MoA, EFCCC Universities, International support

	practical exercises for Woreda and keble experts.							mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
C.5. Lack of knowledge on post-harvest loss reduction technology,	C.5.1. Prepare training manual, guidelines on animal feeding, fattening and nutrition based on local needs and conduct the training for two weeks for woreda and kebele level experts with in-depth practical exercises,	Animal feeding training was conducted for woreda staffs		6400000	1	1		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
C.6. Training conducted so far were redundant in terms of content and trainer, lacking practices (fully lecture and power point presentation based), and were	C.6.1. Prepare training manual and guideline on manure management, slurry application for soil improvement and conduct a two weeks training based on local need assessment for frontline	Manure management guideline prepared		6400000	1	1		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB,

conducted for note more than 5 days,	technical staffs (i.e. woredal level experts)							UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
c.7. There is lack of knowledge on animal fattening and feeding,	C.7.1. Conduct tailored practical supported training on animal fattening and nutrition for woreda experts and Kebele DAs	Training on animal fattening conducted for woreda and keble DAs		6400000	1	1		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
C.8. Lack of cow dung/animal manure and slurry management for energy and soil improvement	C.8.1. Prepare training material and practical manual and conduct training on animal manure management, biogas and bio slurry for woreda and kebele experts	Slurry management conducted		6400000	1	1		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI,

								EDRI, ATA, NMA
D. Resource /finance mobilization				00				
D.1. Lack of knowledge and skills on bankable project proposal writing and communication	D.1.1. Prepare training manuals and guidelines the preparation of proposal writing and communication for federal level experts,	Proposal writing training conducted		Budget is shown at federal level	2	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
E. Accountability				00				
E.1. There is limited ToR and job description for each position and expert,	E.1.1. Develop ToR for each expert and position	Job descriptions were developed for each tasks	00	Budget is shown at federal level	1	1		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI,

								EIAR, EEFRI, EDRI, ATA, NMA
F. Engage stakeholders				3000000				
F.1.There is good partnership with research organizations and universities in technology and knowledge transfer, For example, Short term trainings are conducted by ATA, Oromia Beauro for extensions, and Debre-Zeit research Center for Ada woreda Agriculture office.	F.1.1. Existing partnership should be strengthen by establishing farmers managed demonstration of new technology and knowledge application annually,	Farmers managed technology application was used		1000000	2	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
	F.1.2. Prepare short term training manual and conduct the training in the areas of forest management, environment management, Climate technology, irrigation, climate smart small scale farm machinery,	Training on Climate smart technologies conducted		2000000	1	1		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI,

								EDRI, ATA, NMA
G. Assess a situation and define a vision and mandate,				00				
G.1. Lack of understanding on the mandates of sectoral institutions, particularly overlaps of mandates of the agriculture and forest sector,	G.1.1. Conduct awareness training on differences and overlaps of sectoral mandates and how to overcome institutional conflicts of interest arising from mandate overlaps	Training on sectoral manadates conducted for woreda experts		Budget is shown at federal level	2	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
H. Formulate policies and strategies,				00				
H.1. Lack of awareness and knowledge on designing implementation of 10YPDP, Updated NDCs and Eth-NAP,	H.1.1. Conduct awareness and skill training on the designing and preparation of action plan and budget for implementing 10YPDP, Updated NDCs, Eth-	Training on action plan preparation conducted		Budget is shown at federal level	2	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB,

	NAP followed by mentoring the trainees.							UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
I. Budget, manage and implement and monitor and evaluate.				10320000				
I.1. -Lack of skill and knowledge on project management including budget planning, and action plan,	I.1.1. Prepare training manual and conduct a two weeks training on project management for woreda level experts, - -	Training on project management conducted		6400000	2	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
I.2. -Access to technology from research organization is medium-high for Ada and Amibara woreda, but is insufficient for Delanta woreda,	I.2.1. Strengthen access to technology through partnership with research and higher learning institutions,	Partnership with research and higher learning institutions prepared		2000000	2	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB,

								UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
I.3. There is lack of dedicated finance unit at woreda agriculture office level, and this attributed to delay of budget release when it is needed,	I.3.1. Assign a finance officer focal person for agriculture office in the woreda finance office, and this may facilitate the delay of budget release,	Finance officer dedicated for agriculture was assigned		1920000	2	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
I.4. Annual budget close-up is in June 30 EC, and budget- release is much later after June,	I.4.1. Revise budget release or design options budget release in two blocks in July and September.	Budget release options recommended		00	2	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI,

								EDRI, ATA, NMA
J. Monitor and evaluate.				6400000				
J.1.Lack of skill and knowledge on monitoring and evaluation of projects including project exit strategy and performance indicator,	J.1.1. Prepare training manual and conduct a one week training on project monitoring and evaluation for woreda level experts,	Monitoring and evaluation conducted		6400000	2	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
J.2. Quarterly M&E are conducted at woreda and kebele level	J.2.1. Establish and conduct peer evaluation system and self-assessment	Self-assessment was conducted		00	2	3		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI,

								EDRI, ATA, NMA
K. Enabling Environment				400000				
K.1. lack of career management system staff promotion and salary improvement and benefits: these include: -Lack of incentives and hardship allowances, -Lack of training opportunity, -Lack of salary scale alignment with education and experiences (there are cases where diploma salary scale is higher than degree salary scale), and this is serious case for more frequent staff turnover and changes in profession at all levels and sectors,	K.1.1 Revise the GAG manual and develop robust manual for career structure and benefits applied to technical staffs,	GAG manual was revised		400000	2	2		MoA, EFCCC, civil service ministry Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
K.2. Lack of access for post-harvest technology and Artificial insemination facilities; which also	K.2.1. Secure supply of agricultural inputs, livestock breads, Post-harvest and AI	Supply of agricultural production inputs were securied		00	2	2		MoA, EFCCC Universities,

include lack of access for new livestock breads,	storage facilities as well as saving and credit,							International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
K.3. Limited number of maintenance for tractors and farm machinery, including lack of field vehicle at woreda and kebele level	K.3.1. Secure field transport by purchasing at least one motor cycles per Kebele with sufficient fuel budget,	Field vehicles were purchased		74200000	1	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
	K.3.2. Support with availing climate smart tractors	Climate smart tractor purchased		00	3	2		MoA, EFCCC Universities, International support

								mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
K.4. Lack of livestock market and slaughtering center	K.4.1. Establish marketing and slaughtering center at optimum distance for urban and peri urban residents,	Slaughtering centers and established		00	1	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB, UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA
K.5. Lack of office facilities including internet, computer accessories	K.5.1. Secure/ equip Woreda offices with WiFi and server for internet access and data base, laptops and desktops, printers, scanners etc,	Hardware and software facilities were purchased		3000000	2	2		MoA, EFCCC Universities, International support mechanisms (such as GEF,GCF, WB,

								UNDP et), ILRI, EIAR, EEFRI, EDRI, ATA, NMA

4.4. Summary of indicative cost for capacity development action plan.

The cost of capacity development actions for addressing the identified capacity gaps in the agriculture and forest sector are summarized in Table 27. Three sectors of capacity building were identified:

i) Capacity building at federal level for Agriculture,

ii) Capacity building at federal level for Forest Sectors,

iii) Woreda/Kebele level agriculture and forest sectors.

As shown in Table 28 the indicative budget was estimated to Eth. Birr **319,200,000** to build the capacity of agriculture and forest sector to implement respective updated NDCs action plan in 1060 rural kebeles and 100 rural woredas.

Table 28. Summary cost for updated NDCs capacity building

Capacity building sector	Eth. Birr
Federal Agriculture Sector	138,760,000
Federal Forest Sector	131,600,000
Woreda/Kebel Agriculture & forest sector	48,840,000
Grand total	319,200,000
Contingency @ 10% of total	31,920, 000

4.5. Prioritized Capacity development action plans

Capacity needs, capacity gaps that are identified with capacity building actions in the areas of three dimensional capacity assessment elements presented in Table 24-27 were further prioritized in to two levels of priorities (very urgent, and urgent) based on:

- the need felt urgency for starting the implementation of updated NDCs and 10 YPDP towards meeting the objectives of updated NDCs and 10YPDP within a time horizon set in the strategy,
- the levels of training package needs (Fig. 3).

Based on this combined approach of prioritization, identified areas of capacity gaps and recommended capacity building action plans are scheduled to be completed within a time horizon of two years (i.e, Year 1 action plan,

Year 2 action plan. In this regard the recommendation is to implement very urgent the capacity building action during Year 1, and urgent capacity building action during Year 2.

i. Priority 1: Very urgent- need felt: Capacity gaps and training needs and the capacity building actions that are taught most pressing and basic for NDCs and 10YPDP implementations and need to be delivered immediately following the inception of the strategies.
ii. Priority 2: Urgent- Capacity gaps and training needs and capacity building actions that need to be delivered within 2 years of the time left for the first strategies progress report.

The prioritized capacity gaps and capacity building actions are presented in Table 24-28.

4.6. Follow-up, monitoring and evaluation of the progress of trained staff on implementing updated NDCs and 10 YPDP actions plans in the agriculture and forest sectors

The identified Training needs and capacity gaps along with recommended capacity building actions were suggested to be implemented following the prioritization and planned time frame within a period of two years. Once the training needs and capacity gaps are addressed, the progress of improvement in the implementing Updated NDCs and 10 YPDP are to be measured as regularly as possible and Human Resource (HR) data sets need to be updated accordingly. Various approaches are proposed to follow-up and monitor and measure the progress of trained staffs and established systems; and these include:

Test approach

Following the training and capacity building plan, HR unit needs to design a mechanism to collect regular feedbacks with regards to the performance, salary scale and career improvement following skill/knowledge up-grading through training, experience exchange etc. In this respect, a four-level approach was proposed to measure the progress of the trained staff:

- Pre-training testing: Pre-training tests should be mandatory to be given to the participants to test level of existing knowledge of trainees prior to attending the training (**level '0' -baseline**),
- Post-training tests: Tests should be mandatory to be given to the training-participants immediately after the training (**level '1'- reaction**),

- Project performance audit: project performance at 3-6 months after the training program should be used to evaluate impacts of using new knowledge and skills (**level '2' - use of new knowledge and skills**) in resulting changes in the performance; and
- Project performance audit: project performance audit approximately one year after the training program (annual/terminal performance audit) should be used to assess behavioral changes in project implementation (**level '3' - behavioral changes**).

The results of every test and performance evaluation as well as training certificates are filed and well recorded in the personal record file (CV). The training objectives and training outcomes after every training program are to be aligned with project implemented activities and its relevance should be evaluated to determine level of its relevance to project activities as well as to decide if the new level and type of expertise matches with planned activities of the project. Regularly monitoring and evaluation tools (shown in Table 29) need to be completed by authorized HR personnel to measure and follow-up the progress of the trained staffs.

Following that, a 5-point scale can be used to measure quantitatively the level of changes in relevance and performance in utilizing allocated budget and achieving the intended outcomes and activities as a result of the training.

Relevance scoring: Score 1= She/he has awareness, Score 2= She/he has skill, Score 3= She/he can design, and implement, Score 4= She/he designs, plans work schedule, implements, Score 5= She/he designs, plans, implements, manages/headings the program.

Performance scoring: Score 1= < 20% of the activity has been delivered, implies to very low capacity or none; Score 2= 20-40% of the activity has been delivered implies low capacity; Score 3= 40-60% of the activity has been delivered implies moderate capacity; Score 4 = 60-80% of the activity has been delivered implies high capacity; Score 5 = 80-100% of the activity has been delivered implies full capacity that RIP project staffs have improved as a result of the training.

Table 29. Performance follow-up and monitoring and evaluation of the progress training impact

Pre-/-post-trainings	Progress measurements	Updated NDCs, 10 YPDP implementation / reporting stage
Pre-training skill/knowledge	Level of relevance of pre-training skill/knowledge to intended activities (score 1-5)	
	Level of achievement/ performance of intended activities by earlier/ pre-test knowledge (score 1-5)	

	Score of pre-training test	
Post-training skill/knowledge	Level of relevance of the new training skill/ knowledge to intended activities (score 1-5)	
	Level of achievement/ performance of intended activities by the knowledge / training	
	Score of Post-training test	
Difference between Pre- and Post-Training		

5. VALIDATION WORKSHOP FEEDBACKS AND DISCUSSIONS

The **first draft report** of the capacity assessment has been shared to sectoral experts, project coordinators and CRGE focal persons in the agriculture and forest sectors and other experts to obtain feedbacks/comments on the major findings of the assessment. Valuable comments were incorporated in to the draft report. Following the peer review, the second draft report was presented on a validation workshop held on 18 September 2021. I found comments were valuable and constructive, and were considered. Further editorial comments were considered and inappropriate terminologies were corrected with appropriate terminologies. During the discussion the following were key discussion points raised by validation workshop participants:

- What are the root cause for high staff turnover and mitigation measures?
- The selective woredas are limited to three woredas and the assessment is not conducted at region level, and do these represent ecological and national variation in capacity gaps
- In the report it is stated that "there is lack of CRGE mainstreaming", while CRGE units are established, leading projects and developed several CRGE mainstreaming capacity building assessment, plan and mainstreaming guidelines,
- Role of engaging universities and research organizations to address capacity development,
- Prioritizing capacity gaps and recommended actions and action plan with implementation time frame,
- The statement "Lack of leadership" contradicts with the green legacy and activity participation in climate change negotiation.

These and more other comments and key issues raised were considered and this final report is edited by integrating the participants' comments in to the document.

With regards to the sample size, first the selected woredas were visited as per the ToR and scope of the works presented in Box 1. The capacity gap may not be agroecology dependent, rather it is highly determined by variations in livelihood, namely pastoral, agro pastoral, sedentary agriculture, urban dwellers etc. In order to capture the influence of livelihood differences in capacity development for climate change interventions the visited sites were identified in a way they represent the livelihood zones. The woreda in Afar represents the pastoral and ago pastoral communities and the woreda capacity to address the climate challenges through implementation of updated NDCs and 10YPDP both in pastoral and agro pastoral communities in dry/low land areas. The Ada woreda represents small scale farmers whose livelihood is based on mixed cereal farming influenced by urban and peri urban communities, which provides ample opportunity for market access. In Delanta woreda the farming system and livelihoods are quite similar to Ada woreda but it represents very remote

rural farming system, which have limited access to technology and other supports. The selected sites are therefore good representatives.

With regards to the assessment findings on CRGE mainstreaming, it seems the respondents might have seen limited reports. As shown list of reviewed policy documents in Table 3, there are several documents on CRGE mainstreaming, climate strategy in agriculture, forestry, climate smart agriculture. Dedicate institutional setup is established at the ministry of Agriculture and Environment, forest and climate change commission at the level directorate for CRGE, and has dedicated budget and staff. Furthermore, development interventions are integrated with the CRGE action plans and performance assessment indicators and criteria have been developed. The performance indicators are developed in line with the IPCC GHG reporting guideline.

Efforts have been made to engage research and higher learning institutions to contribute to climate change interventions in terms of knowledge and technology. To this end dedicated academic and research institutions are established with tailored programs. For example the MRV program in Wondo-Gent College of forestry and natural resource is a dedicated program for providing hands-on training and conducting research tailored to CRGE. In Addis Ababa University, Climate Science Center and African Centre for Disaster Risk Management were established with support and recognition from EFCCC and NDRMC, respectively. They organized several national and international trainings mainly EFCCC and NDRMC. In the 2016-2020 capacity development action plan, many academic and research department of the Addis Ababa University are cited as potential institutions for addressing capacity building.

Photo. 6. Showing the validation workshop.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. Conclusions

The capacity gap assessment results determine state of current capacity gaps and needs in terms of training needs and capacity gaps at individual, organizational and enabling environment level; and prioritized capacity gaps and recommended actions. From the assessment the following conclusions are drawn:

1. Training and capacity gap is large both at individual & organization level in terms of staff turnover,
2. Dedicated forest institute at woreda, and region level are not uniformly institionalized and this creates challenges in aligning project activities
3. Lack of clear accountability mechanisms and system which comply with national polices and international agreements with regards to accountability, responsibility and transparency of project management and implementation, particularly where regional and federal sectoral ministries and regional sectoral Bureaus are not well aligned.
4. Large number of respondents reported capacity gaps and training needs in the areas of climate change; and this may attribute to fast staff turnover.
5. Institutional restructuring is very often reported by the respondents as the root cause for unsustainability of the capacity development actions.
6. Large set of capacity gaps were identified in the areas of knowledge gap which demands preparation of series of training materials and guide lines in the areas of forest management, GHG MRV, value chain development, animal fattening and feeding, artificial insemination etc.
7. Infrastructure building as part of enabling environmental level capacity was reported as critical capacity gap including largely lack of internet access and computer facilities, field vehicles
8. Staff turnover due to lack of career structure was as critical as it does at federal level
9. It was also reported that trainings conducted so far as part of human capacity building were more redundant, offered for very few days (usually 3-5 days) by the same expert; and these need to be improved

6.2. Recommendations

In view of the above capacity gaps, the following recommendations are made:

1. It is found necessary to have hardware and soft ware facilities namely computer facilities, motorcycles particular at woreda level to build capable capacity at technically individual level, enabling environmental level.

2. Conduct regular evaluation of projects' performance in view of meeting the project's basic objectives in line with the objectives of NDCs, 10 YPDP, ;
3. Increase the permanent staff vs temporal/contractual staff to ensure the continuity of the project after the project exit, as contractual staffs may be subject to lay off after the project exits; and hence reduce staff turnover rate,
4. Establish staff development plan, staff career structure and regular annual training paln, and this would ultimately reduce the staff turnover risks.
5. Prepare human resource development plan following anticipated deliverables along the project including trainings for skill upgrading, carrier and salary scale improvement in order to reduce staff turnover;

6. Develop timely full scale training package/module which is supported with full scale system setup and mentoring system that considers the background know to decide the level or training
7. Establish a functional data base and data sharing systems as well information tracking system that could link public institutions at various levels horizontally and vertically for ease data sharing. Develop packaged affirmative action plan as part the project's gender inclusive activity in gender mainstreaming which includes specialized trainings specific to women and tailored to the areas where professional women are currently lacking in pastoral areas (such as MRV, Forest management, project management and more others as mentioned above).

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ANNEXES

Annex 1. List of contacted experts and households

S. Nr.	Name	Sector	
A. Federal Level			
1	The late Dr. Tefera Mengistu	EFCCC	
2	Mr. Bemnet T eshome.	EFCCC	
3	Mrs Kibebework Getachew	EFCCC	
4	Mr. Michael Hordofa	EFCCC	
5	Mr. Abdeta Desalegne.	EFCCC	
6	Mr. Birhanu Assefa	MoA	
7	Mrs Marshet Tefera	MoA	
8	Mr. Esayas Lemma	MoA	
9	Dr. Yitebitu Moges	EFCCC	
10	Mr. Abiy H/Gebriel	EFCCC	
11	Mr. Habtamu Denboba	EFCCC	
12	Mr. Bisrat H/Michael	EFCCC	
13	Mr. Meselu Mamo	EFCCC	
14	Mr. Habtamu Adam	EFCCC	
15	Mr. Berihu Demewoz	EFCCC	
16	Mr. Desalegne Tebratu	EFCCC	
17	Mr. Fasika Bekele	EFCCC	

18	Mr. Assefa Gudina	EFCCC	
B. Woreda Level: Amibara (Afar)			
1	Mr. Ali Mohammed	Livestock	
2	Ebrahim Hassen	Crop	
3	Ebrahim Mohammed	Extension	
4	Mr. Getachew Dema	NRM	
5	Ali Ebrahim	NRM	
6	Mr. Nuru	Environment and land administration	
C. Woreda Level: Delanta (Amhara)			
1	Mr. Desalegne Mola	Livestock	
2	Mr. Getaneh Kelemowrk	NRM	
3	Mr. Mequanint Shumu	NRM	
4	Seto Kassaw	Crop	
5	Mabri Mekuye	Crop	
6	Zelealem Asmamaw	Environment	
7	Efreme Eyasu	Environment	
8	Habesh Mechegia	Environment	
9	Mulat Bezabih	REDD+ Project	
10	Mr. Seid Yimer	REDD+ Project	
11	Mr. Habtam Assres	REDD+ Project	
D. Woreda level: Ada (Oromia)			
1	Mr. Addisu Abebe	head Woreda Agriculture office	

2	Mr. Shifraw Bekele	Vice head Woreda Agriculture office	
3	Mr. Teshome Tilahun	Extension	
4	Mr. Kebede Tulu	Crop science/production	
5	Mr. Ketema Negash	NRM	
6	Mr. Abay Aklilu	Planning	
7	Mr. Derje Tadesse	Kebele DA	
8	Ms. Yewubdar Tesfaye	Kebele DA	
9	Kebebush Urdofa	Kebele DA	
10	Mr. Tadesse Lemi	Kebele DA	
11	Mr. Beker Kemal	Kebele DA	
12	Mr. Degefa Tsegaye	Kebele DA	
E. Household level FGDs: Amibara (Afar)			
1	Mr Ali Ahmed	Agro pastoral	
2	Mr. Ali Teseco	Agro pastoral	
3	Mr. Mohammed Genato	Agro pastoral	
4	Mr. Mohammed Uta	Agro pastoral	
5	Umer Uta	Agro pastoral	
6	Mose Mohammed	Agro pastoral	
7	Mr. Ahmed Birego	Pastoral	
8	Mr. Musa Hamid	Pastoral	
9	Mr. Mudie Hassien	Pastoral	
10	Ali Asibo	Pastoral	

58	11. Mrs Akuli Ali	Pastoral	
59	12. Mrs Kidega Adem	Pastoral	
F. Household level FGDs: Delanta (Amhara)			
1	**Mr. Sisay fetene**	Farmers	
2	Mr. Asnake werretaw	Farmers	
3	Mr. **Agazu Wendmnew**	Farmers	
4	Mr. Mekashaw Mewedis	Farmers	
5	Mr. Meragiyaw Aychew	Farmers	
6	Mr. Mulugeta setegne	Farmers	
7	Mr. yesuf ahmed	Farmers	
8	Mr. Getachew Tamire	Farmers	
9	Mr. Hailu Desalegn	Farmers	
10	Memire Tareke	Farmers	
11	Mr. Mulugeta Kebede	Farmers	
12	Mr. Woldie Mengistie	Farmers	
13	Mr. Yaregal Wale	Farmers	
14	Mr. Setalem Ayalew	Farmers	
15	Mr. Semane Sisay	Farmers	
16	Mr. Fiseha Shiferaw	Farmers	
17	Mr. Wasihun Ewunetu	Farmers	
18	Mr. Eshetu Libay	Farmers	
G. Household level FGDs: Ada (Oromia)			

1	Mr. Mekonnen Belda		
2	Mr. Adane Bossa		
3	Mr. Geta Girma		
4	Mr. Shimelis Biru		
5	Mr. Shure Lema		
6	Mr. Bekele Hailu		
7	Mr. Lema Alemu		
8	Worku Negase		
9	Mr. Abebe Demissie		
10	Mr. Habtamu Mideqisa		

Annex 2. Letter of request for preparing 10YPDP

በአብክመ ፕላን ኮሚሽን
በደ/ወሎ ዞን አስተዳደር
በደላንታ ወረዳ አስተዳደር ጽ/ቤት
በደላንታ ወረዳ ፕላንና ልማት ፅ/ቤት፣ ከትትልና ግምገማ ቡድን

ቁጥርየል/ዕ/ክ/ግ/110/2013
ቀን 23/09/2013

ለደ/ወረዳ ደላንታ ወረዳ ---ጽ/ቤት
ወገልጤና፣

ጉዳዩ፡-የ5 ዓመትና የ10 ዓመት ስትራቴጅክ እቅድን ይመለከታል፣

ከላይ በርዕሱ ለመግለጽ እንደተሞከረው የደላንታ ወረዳ አስተዳደር ጽ/ቤት የል/ዕ/ክ/ግ/ቡድን /ፕላን ኮሚሽን/ በአዋጅ ሲቋቋም ከተሰጠው ተልዕኮ አንዱና ዋነኛው የወረዳውን የተጠቃለለ ዕቅድ በማዘጋጀት የዕቅድ ማዕከል ሆኖ ማገልገል ነው፡፡ በዚህም መሰረት ወረዳው የተጠቃለለ የ5 ዓመትና የ10 ዓመት ስትራቴጅክ እቅድ ለማዘጋጀት ሁሉም ሴክተር መ/ቤቶች የመ/ቢታቸውን የ5 ዓመት እና የ10 ዓመት /ከ2013-2022/ ድረስ/ አዘጋጅተው እንዲልኩ በጠየቅነው መሰረት የ5 ዓመት /ከ2013-2017 ዓ/ም ድረስ ያለው/ የመ/ቤታቸውን ስትራቴጅክ ዕቅድ በማዘጋጀት የላኩ መ/ቤቶች ግ/ኢ/ት/ል/ጽ/ቤት፣ ቴ/መ/ኢ/ል/ጽ/ቤት፣እንዲሁም ንግ/ኢ/ግ/ል/ጽ/ቤት / የተዋጣለት ዕቅድ ነው ባይባልም/ የላኩ ናቸው፡፡

በሌላ መልኩ የመ/ቤታቸውን የ10 ዓመት ስትራቴጅክ ዕቅድ /2013-2022/ ዓ/ም ድረስ ያለውን/ አዘጋጅተው የላኩ /ለቡድናችን ያሳወቁ/ መ/ቤቶች እንሰሳት ሀብት ተጠሪ ጽ/ቤት፣ ውሃና ኢነርጅ ልማት ጽ/ቤት፣ቴ/መ/ኢ/ል/ጽ/ቤት እንዲሁም ንግ/ኢ/ግ/ል/ጽ/ቤት/ የተሟላ ባይሆንም/ የላኩ ሲሆኑ ሌሎች ጽ/ቤቶች ግን በወቅቱ በማዘጋጀት ዕቅዱን ለቡድናችን ማሳወቅ ያልቻሉ ናቸው፡፡

በመሆኑም የወረዳችን የ5 እና የ10 ዓመት የልማትና የመልካም አስተዳደር ስትራቴጅክ ዕቅድ በማዘጋጀት ወደ ተግባር በመግባት መስራት ይቻል ዘንድ አሁንም የ5 ዓመት እና የ10 ዓመት የመ/ቤታችሁን የልማትና የመልካም አስተዳደር ስትራቴጅክ ዕቅድ ያላዘጋጃችሁና ለቡድናችን ያላካችሁ መ/ቤቶች በአስቸኳይ በማዘጋጀት ለደ/ወ/አስ/ጽ/ቤት የል/ዕ/ክ/ግ/ቡድን /ፕላን ኮሚሽን/ እንዲትልኩ ስንል እናሳስባለን፡፡

ከሰላምታ ጋር ››

ዘመን አማረ በላይ
Zemen Amare Belay
ዕቅድ፣ ክትትልና ግምገማ ቡድን መሪ

ግልባጭ፡
- ለደ/ወ/ዋና አስተዳዳሪ
- ለደ/ወ/አፈ-ጉባኤ ጽ/ቤት
ወገልጤና

[illegible]
[illegible]
[illegible]
የልማት ሰላድ፣ ኩትነትና ምርምር ቡድን

ቁጥር የል/ዕ/ክ/ግ/231/2012

ቀን 17/10/2012

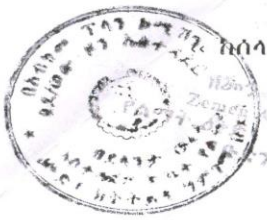
ለ [illegible] ጽ/ቤት

ወገልጤና

ጉዳዩ፡- የስትራቴጅካዊ እና የ2013 በጀት ዓመት እቅድን ይመለከታል

ከላይ በርዕሱ ለመግለጽ እንደተሞከረው የ2ኛ እድገትና ትራንስፎርሜሽን እቅድ ተጠናቆ ወደ ቀጣይ የእድገትና ትራንስፎርሜሽን /GTP/ እቅድ በመግባት ላይ ነን በመሆኑም ከክልል በተሰጠ አቅጣጫ መሰረት ያለፈው የ1ኛ እና የ2ኛ የGTPእቅድ አፈጻጸም ማለትም ከ2003 እስከ 2007 ዓ/ም እና ከ2008 እስከ 2012 ዓ/ም ድረስ ያለው አፈጻጸም ተገምግሞና ይህንን አፈጻጸም እንደ አንድ መነሻ በመያዝ የቀጣይ 10 ዓመትና 5 ዓመት እንዲሁም የ2013 በጀት አመት እቅድ እንዲዘጋጅ በማለት የገለፁልን ስለሆነ ይህንን በመገንዘብ በመ/ቤቱ ኃላፊ የሚመራ የዕቅድ አስተቃቀድ ልምድና ተሞክሮ ያላቸውን ሰራተኞች ያካተተ የእቅድ ዝግጅት ኮሚቴ በማቋቋም እና የባለፈውን የ10 ዓመት አፈጻጸም በመገምገም

1. የቀጣይ 10 ዓመት ማለትም ከ2013 እስከ 2023 ዓ.ም ድረስ ያለው የስትራቴጅክ እቅድ
2. ከዚሁ ከ10 ዓመቱ የተቀዳ የ5 ዓመት ማለትም ከ2013 እስከ 2017 ዓ/ም ድረስ ያለውን የ5 ዓመት ስትራቴጅክ እቅድ
3. ከዚሁ ከ5 ዓመቱ የተቀዳ የ1 ዓመት ማለትም የ2013 በጀት ዓመት መሪ እቅድ ተዘጋጅቶ እና በተቋሙ የማኔጅመንት ኮሚቴና ሰራተኛ ተገምግሞና የጋራ ተደርጎ እንዲሁም ፀድቆ ለደ/ወ/አስ/ጽ/ቤት የል/እ/ክ/ግ/ቡድን/ ጥላን ኮሚሽን/ እስከ ሰኔ 30/2012 ዓ.ም ድረስ ብቻ የሚላክ ሆኖ የሚታቀደውም እቅድ የBSC ዕቅድ ሳይሆን የስትራቴጂክና መሪ እቅድ መሆን ስለሚገባው በተቀመጠው ጊዜ ገደብና ጥራት እቅዱ ተዘጋጅቶ በአስቸኳይ እንዲላክልን እናሳስባለን



ከሰላምታ ጋር ››

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Annex 3. Questionnaire check list

Nr.	Checklist
1	Assessing progress and identifying Staffs' technical and capacity challenges in implementing Eth-NAP roadmap in the Agriculture and natural resource sector
2	Assessing progress and identifying technical and capacity challenges/gaps at organizational and enabling environment level in implementing Updated-NDCs, -10YPDP and – Eth-NAP Roadmap in the Agriculture and natural resource sector.
3	Assessing currently existing overall capacity and capacity gaps/challenges of key focus areas of implementing Updated-NDCs, -10YPDP and – Eth-NAP Roadmap in the Agriculture and Natural Resource Sector.
4	Assessing achievements made so far on capacity building in addressing the identified capacity gaps in the Agriculture and Natural Resources Sector
5	Assessing Capacity Building Efforts made by flagship program/projects in the Agriculture and Natural Resources Sector.
6	Existing Staff profile by directorate (organizational structure) in the Agriculture and Natural Resources Sector.
7	Assessing progress and identifying technical and capacity challenges/gaps at organizational and enabling environment level in implementing Updated-NDCs, -10YPDP and – Eth-NAP Roadmap in the Environment Forest and Climate Change sector.
8	Assessing currently existing overall capacity and capacity gaps/challenges of key focus areas of implementing Updated-NDCs, -10YPDP and – Eth-NAP Roadmap in the Environment, Forest ad Climate Change Sector.
9	Achievements in addressing major Major capacity gaps/needs and capacity building actions identified in the assessment document "Climate Resilient Green Economy National Capacity Development Program Gap Assessments and Findings for the Environment, Forest and Climate Change Sector
10	Assessing Capacity Building Efforts made by flagship program/projects in the Environment, Forest and Climate Change Sector.
11	Staff profile supporting updated-NDCs, 10YPDP and Eth-NAP roadmap actions in the Environment, Forest and Climate Change Sector:
12	Woreda level Staff profile supporting updated-NDCs, 10YPDP and Eth-NAP actions in Agriculture and Natural Resources sector office.
13	Assessing to what extent the planned actions/milestones of 10YPDP are mainstreamed/implemented along with Woreda level Agriculture and Natural Resources Sector Activities.
14	Assessing to what extent the planned actions/milestones of Updated-NDCs-Agriculture are mainstreamed/implemented along with Woreda level Agriculture and Natural Resources Sector Activities
15	Assessing to what extent the planned actions/milestones of Eth-NAP roadmap are mainstreamed/implemented along with Woreda level development Activities in the Agriculture and natural resource sector
16	Assessing to what extent Woreda level development plans/actions/milestones are aligned with national actions of Eth-NAP roadmap, updated NDCs and 10YPDP actions in the Agriculture and natural resource sector.
17	Woreda level Staff profile supporting updated-NDCs, 10YPDP and Eth-NAP actions in Environment, Forest and Climate Change Sector office:
18	Assessing to what extent the planned actions/milestones of 10YPDP-Environmnet, Forest & Climate change are mainstreamed/implemented along with Woreda level in Environment, Forest and Climate Change Sector Activities.

19	Assessing to what extent the planned actions/milestones of Updated-NDCs Environment, Forest & Climate change are mainstreamed/implemented along with Woreda level in Environment, Forest and Climate Change Sector Activities.
20	Assessing to what extent the planned actions/milestones of Eth-NAP roadmap are mainstreamed/implemented along with Woreda level development Activities in the Environment, Forest and Climate Change Sector Activities.
21	Assessing to what extent Woreda level development plans/actions/milestones are aligned with national actions of Eth-NAP roadmap, updated NDCs and 10YPDP actions in the Environment, forest and climate change sector.
22	Income sources of project beneficiary HHs in Pastoral, Agro pastoral livelihood zones and rural and urban farmers.
23	Drinking and irrigation water sources for project beneficiary HHs in Pastoral/agro pastoral livelihood zones and rural and urban farmers.
24	Source of energy for cooking and lighting for project beneficiary HHs in Pastoral/ agro-pastoral livelihood zones and rural and urban farmers.
25	Livestock based household income of HHs in Pastoral/agro pastoral livelihood zones and rural and urban farmers.
26	Livestock feed and water sources in Pastoral/agro pastoral livelihood zones and rural and urban farmers.
27	Role of updated NDCs, Eth-NAP and 10YPDP actions in reducing Livestock losses and damage during drought years as compared to normal years for project beneficiary HHs in Pastoral/ agro pastoral livelihood zones and rural and urban farmers.
28	Role of Updated-NDCs, Eth-NAP and 10YPDP actions on crops grown, farming activities and crop based income of HHs in Pastoral /Agro pastoral livelihood zones and rural and urban farmers.
29	Role of Updated NDCs, Eth-NAP and 10YPDP action in reducing crop loss and damage during drought years as compared to normal years for HHs in Pastoral /Agro pastoral livelihood zones and rural and urban farmers
30	Role of updated NDCs, Eth-NAP and 10YPDP actions in enhancing Livestock based supports to farming systems of HH in pastoral/agro pastoral livelihood zones and in rural and urban farmers.
31	Role of updated NDCs, Eth-NAP and 10YPDP actions in enhancing Livestock based supports to energy uses of HH in pastoral/agro pastoral livelihood zones and in rural and urban farmers.
32	Available technologies and technology needs for climate change adaptive livestock system in meeting Updated NDCs, Eth-NAP roadmap and 10YPDP actions and overall goals of CRGE ENDCs goals in the Agriculture and natural resource sector.
33	Role of updated NDCs, Eth-NAP roadmap and 10YPDP action in enhancing tree based livelihood support in pastoral/ agro pastoral livelihood zones and in rural and urban farmers.
34	Woodlot stock inventory of household/community owned woodlots in pastoral/ agro pastoral livelihood zones and in rural and urban farmers.

Annex. 4. Number of technical and support staffs engaged in the Agriculture and forest sector in Delanta woreda (Source: Delanta woreda Agriculture and Natural Resources Office)

Name	Position	Functional unit (Technical, HR, Finance others)	Education (List all levels)	Areas of expertise	Specialized training	Gender (M/F)	Score Updated NDCs	Score 10 YPDP	Score Eth-NAP road map
Delanta Woreda: Amhara Regional State: Total Staff is 95									
Demeke Ademasu	Head	Head office	Degree	NRM	SWC	M			
Mulugeta yenenw	Vice Head	Vice Head	MSC	SNRM	SWC	M			
Asnake Dejen	Team Leader	Extention team Leader	Degree	Socilogy	Nutration	M			
Demese Yegeza	Team Leader	Agri Input Team Leader	Degree	Economics	Agri Input training	M			
Bayushe Abate	Expert	Extention Comm Expert	Degree	Rural Developemt		F			
Tesfaye Arage	Team Leader	Plan& Program Team Leader	Degree	Management		M			
Tesefaye Alemnew	Expert	Project Planning Expert	Degree	AREM	Bee Keeping	M			
Geteye Fentaye	Expert	Nutration Expert	Degree	Rural Developemt		F			
Sete Abebe	Expert	Plan Action Expert	Diploma	Management		M			
Molla Wedayenew	Expert	Agri Input Expert	Degree	Economics		M			
Tezeru Ayalew	Expert	Agri Input Expert	Degree	Rural		F			
Wederye Wereta	Expert	Agri Input Expert	Diploma	Plant Scinice	Nutration	F			

Mebet Mulugeta	Expert	Traing &Support Expert	Degree	Management	Crop Production	M			
Deseta Tilahun	Expert	Buget control Expert	Diploma	Management		F			
Asalefe Zegeye	Expert	ICT Tecnical	Diploma	ICT		M			
Genezeb Zegeye	Expert	Agri Input Expert	Degree	Accountig		M			
Tesema Yemam	Expert	Human Resourse	Degree	Management		M			
Antenehu Feyesa	Driver	Car Driver	Degree	Management		M			
Yerga Desalgen	Expert	Gender Expert	Degree	Management		M			
Abraham Fentaw	Expert	Irrigation Enginner	Degree	WHE		M			
Hana Getu	Expert	WHE	**Diploma**	**SIE**		F			
Asmare Meseganaw	Expert	Agronomist	Degree	Plant scince		M			
Samual Beru	Expert	SWC Expert	Degree	NRM	GIS	M			
Hiwot Adisye	Expert	Irrigation Enginner	Degree	HRE		F			
Hirowt Demeke	Expert	WHE	Degree	HWRE		F			
Amanuale Alemu	Expert	Plant protection	Degree	Horticulcher	Crop production	M			
Ashager Fentahunye	Expert	Forestery	Degree	Forestery		M			
Tesfaye Eshetu	Expert	Post harvest	Degree	Horticulture		M			

Name	Position	Functional unit (Technical, HR, Finance others)	Education	Areas of expertise	Specialized training	Gender (M/F)	Score Updated NDCs	Score 10YPDP	Score Eth-NAP roadmap
Melekam Sete	Expert	Agronomist	Degree	Horticulture		M			
Molla Mesegye	Expert	Horticulture Expert	Degree	Plant science	Value chain	M			
Alemtsehay Getachew	Secretary	Office secretary	Diploma	Data Base		F			
Abebe Geta	Team Leader	Crop Team Leader	Degree	Horticulture	Crop production	M			
Baye Alemu	Expert	Agronomist Expert	Degree	Horticulture		M			
Mabre Mekuye	Expert	Soil Fertility	Degree	SWRM	Soil Fertility	M			
Kelemewerk Sisay	Expert	Crop production Expert	Degree	Agri Economics	SWC	M			
Molla Getnet	Expert	Plant protection	Degree	Plant science	IPM, DRR	M			
Mesert Sergo	Expert	Seed Multiple	Degree	Agri Extension		F			
Seto Kassaw	Expert	Mechanization	Degree	MEC ENG		M			
Getye Tadesse	Expert	Public Relation	Degree	Mgt		M			
Tsehayenshe Eyasu	Secretary	Office Secretary	Diploma	Data Base		F			
Belay lule	Cleaning office	Cleaning office	10 Grade	10 Grade		M			
Ayalew Amare	Information Expert	Agri Information Expert	Diploma	Accounting		M			

Haile Maseresha	Cleaning office	Cleaning office	10 Grade	10 Grade		M			
Yerega Setaregye	keeper	Keeper Garden	10 Grade	10 Grade		M			
Abate Andaregye	Cleaning office	Cleaning office	Diploma	Building carpentry		M			
Gashaw Genbye	keeper	Keeper Garden	Diploma	Mgt		M			
M/R Meret Maserye	keeper	Keeper Garden	10 Grade	10 Grade		M			
M/R molla Beyene	keeper	Keeper Garden	Diploma	Mgt		M			
Asefa Gashaw	Secretary	Office Secretary	Degree	Mgt		M			
Tesefaye Gedefi	Secretary	Office Secretary	Diploma	ICT		F			
Molla Kebert	Team Leader	Horticultcher Team Leader	Degree	Plant Science	High land Fruit	M			
Genetu Abate	Team Leader	NRM team Leader	Degree	SWC	SWC,pRA	M			
Desalegn Asemare	Expert	Horticultcher Expert	Degree	Plant scincice	Crop Production	M			
Golla Fentaw	Team Leader	Small Irrigation Team Leader	Degree	Water &Irrigation	GIS	M			
Fentaw Setu	Expert	Forstery Expert	Diploma	NR	SWC	M			
Getanehu Kelemewerk	Expert	Soil &Water Expert	Degree	NRM	SWC	M			
Zewdu Ademasu	Expert	Soil &Water Expert	Degree	NRM	SLM, WFP	M			
Seble Geta	Secretary	Office Secrtary	Diplma	ICT		F			
Endegena wobetu	Expert	Demonstration	**Degree**	**Agri Economist**		M			

Tesefu Fentabel	Team leader	Food security	Degree	mgt		M			
Sitotaw Mengeste	Team leader	Early warning	Degree	Business & mgt		M			
Meragyaw Tesfaye	Expert	Family target Expert	Degree	Mgt		F			
Abebe Egegu	Expert	Family target Expert	Degree	Geography		M			
Getachew Dube	Expert	DRR	Degree	Animal science		M			
Shimele sKebed	Expert	Off- farm Expert	Degree	Rural Development		M			
Fentaw Tefera	Head	Animal head	Degree	Animal science		M			
Demelye Ambaw	Expert	DRR	MSC	Animal production		M			
Abate Huasen	Expert	Family target Expert	Degree	mgt		M			
Destaw Masrye	Expert	Livel hood Expert	Degree	Economics		M			
Tegene AYalekbet	Expert	Infrastractur	Degree	WRIE		M			
Asefa Belay	Expert	Plan& monitring	Degree	Geography &Env,t study		M			
Baye Yerdaw	Expert	LH Expert	Degree	Agro Economics	Value chain	M			
Woldye AYalew	Expert	PSNP Expert	Degree	Economics		M			
Abraham kelemwork	Expert	SWC Expert	Degree	SWC	GIS	M			
Abje Sisay	Expert	Plan& program	Degree	mgt		F			
Muluye Getachew	Secretary	Office secretary	Diploma	ICT		F			
Denkenesh Tegne	Team Leader	Animal production leader	Degree	Livestock production		F			
DesalegnMolla	Expert	Animal production	**Degree**	Livestock production		M			

Tefera Semagn	Expert	Animal production	Degree	Livestock production		M			
Merageyaw Haile	Expert	Extension communication	Degree	Animal production	Beekeeping	M			
BIsetTareke	Expert	Animal input	Degree	Agro Economic		M			
Abebe Chane	Expert	Beekeeping	Degree	Livestock production		M			
Yalelet Tefera	Expert	Animal production	Degree	Animal science		M			
Bertukan Kassaw	Secretary	Office secretary	Diploma	ICT		F			
Kendu yosef	Expert	Artificial ecminito	Diploma	Animal science		M			
Meragyaw Erega	Team leader	Animal health	Degree	Animal health		M			
D/R Melaku Asmamaw	Expert	Abbattion vet	MSC	DVM, MPH		M			
Seid Abuye	Expert	Animal health care	Degree	Animal health care		M			
Yemataw kebede	Expert	Animal health input	Degree	Animal health		M			
D/r samale Abayenh	Expert	Animal health care	Degree	Animal health		M			
D/r Estebel mekye	Expert	Animal health care	Degree	Veterinary medicine		M			
D/r Alebachew mekanent	Expert	Animal health care	Degree	Veterinary medicine		M			
Tsegye TILHUN	Secretary	Office secretary	Diplma			F			
Abje Sisay	Expert	Plan& program	Degree	mgt		M			
Muluye Getachew	Secretary	Office secretary	Diploma	ICT		F			

Annex. 5. Number of technical and support staffs engaged in the Agriculture and forest sector in Ada Woreda (Source: Ada Woreda Agriculture Office)

Ada woreda staff= 109: (Woreda office staff= 64; DAs= 45)							
Education	Expertise	Gender			Fitness Score 1-5		
		Male	Female	Total	Updated NDCs	10YPDP	Eth-NAP
A. **Woreda office Level Staff is 66**							
MA	NRM	1	0	1			
MA	Bis Admin	0	1	1			
BA	NRM	9	1	10			
BA	Plant Science	4	3	7			
BA	Accounting	2	1	3			
BA	Management	0	1	1			
BA	HR management	1	0	1			
BA	Sociology	0	3	3			
BA	Hydraulic Engineering	2	0	2			
BA	Animal Science	1	0	1			
BA	SOSA	1	0	1			
BA	Horticulture	1	1	2			
BA	Crop Production	1	0	1			
BA	Rural Development	3	0	3			
BA	Agr. Extension	3	0	3			
Diploma	NRM	1	0	1			
Diploma	Plant Science	0	1	1			
Diploma	General Agriculture	0	1	1			
Diploma	Small Sale Irrigation	4	1	5			
Diploma	Electricity	0	1	1			
Diploma	Concrete construction	1	0	1			
Level 4	Hard ware and network	0	2	2			
Level 4	Small Sale Irrigation	1	0	1			
5- 8 grade	School	7	0	7			
9-12 grade	School	3	1	4			
Total		46	18	64			
B. Development Agents Staff is=45							

BA	NRM	9	0	9			
BA	Plant Science	5	0	5			
Diploma	NRM	2	0	2			
Diploma	Plant Science	1	3	4			
Level 4	NRM	9	5	14			
Level 4	Plant Science	6	5	11			
Total		32	13	45			

Annex. 6. Number of technical and support staffs engaged in the Agriculture and forest sector in Amibara woreda (Source: Amibara woreda Agriculture Office)

	Amibara Woreda: 28							
Name	Education	Expertise	Gender			Fitness score (1-5)		
			Male	Female	Total	Updated NDCs	10YPDP	Eth-NAP
Meseret Dagne	BSc	Plant Science	0	1	1			
Humed Arab	BSc	Plant Science	1	0	1			
Abubeker Goobo	BA	DRM	1	0	1			
Samson Getachew	BSc	Plant Science	1	0	1			
Endalkachew xx?	BA	Economics	1	0	1			
Tesfay Bose ?	BA	Accounting	1	0	1			
Ashab Jemal	BA	Accounting	1	0	1			
Ebrahim Mohamed	MSc	Planning	1	0	1			
Ali Mohamed	BSc	Plant Science	1	0	1			
Worke Sete	BSc	Animal Science	0	1	1			
Yeshiwork Asefa	BSc	Plant Science	0	1	1			
Bekre Balcha	BSc	Plant Science	1	0	1			
Ebrahim Hasen	BSc	Plant Science	1	0	1			
Efrem Tewolde	BSc	Plant Science	1	0	1			
Andualem H/Mariam	BSc	Plant Science	1	0	1			
DcWoldna Hasen	BSc	Plant Science	0	1	1			
Meseret	BA	Accounting	0	1	1			
Alin Ebarahim	BSc	Animal Science	1	0	1			
Getachew Dema	BSc	SWE, Ag.Eng., Mech.	1	0	1			
Rosa Mokenen	BSc	Plant Science, Irrigation	0	1	1			
Shambel Besha	BSc	SWE, Ag.Eng., Mech. Rural	1	0	1			
Genze Sisay	BSc	NRM	1	0	1			
Sedsu Bejga	BSc	Plant Science	0	1	1			
Admu Berhanu	BSc	Plant Science, irrigation	1	0	1			
Anteneh Berhanu	Diploma	Irrigation	1	0	1			
Mohamed Seid	BSc	Animal Science	1	0	1			
Berihun Tefera	MSc	Plant Science	1	0	1			
Husine Ahmed	Diploma	Irrigation	1	0	1			
Total			21	7	28			