Global Environment Facility

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November 6, 2006

Dear Council Member:

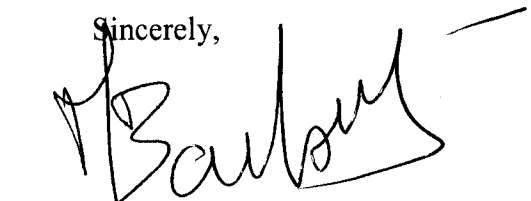
I am writing to notify you that we have today posted on the GEF's website at www.theGEF.org, a medium-sized project proposal from UNDP entitled ***Ethiopia: Coping with Drought and ClimateChange***. The GEF will contribute $995,000 towards a total cost of $2,861,667.

To develop and pilot a range of coping mechanisms for reducing the vulnerability of farmers and pastoralists to future climate shocks.

The project proposal is being posted for your review. We would welcome any comments you may wish to provide by November 27, 2006, in accordance with the procedures approved by the Council. You may send your comments to gcoordination@theGEF.org.

If you do not have access to the Web, you may request the local field office of the World Bank or UNDP to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,



cc: Alternates, Implementing Agencies, STAP

MEDIUM-SIZED PROJECT PROPOSAL
REQUEST FOR GEF FUNDING

AGENCY'S PROJECT ID: 3787
GEFSEC PROJECT ID:
COUNTRY: Ethiopia
PROJECT TITLE: Coping with Drought and Climate Change
GEF AGENCY: UNDP
OTHER EXECUTING AGENCY(IES):
DURATION: 5 years
GEF FOCAL AREA: Climate Change - Adaptation
GEF OPERATIONAL PROGRAMME: -
GEF STRATEGIC PRIORITY: SCCF
ESTIMATED STARTING DATE: January 2007
IMPLEMENTING AGENCY FEE: US$89,550

FINANCING PLAN (US$)	
GEF PROJECT/COMPONENT	
Project	995,000
PDF A*	N/A
Sub Total GEF	995,000
CO-FINANCING**	
GEF Agency	
Government	750,000
Others	1,116,667
Sub-Total Co-financing:	1,866,667
Total Project Financing:	2,861,667
FINANCING FOR ASSOCIATED ACTIVITY IF ANY:	

* Project was prepared using PDF-B funding originally approved for preparation of a regional project
** Details provided in the Financing Section

CONTRIBUTION TO KEY INDICATORS OF THE BUSINESS PLAN:
Increased resilience to the adverse impacts of climate change of vulnerable sectors and communities.

RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT:
Tewolde Berhan G. Egziabher, Director General
Federal Environment Protection Authority
Date: June, 15, 2005

This proposal has been prepared in accordance with GEF policies and procedures and meets the standards of the GEF Project Review Criteria for a Medium-sized Project.

Maryam Niamir-Fuller
Officer-in-Charge
UNDP-GEF
Date: March 24, 2006

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PART I - PROJECT CONCEPT

A - Summary

1. As already observed in recurrent droughts (ie climate variability), climate change impacts on Ethiopia in terms of water shortage and food security. The country remains prone to drought as well as climate-driven health impacts. Climate change vulnerability analyses for Ethiopia suggests that climate change over the coming decades presents a serious threat to various economic and social sectors as the frequency and intensity of drought is likely to increase. Addressing long-term climate change is thus required to reduce the impacts on livelihoods in general and major economic sectors such as agriculture, which is the mainstay of the country.

2. The projected increasing temperature and declining rainfall scenario for the northern half of Ethiopia, which includes the pilot district (Kalu Woreda/District, in the South Wollo Zone) will negatively affect agricultural production, deteriorate infrastructure and worsen the livelihoods of the rural poor in the pilot areas. Predicted climate variability and change will exert additional pressures on the already weakened subsistence economy of the pilot areas.

3. This project will assist Ethiopia to adapt to the long-term adverse effects of climate change. The strategy adopted in this project builds on the development baseline, and includes additional activities to increase adaptive capacity to cope with drought under changing climatic conditions.

4. The project addresses the future impacts of long-term climate change, increasing the adaptive capacity of local and national stakeholders to cope with increased frequency and intensity of drought, which the INC has identified as a major consequence of climate change. This means that project stakeholders need to build their capacity to adapt to changing climatic conditions. The project strategy presented here builds capacity to continually review the sustainability of land management systems and adapt them as the impacts of climate change alter the underlying drivers of productivity.

5. The project will contribute to the **Goal** of enhancing food security and the capacity to adapt to climate change in agricultural and pastoral systems in Ethiopia. In order to support progress towards this Goal, the project **Objective** is: *To develop and pilot a range of coping mechanisms for reducing the vulnerability of farmers and pastoralists to future climate shocks.* The Objective will be achieved through activities generating four Outcomes: (1) Farmers/pastoralists in the selected pilot sites are able to cope with drought; (2) Early warning systems provide timely and relevant information to farmers/pastoralists to assist them in coping with drought; (3) Drought preparedness and mitigation policies support farmers/ pastoralists in coping with drought; (4) Farmers/pastoralists inside and outside the pilot sites deploy and replicate successful approaches to cope with drought.

B - Country ownership

B-1. Country Eligibility

6. Ethiopia ratified the UNFCCC on 4th May 1994 and is eligible for financial support under annex-1 of the UNFCCC and technical assistance from UNDP.

B-2. Country Drivenness

7. Ethiopia expressed its interest in this work by participating in a farmer-focused survey conducted in 1999 on accessibility and use of contemporary and indigenous climate information. Since then, through regular consultations with UNDP-DDC and UNDP-GEF possible interventions on climate adaptation have been identified. Ethiopia has re-endorsed the proposal with its focus on climate change adaptation. In addition, activities in the context of DPM have been initiated between UNDP and the government of Ethiopia. Ethiopia is implementing the Mille Integrated Drylands Management Project with support from DDC, an Agro-Biodiversity project with support from UNDP, and a drought insurance project with the World Food Programme (WFP). The national development strategies, including the SDPRSP, emphasise the importance drought management, and food security. Accordingly, Ethiopia with the support of a Coalition for food security (including various donor organizations such as UNDP, WB, EU, and WFP, as well as Government and Non Government Organizations) is running a multi-faceted food security programme, the Productive Safety Net Programme (PSNP). All these programmes are contributing towards strengthening drought awareness and mitigation activities.

8. Climate change induced drought is a critical issue as it bears directly on ecosystem services. In its Initial National Communication to the UNFCCC, Ethiopia reported on V&A studies that identified vulnerable sectors and proposed adaptation measures for each. The First National Communication shows the sensitivity of different economic sectors to future climate change. Results from the simulated scenarios on climate change given by the National Communication was the starting point of vulnerability analysis for this project. In addition, the NAPA process is confirming that sustainable land management, drought and agriculture are priority adaptation issues. In an effort to mitigate the impacts of drought, Ethiopia, in its Initial National Communications to the UNFCCC, proposed increasing water storage facilities, improving water management, diversifying crops, developing irrigation systems, enhancing erosion control, improving and changing crop practices and management, improving pasture and livestock management, increasing sustainable tree and forest products, and conserving forest ecosystems, genetic stocks and wildlife resources etc.

C – Programme and Policy Conformity

C-1. Programme Designation and Conformity

8. The project is submitted under the Special Climate Change Fund (SCCF). The project qualifies for SCCF because it develops adaptive capacity for long-term climate change. The project will implement long-term adaptation measures that increase the resilience of the agricultural sector to anticipated impacts of climate change. The project is designed to be consistent with the eligibility criteria of the SCCF. The project focuses on a vulnerable sector (agriculture) as identified by the National Communication to the United Nations Framework Convention on Climate Change.

C-2. Project Design

C-2-1. Situation Analysis – Agriculture and Climate

Agriculture

9. The Ethiopian economy is based on agriculture. The sector is responsible for more than 90% of exports, 85% of employment and 55% of GDP. The highlands, that make up 45% of the country, support 85% of the total population, estimated to be 73 Million, and 70% of livestock; the lowlands cover 55% of the country and support 15% of the population and 30% of the livestock[1].

10. Agriculture production is largely subsistence where 96% of cropland is cultivated by small landholders. The sector supports about 10 million farms with an average farm holding of 0.5 hectare and is low input/low output rain-fed agriculture dependent on highly erratic rainfall, frequent droughts, and climate variability. Output failure often occurs and the farming communities sink further into poverty, with four to five million rural people (5.7%-7.1% of the population) left chronically food insecure each year. An additional six to seven million people (8.5% to 10%) are transitionally food insecure and require food aid when they produce less as a result of the impact of climate variability[2] . Ethiopia is very poor, ranking 168th (out of 172 countries) in the Human Development Index (HDI) (UNDP 2004).

Overview of climatic conditions

11. In Ethiopia, the climate is mainly controlled by the seasonal migration of the Inter-Tropical Convergence Zone (ITCZ) and associated atmospheric circulations, as well as by the complex topography of the country. It has a diversified climate ranging from semi-arid desert type in the lowlands to humid and warm (temperate) type in the southwest.

12. The climate of Ethiopia is mainly governed by the seasonal migration of the Intertropical Convergence Zone (ITCZ), its geographical position and its topography[3].

[1] Ibid
[2] World Bank, 2004, Ethiopia: Country Economic Memorandum (Background Report), Assessing Ethiopia's Growth Potential and Development Obstacles.
[3] NMA, 2001: Initial Communication of Ethiopia to UNFCC, NMA, Addis Ababa

Different parts of the country experience different rainfall distribution and temperature at different times of the year. Mean annual temperature ranges from 10^{o}c on the mountains of the north western and south eastern highlands to 35^{o}C in the North Eastern lowlands.

13. Mean annual rainfall distribution ranges from about 2000 mm in the south-west, gradually decreasing to less than 200 mm in the south-east and 100mm in the north-east of the country. Temporal distribution of the rain brings three distinct seasons: the Bega (dry season, from October to January –); the Belg (small rainy season, from February to May); and the Meher (long rainy season from June to September).

C-2-2. Institutional Context

14. Over 15 line ministries and agencies are working on activities related to coping with drought and climate change. The most important institutions and the policies they are mandated for, and which have direct relevance to this project, include those listed below. A more detailed description of institutions and policies can be found in annex 7.

- The National Meteorological Agency (NMA) is responsible for all national climate affairs. It is also responsible for numerous activities related to weather prediction and climate forecast.
- The Environmental Protection Authority (EPA) is responsible for environmental management and control.
- The Ministry of Agriculture is the central government agency responsible for development of rural communities. It carries out its mandate through various policies, legislations, and programmes. It also implements pastoralist development policies with the Ministry of Federal Affairs (MoFA).
- The Ministry of Water Resources is responsible for water resources development and utilization based on watershed management principles. It is responsible for water supply, irrigation development, and moisture harvesting. Its activities are directly related to coping with drought and climate change.
- The Ethiopian Agricultural Research Organization is responsible to determine and recommend those technologies that could promote agricultural productivity. It is a very important organization researching drylands agriculture in an attempt to identify crops resilient to drought and climate change.
- The Disaster Prevention and Preparedness Agency is responsible for disaster management. It provides an emergency relief programme to drought and other disaster victims.
- The Ministry of Finance and Economic Development MoFED, is responsible for implementation of macro-level policies and strategies.
- UN Agencies use the United Nations Development Assistance Framework (UNDAF) to carry out their responsibilities and support to the country, for example:

C-2-3. Climate Vulnerability

15. Climate change vulnerability analyses for Ethiopia suggests that climate change over the coming decades presents a serious threat to various economic and social sectors (natural resources basis, particularly biodiversity, ecosystems, water, agricultural and human health) as the frequency and intensity of drought is likely to increase[4]. Due to the strategic importance of agriculture to the national economy, and its sensitivity to water availability, this sector has been given priority in this project.

16. Drought and climate change would also lead to an increased distribution of the malaria-bearing mosquito and other vector-borne diseases, incurring health disaster[5] to the poor and vulnerable rural farming communities. The health impact of drought will also be compounded by the loss of productive human resources due to the HIV/AIDS pandemic.

17. Temporal and spatial distribution of rainfall has been varying from place to place and from time to time causing repeated inters annual climate variability, and droughts over the past few years. Comparing drought and famine periods with that of El Niño Southern Oscillation (ENSO) events showed a remarkable association, suggesting that the country is vulnerable to occurrences of El Niño and El Nina and associated climatic variations. Some droughts coincided while some others just followed the El Niño and El Nina events[6].

18. A review of drought history based on work carried out by NMSA, EWWG, WB, WFP, FEWS-Net, SCF-UK, CSA, and others indicates that drought occurs every 3-5 years in some parts of the country and every 6-8 years all over Ethiopia[7].

19. Drought is commonly expressed as shortage or absence of rainfall causing a loss in rain-fed agriculture. For example, the decline in the level of rainfall during severe drought years in Ethiopia (ie 1984/85, 1991/92, 1993/94, and 1999/2000) was accompanied by serious reductions in rain-fed agricultural outputs[8]; this is because a 10% drop in rainfall (below the long term national averages) results in an average drop of 4.2%[9] in cereal yields.

20. Hence, climate variability/droughts have impacted seriously on the country over the past ten years, resulting in increasing agricultural losses and human suffering as shown in Table-1[10], placing the country in a situation of critical food insecurity and water shortages.

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[4] EPA and MEDaC, 1997: Conservation Strategy of Ethiopia, Vol.I,II,III.IV, EPA and MEDaC, Addis Ababa
[5] Ibid
[6] Tsegay Wolde-Georgis, ( ): El Niño and Drought Early Warning in Ethiopia
[7] Ibid
[8] Alemayehu Geda, 2000, Macroeconomic performance in post reform Ethiopia, Addis Ababa
[9] Patrick Webb and Joachim Von Braun, 1994, Famine and Food security in Ethiopia, Wiley, New York.
[10] Mathewos Hunde, 2004:Generation and application of climate information, Products and services in Early warning and monitoring activities in agriculture and food security, MoARD, Addis Ababa

Table-1: Impact of drought on people and crop production over the last ten years (1994-2004)

Years	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Crop yield (t/ha)	10	12	12	11	11	11	10	13	9	14	14
People affected (millions)	6.7	4	2.8	3.4	4.1	7.2	10.6	6.6	7.7	13.2	7.2

21. Of some concern is the possible effect of rising temperatures and falling rainfall trends in the near future, which may cause drops in crop yields, migration of wildlife, reduction of forest area and change in species combination, spread of malaria and other vector borne diseases[11]. In light of the occurring frequent droughts and the prevailing scenario of climate variability and change, the livelihood of subsistent small-holding rain-fed agriculture farmers, who make up 85% of the agricultural sector, will worsen if community resilience is not built to cope with future climate variability but left to continue with existing drought coping mechanisms.

[11] EPA and MEDaC, 1997: Conservation Strategy of Ethiopia, Vols.I, II, III, IV, EPA and MEDaC, Addis Ababa

Drought Coping Strategies

22. Rural communities in Ethiopia have employed a variety of mitigation and coping strategies to withstand drought risks, as elaborated in Table-2 below.

Table-2: Common mechanisms for coping with Drought

Intervention type	**Informal mechanism**		**Formal Mechanisms**	
	Individual and household level	**Group based**	**Market based**	**Public based**
Reducing Risk	• Migration (rural-urban) • Off-farm employment	• Common resource management		• Sound macro-economic policy • Environmental policy • Education & training policy • Land-use policy • Agricultural policy • Public health policy • Infrastructure (dams, road, irrigation,) • Agricultural extension • Liberalisation of trade • Early warning systems
Mitigating Risk	• Use of wetlands • Crop and plot diversification • Choice of planting dates • Small scale irrigation • Income source diversification • Investment in physical and human capital • Drought tolerant crops • Livestock diversification • Income diversification with off farm work	• Rotating savings • Traditional group insurance (Iqub, Idir etc.) clubs	• Savings accounts in financial institutions • Microfinance	
Insurance (risk transfer)	• Marriage • Reliance on extended family • Buffer stocks	• Traditional group insu-rance (Iqub, Idir etc.) • Investment in social capital	• Insurance (especially for livestock)	• Pension systems
Coping with shocks	• Sale of assets (mostly livestock) • Purchase grain from market • Loans (cash or grain) • Reduced meals per day (mal-adaptive) • Children drop-out of school (mal-adaptive) • Child labor (mal-adaptive) • Theft (mal-adaptive) • Commercial sex (mal-adaptive) • Increased reliance on natural resources (mal-adaptive) • Traditional resettlement	• Transfers from networks of mutual support	• Liquidation of savings • Loans from financial institutions	• Social assistance • Subsidies • Social funds • Cash transfers • Formal resettlement

23. Farmers have developed and used many coping strategies, including those mentioned above, to cope with drought. However, the covariant nature of droughts has seriously eroded their capacities to withstand the shocks, leaving them vulnerable.

24. Smallholder farmers produce only a part of their annual cereal requirements and, given that they have very low purchasing powers and an undeveloped market system, they are highly vulnerable to any drought shock, which would leave them dependent on either market-bought produce or emergency assistance.

25. The combination of drought and low land productivity has affected 10 percent of the rural population, leaving them food deficient and dependent on food aid each year. For instance, the second most severe drought in recent history occurred in 2002 and forced a record 13 million rural people to depend on emergency assistance the following year at a cost of US$ 600m. Over the past ten years, an average of 870,000 metric tonnes of food aid have been provided annually, primarily through emergency response. Millions of lives have been saved, but destitution has worsened, individual assets have been eroded and vulnerability has increased[12].

C-2-4. Early Warning Systems (EWS)

26. The National Early Warning System (NEWS) was established in 1993 as an interagency information system involving numerous GOs, NGOs, and IOs. It is led by DPPC, as the focal point providing advance information on the food security situation prevailing in the country; this is done through crop forecasts and assessments of food stocks. The early warning system, in most cases, deals with preparedness for food emergency relief rather than providing the rural communities with advance information for mitigating and coping with drought. It is an emergency relief, food-oriented, reactive, and slow forecast when compared to climate forecast, which is in principle considered proactive in predicting and providing information on drought and climate change. DPPC is working in collaboration with the Regional Drought Monitoring Center, IGAD Regional Early Warning Unit, FEWSNET, WFP and other international as well as national organizations, such as the National Meteorology Service Agency (NMSA) to receive and employ user tailored climate forecast and provide proactive information for timely mitigation and coping with drought.

27. Based on the 1986 El Niño information, "NMSA provided a seasonal forecast, and the DPPC (then the RRC) used it and succeeded in averting the 1987 famine" (Ayalew 1996). In 1988 and 1989, the Ethiopian authorities and donors used ENSO data to recommend appropriate policies regarding the amount of land to be cultivated, input supplies (seeds, fertilizers), and conservation of food and water (NMSA, in Glantz 1996b, 79). The famine conditions of 1994 were averted due to the appropriate use of the 1993 climate information (Ayalew 1996).

[12] WFP 2005 and Bekele *et al.*, 2004.

28. At present, there are many challenges to obtaining and using user-tailored climate forecasts in the contemporary early warning system because producing and using such information requires institutional capacity to:

a. Generate and disseminate user tailored information in a timely fashion;
b. Have an effective dissemination system and transmission/transfer of information;
c. Gain the trust of prominent users of the information.

29. The National Meteorological Agency (NMSA) has been working hard to produce seasonal and short period climate forecasts for use by NEWS and other relevant organizations, such as MoARD, which is responsible for countrywide agriculture and rural development. However, the NMSA lacks institutional strength to produce and disseminate user-tailored quality climate information as desired. NMSA is working in collaboration with IGAD Regional Climate Monitoring Center and WMO to improve its predictions by using a blend of statistical and global circulation models. Moreover, NMA experts regularly convene national and international meeting to share experiences and elicit consensus on seasonal forecasts and other predictions. However, barriers have hindered the production and use of user-tailored climate information in Ethiopia as identified in studies carried out by UNDP/UNSO, WMO, and USAID, and summarized in Table-3.

Table 3: Barriers and Recommendations to enhance application of climate forecasts in agriculture (Adapted from: WMO, 2000; Patt and Gwata, 2002; Phillips *et al*, 2001)

Constraint	**Causes**	**Effect**	**Recommendations**
Access	Mode of information delivery not tailored to remote rural areas No national radio coverage	Users resort to indigenous knowledge systems	Establish community radio stations and information centers. PA offices and FTC can be good places to use.
Relevance	Forecast generators do not interface with users to define user needs correctly	Forecasts not used	Strengthen forecaster – user interface
Credibility	Previous forecasts perceived as wrong: source not trusted	Users will do business as usual	Rely on trusted communicators
Scale / geographic location	Forecasts tells users nothing about events in their local area	Forecasts not incorporated in decision making	Work with users to analyze implications for local area
Cognition	Forecasts are new, different and confusing/difficult to understand	Users either do not use forecasts or use them in a counter productive way	Work repeatedly with the media and users to help them understand forecasts for their local area and to correct past mistakes
Legitimacy	Forecasts perceived as superseding local knowledge or	Both forecasts and concomitant advice	Incorporate local knowledge in forecast

	hurting users	ignored	process; involve users in formulating advice
Procedures / lead time	Forecasts arrive at the wrong time (most of the time very late to serve the purpose), to the wrong people or are unexpected	Forecasts not incorporated	Repeat communication to resolve timing, relevant actors and consistency. Use advanced technology like internets and websites to disseminate information timely and widely.
Choices	Forecasts do not contain enough new information to alter specific decisions	Users will not change decisions in response to forecast	Improve forecast skill; encourage users to make incremental decisions. Run workshops to aware users on new progresses
Structure of decision set	Limited management options	Farmers will continue with business as usual scenario	Create opportunities to diversify livelihoods

30. Use and success of the contemporary early warning system depends, on the one hand, on the timeliness and credibility of the information provided and, on the other hand, on how the various decision makers use this data. To be credible and trustworthy the contemporary early warning information, particularly the climate prediction, has to be proactive, area-specific and timely to be used for various microclimate related drought conditions.

Traditional climate forecasts

31. In the absence of reliable information from the contemporary early warning system particularly climate prediction, farmers and pastoralists have no choice other than to use their own traditional early warning system, predicted by experienced and knowledgeable elders. The traditional predictors use systematic combinations of the movements of planets, astral bodies and stars, atmospheric pressure, wind flow and direction, animal and plant behaviors. It is amazing to note some similarities between some of the indigenous and contemporary climate indicators, especially those related to wind flow and direction, vegetation behavior, temperature and cloud movements. The traditional system is built through years of practical experiences and contains much relevant knowledge useful for the contemporary early warning systems and climate prediction. For example, in 2001 the Kereyu elders (pastoralists in the Middle Awash River area) requested the respective authorities to monitor the situation about an impending crisis nine months in advance of the conventional early warning system detecting the situation (Beyene, 2003).

32. The above experiences confirm the need to integrate the traditional early warning system and climate prediction into the contemporary early warning system climate forecast.

C-2-4. Site selection

33. On the basis of guidance on project design from the UNDP-GEF Adaptation Policy Framework (APF), a literature review was carried out on vulnerability and adaptation across the country and Steering Committee members, UNCCD and UNFCCC focal points, and other key stakeholders were consulted through workshops and other meetings, to select sites that best fit the following selection criteria:

- Vulnerability to drought and climate change,
- Adaptive capacity and social acceptance.

34. As a result, the South Wollo Zone in the north eastern part of the country (which has been subjected to historical and recurrent droughts that have left it vulnerable [13] [14]) was selected as the Project site. A Chronic Vulnerability Index (CVI) of the DPPC-EWWG was applied to identify the right Woreda. The CVI is an index used to identify levels of vulnerability for each food-insecure woreda in Ethiopia by analyzing and indexing various factors such as staple crop production per capita, livestock asset per capita, pasture quality and quantity, road accessibility, average prices of maize and sorghum, previous years' assessed needs, drought risk, prevalence of cash crop, and probability of rainfall shocks. In addition, the experiences of the National Food Security Coalition, know-how of the UNDP Environment and Dryland Development Project, and the rural household socio-economic baseline survey of the Bureau of Rural Development of Amhara National Regional State (ANRS), were used to select Kalu Woreda/District of Amhara National State as the Project site.

35. The selection criteria reflect considerations of climate change, including variability, and the significance of the system to drought risk. Kalu woreda is predominantly a dryland area that usually receives short and erratic rainfall. As confirmed by a study carried out in 2003 by the Food Security Office of ANRS, erratic and reduced rainfall, coupled with degraded rain-fed agriculture, usually produce less to support rural population livelihoods of the Woreda throughout the year. Thus, the Woreda remains vulnerable to any kind of climate risks.

36. The selection was presented to and endorsed by the Steering Committee and Inception workshop meeting held on 12 January, 2006 in Addis Ababa. ANRS and Kalu Woreda concurred with the nomination.

[13] World Bank, 2004: Ethiopia: Country Economic Memorandum, Assessing Ethiopia's growth Potential and Development Obstacles,
[14] NMA, 2001: Initial National Communication of Ethiopia to UNFCCC, Addis Ababa

37. Then Kalu Woreda Administrative office and WARDO, in consultation with Woreda Administrative Council and with support from a federal-level technical team comprising representatives from the NMA, the UNFCC Focal point, MoARD, other partners and the national consultant selected two pilot sites, namely Gerba and Harbu, according to APF.

Location

38. Kalu Woreda, with its capital town Kombolcha, is situated 376 km north east of Addis Ababa and 23 km south east of Dassie, the capital city of South Wollo Zone on the main Addis to Dassie road. Its altitude ranges between 800 m amsl in the lowlands bordering the Afar plain (Afar Regional State) to 1,750 m amsl at the foot of the mountains north of Kombolcha. The area extends over 1,153 square kilometers with a population of 233,554 (CSA 2006), of which 93.7% are rural.

39. The agro climate varies from dry sub-humid to semi-arid with an annual mean rainfall ranging from 800 mm in the eastern region bordering the Afar plain, to 1,100 mm at the foot of the mountain north of Kombolcha.

40. The two pilot sites, Gerba and Harbu, are located in the upper catchments areas of the Chelelecka and Borkena rivers at a distance of 26km east and 23km south-east of Kombolcha respectively.

Soils

41. The soils at the Gerba pilot site are characterized by a medium to fine texture (silt loam to clay) that is well drained, non-saline and non-sodic. The shallow to moderately deep brown soil is suitable for agricultural production but it is low in fertility and requires both traditional manure and modern fertilizers to improve its fertility[15]. Over 93% of respondents to a field survey carried out in 2006 indicated that they do not like to use commercial fertilizers as they burn the crops due to the low soil moisture content. Care has to be taken when applying commercial fertilizers and other modern agricultural products such as improved hybrid seeds. The combined effect of an undulating topography and open-access grazing is severe soil erosion (sheet, Rill and Gulley). To maintain the productivity of the land, soil and water conservation measures need to be applied.

42. Substantial alluvial soils occur along the banks of the Cheleleka river that are suitable for irrigation and production of marketable horticultural crops. Studies need to be conducted to develop and tap the potential of this irrigation pocket.

43. Soils at the Harbu pilot site are classified as Eutric Fluvial (FAO) or Aquic Ustifluvent (USADA) and vary from: (i) dark brown to very dark grey-brown silty loam, (ii) weak with medium and coarse mottled grains, (iii) medium to deep soil, soft when dry, slightly sticky and non plastic when wet, (iv) common very fine to medium roots, moderately well drained but frequently flooded during rainy season. Moist through out

[15] ERC, 1986, Upper Millie and Cheleleka Catchments disaster prevention programme, Vol-II: land and water development, Addis Ababa, Stockholm, Bonn, Tokyo

the year, is the soils of the Harbu site are suitable for both rain-fed and irrigated agriculture, although flood control and soil conservation are required to check soil erosion in the surrounding hills and river banks.

Natural Vegetation

44. Most of Kalu Woreda, including the pilot sites, is made up of naturally-occuring scattered belts of acacia with natural and artificially planted trees for lumber. Woody vegetation survives better for longer periods than non-woody vegetation at the critical dry times of the year. Natural vegetation includes different acacia species, *Dodonea viscosa*, several species of euphorbia used mainly for fencing and fuel wood, *Olea africana*, *Entada abyssinica* and others. In addition, plant species such as Eucalyptus species, Acacia spp, *Cordia africana*, *Gravilia robusta* and others have been planted through afforestation programme of the MoA. The natural vegetation of the area is well adapted to the low rainfall conditions. The grass cover is predominantly annual, low in succession and providing sparse ground cover. There has been widespread denudation of indigenous woodland and artificially planted woodlots and many areas now suffer a shortage of wood for construction, fuel, fencing, medicinal purposes and fruit.

Water and Climate

45. Mean annual rainfall generally ranges between 800mm to 1,000mm in the pilot sites with mean annual evaporation ranging from 1,300 to 1,440 mm. Mean annual temperature is 21ºC. The two major rivers, the Borkana and Cheleleka and their tributaries, provide perennial water for a variety of uses. In addition, hand-dug wells, springs and occasionally, boreholes are used to supply water. However, because of high temperatures and evaporation rates, the Woreda and the project sites remain water deficient and drought prone. As a result, 44% of irrigation users and 84% of community members have shown great interest in water harvesting techniques. However, more than 70% of the respondents requested better and sustainable water storage technologies to replace those currently in use.

Irrigation Development

46. In Kalu Woreda about 144 ha (including the Harbu pilot site) are irrigated using traditional irrigation schemes. A further eight irrigation projects are being considered to cover an additional 250 hectares. Potential exists to promote traditional irrigation systems for farmers in the selected sites to add market value to their current crop production. About 73% of the population living in potentially irrigable areas have expressed their interest in developing communal irrigation systems; interest is higher (84% of the 73%?) among literate people (who have completed 1st-4th grade) in the woreda.

Social organization

47. All rural farmers face the same set of management decisions on how to use limited resources (land, water, labor, technological inputs) among crop production, livestock production and off-farm employment to ensure productivity. Survey results from the Bureau of Rural Development (2003), the Amahar Region Food Security Coordination Bureau (2002), and a field assessment (2006) have shown that households, as a unit of production and consumption, have severe limitations as a development institution. It is critically short of labor (water-borne diseases like dysentery and malaria, as well as

HIV&AIDS, usually worsen the labor availability and productivity), education, draft power, and financial, material and other institutional capacities that have denied the households from making economical use of new technologies or available commercial services. Additionally, the agriculture extension services of the Woreda are constrained by human (shortage and high staff turnover), material, and financial resources as well as technology to reach a large number of small producers scattered in remote locations, and deliver the required services on time for the agricultural season.

48. A crude wealth rank study estimated that about 85% of the farmers are poor/destitute in status[16] with most of their savings, if any, is in livestock and not in cash. Hence, the purchasing power of smallholder farmers and money circulation in pilot Woreda/sites is extremely low. Investors and entrepreneurs are not naturally attracted into such rural areas where marketing opportunity appears to be very low. Therefore, because of accessibility constraints, the poor farmers must always pay a premium for the delivery of any good or service priced by the market. If there is no market economy to share the burden of climate shocks, the rural community, by virtue of their remote geographical location and low infrastructure development and lack of savings, remains more vulnerable to variations in climate and the incidence of drought.

Livelihoods

49. In Kalu Woreda/District, and at the selected sites, rain-fed agriculture (93%) and irrigated agriculture (7%) are primary livelihood occupations for 96% of rural households, while the remaining 4% carry out secondary occupations in addition to agriculture[17]. The secondary occupations include petty trading (34%), animal rearing (21%), daily labor work (18%), and hand crafting (17%)[18]. The main livelihood profiles for Garba and Harbu sites are summarized in Boxes 1.1 and 1.2.

Box 1.2 Livelihood Profile for Harbu pilot site

Agricultural: Sorghum, teff, maize, onion, sugarcane, cattle fattening (good agricultural land, but soil erosion, flood, and drainage are constraints).

Cash Income: permanent work on irrigated sugarcane farms, sugarcane sale, seasonal labor work, handicrafts, petty trading, vegetable marketing, livestock sales

Source: ANRS FS Report (2000) & CwD, Baseline Survey (2006)

Box 1.1 Livelihood Profile for Garba pilot site

Agricultural: Sorghum, teff, noug, red teff, red sorghum, vegetable production (good agricultural soils, but water is a constraint).

Cash income: mainly from cereal and livestock sales, handicrafts, petty trading, firewood and charcoal sales, seasonal labour work, vegetable marketing.

Source: ANRS FS Report (2000) & CwD, Baseline Survey (2006)

[16] Bureau of Rural Development, ANRS, 2000, Rural Household Socio Economic Survey, Food Security, Vol IX, Bahir Dar

[17] Food security office 2000, Report on Household Survey, Kalu Woreda, Wollo, July 2000, Bahirdar, Amhara Region.

[18] Reference details?

Vulnerability to Climate Change

50. A nationwide comparative vulnerability trend analysis study, undertaken by the CVI Core Group of EWWG/DPPC (WFP-VAM, 2004) (1994-1998 to 1999-2002) on 418 crop-dependent woredas, showed that the vulnerability status of 161 woredas had worsened over the study period. The reduced, limited and erratic nature of rainfall as well as the recurrent droughts are acknowledged as major factors contributing to increased vulnerability and destitution. Kalu Woreda/district is one of those with worsened vulnerability. According to a wealth ranking study, 65% of its population fall into a poor to destitute category[19].

51. Rain-fed agriculture, livestock production, and food aid distribution are the main sources of livelihood of the Woreda. Agricultural production trends deteriorated over the five year period 1995 to 1999 (See Table-5).

Table-5: Trends of agricultural production for Belg and Mehir seasons of Kalu Woreda over five years (1995 to 1999)

Years	% of HH with no production/no Response		% of HH producing up to 5 quintal		% of HH producing 5-10 quintal		% of HH producing more than 5-10 quintal	
	Belg	Mehir	Belg	Mehir	Belg	Mehir	Belg	Mehir
1995	46	9	45	49	8	26	-	15
1996	53	10	40	60	12	24	-	5
1997	53	2	45	72	2	16	-	16
1998	69	19	31	70	-	8	-	-
1999	82	40	14	49	1	5	-	-

Source: Food security coordination office, 2000: report on HH survey of Kalu Woreda,

52. The 2005 food insecurity report of the WARDO also recorded a declining trend in agricultural production over the last four years (2000-2003); see Table-6.

[19] Bureau of rural development, 2003: rural household socio-economic baseline survey of 56 woredas in the Amhara region, Vol. IX: Food security, Bahirdar.

Table-6: Food insecurity situation -Kalu Woreda, ANRS, 2005

S.N	Particulars	Unit	Years				
			2000	2001	2002	2003	Average
1	Cereal Crop production	Qut	296,199	220,220	256,170	131,358	225,987
2	Post harvest loss (15%)	Qut	44,430	33,033	38,426	19,704	33,898
3	Seed reserves (6%)	Qut	17,772	13,213	15,370	7,881	13,559
4	Other food sources (Cereal crop equivalent)	Qut	9,568	27,028	58,889	16,075	27,890
5	Net domestic food production (1-2-3+4)	Qut	243,565	201,002	261,263	119,848	206,420
6	Food Aid	Qut	51,793	41,964	37,575	112,543	60,969
7	Total food availability (5+6)	Qut	295,358	242,966	298,838	232,391	267,388
8	Total Population	Qut	205,760	205,760	225,690	226,651	215,965
9	Total Food requirement, @1.81Quital/Person/Year (8 x1.81)	Qut	372,426	372,426	408,499	410,238	390,897
10	Food balance (6-8)	Qut	-77,067	-129,460	-109,661	-177,847	-123,509
11	Capacity of food self-sufficiency	%	65%	54%	64%	29%	53%
12	Food availability	%	79%	65%	73%	57%	68%
13	Contribution of food aid	%	18%	17%	13%	48%	23%
14.	People in need of support	No	69,058	55,953	50,100	106,775	70,472

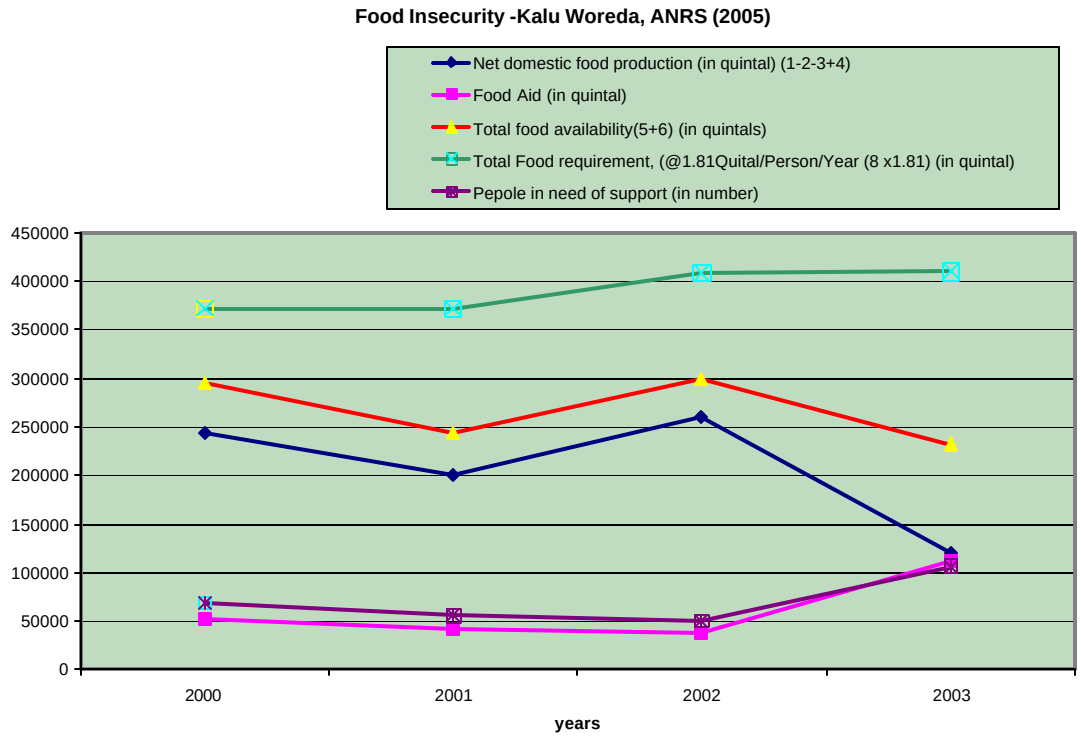


Figure-1: Food production of Kalu Woreda over four years (2000-2003)

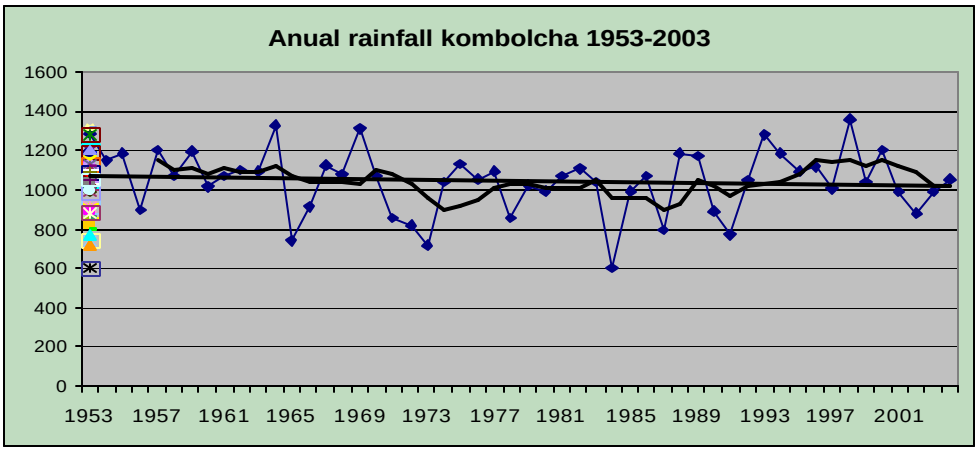


Figure-2: Long term annual rainfall distribution of Kombolcha (1953-2003)

53. About 80% of the population is of the opinion that living conditions are worsening and claim that erratic and shortage of rainfall and droughts are the main factors. Further observation of Table-6, Figure-1, and Figure-2 shows a close correlation between a reduction in agricultural production and declining rainfall. This is in line with community claims and also proves that the livelihood insecurity of Kalu Woreda is induced by climate variability and change.

54. Use of climate information from formal science for decision-making to mitigate the effect of drought and climate change is virtually non-existent among rural communities because of a lack of access to the information and spatial scale problems. So they face the shock as it comes and struggle to cope afterwards.

55. During drought years, the farmers use various coping mechanisms detailed in Table-3, which include working as casual labor, selling fuel wood and charcoal, a practice that aggravates environmental degradation and further erodes the adaptive capacity of the community. During field visits and discussion, to build resilience and enhance their adaptive capacity against drought climate variability and change, the community provided the following list of priority development interventions:

- water harvesting
- water supply and irrigation development
- flood control and drainage
- supply of appropriate technologies
- livestock development
- human and livestock health services
- capacity building (technical support and training)
- conservation of natural resources
- regulation of open grazing including legally managing the incursions by camel and cattle from the neighboring regional state of Afar

- access to credit and agricultural inputs, and
- access to markets.

56. As a result of field assessments and community focus group discussions, the vulnerability profile of the food-insecure in Kalu Woreda were identified, in prioritized order, as follows:

- female headed household
- orphan headed household
- elderly people headed household
- effective labor lacking headed household
- landless household
- household with low landholding (< 1.00 ha)
- oxen-less household
- poor household without access to productive resources and technology

Stakeholders

57. In line with UNDP-GEF APF guidelines, the Steering Committee and participants at the National Inception workshop and Stakeholders meeting at Kalu Woreda identified those institutions with programme complementarities and potential for partnership and/or co-financing for the project implementation. Strengthening the link of these institutions to community needs will be critical for enhancing community adaptive capacity to drought and climate change.

Table-4: Stakeholders in the project

Stakeholders	**Interests and Roles**
A) Government Organizations at National, Regional and Woreda levels	
MoFED	• Enter into agreement and sign project agreement on behalf of GoE and oversee the project implementation
Environment Protection Authority (EPA)	• Cross sectoral coordination to ensure integrated implementation.
NMA	• Provide user tailored climate forecast for early warning and execute the project in collaboration with other actors. • House the project and serve as secretariat of the Project implementation Steering Committee.
MoARD	• Disseminate and apply early warning information to reduce climate risk at community level.
MoWR	• Use various water development technologies to make more water available and build community resilience in pilot areas to mitigate and cope with drought.
DPPC	• Disseminate and apply proactive early warning information to cope with drought at community level.
National, Regional and Woreda Administrative bodies	• Solve local problems and oversee implementation of this project. Provide co-financing. • Coordination of local development programme

Stakeholders	Interests and Roles
UNDP-GEF, WFP, WB, EU, Bilateral Agencies and other IOs	• Assistance to development of the country, attainment of global environmental benefits, partnership and co-financing of projects.
EARO, EFRI, ICRAF, RELMA, ICRISAT, CIFOR	• Develop human capacity • Generate knowledge and technical systems • Information sharing • Training in participatory methods
NGOs • Water Action • Concern Ethiopia	• Facilitate organization of local people • Strengthen local institutions • Implement solutions to community problems
Local Communities	• Reduced vulnerability to climatic shocks • Improved adaptive capacity • Improved access to health, education/knowledge and water • Access to markets • Sustainable and productive environment • Access to early warning information
Private Sector	• Irrigation support for local communities • Market oriented schemes • Finance for rural households

Adaptive capacity assessment

58. To assess adaptive capacity of the community in the pilot Woreda and sites, participatory rural appraisal (PRA) techniques were used to conduct interviews with key informants and discuss with communities at the project site to identify and prioritize issues in line with APF of UNDP-GEF. Also, information generated from previous studies carried out by: (i) Amhara Regional State to provide a baseline survey of rural household socio-economic data; (ii) Ethiopian Red Cross Society; and (iii) the UNDP/FAO project 'Assistance to land use planning for Ethiopia' have been used. It is recognized that adaptation to climate change and drought risks takes place in a dynamic socio-economic, technological, biophysical and political context.

Opportunities

59. The Borkena and Cheleleka rivers at the Harbu and Gerba pilot sites respectively, offer an opportunity for irrigation. The existing traditional irrigation system, particularly that at Harbu, is limited to sugar cane production only although it could produce more valuable and marketable crops and create job opportunities for those households living outside of irrigable areas. There are similar opportunities, but on a lesser scale, from the Cheleleka river at Gerba. Moreover, there are dry creeks or rivers that bring seasonal flood water to the pilot sites from the highlands above them. Harvesting these flood waters and using them for irrigation, including spate irrigation and water supply, will be of great value for controlling floods, conserving the environment, and promoting communities development.

60. The proximity of the project sites to the markets at Djibouti, accessible by tarmac road, is another opportunity for the pilot areas to have market-added value and improve their livelihood. This opportunity needs to be explored further.

Challenges

61. Erratic and a shortage of rainfall, degraded land, eroded ecosystems, and a deteriorated environment will remain the main basis for drought vulnerability of Kalu Woreda in general and pilot sites in particular. Environmental degradation is aggravated by open-access grazing, together with unexpected invasions of large flocks of camel and cattle from neighbouring Afar regions, poor soil and water conservation practices, and prolonged dry periods.

62. The available irrigation is not well developed to extract the potential marketable benefits. Costs associated with irrigation development remain the major constraints for communities in the pilot sites to undertake the development by themselves and improve their resilience to face drought and climate change risks.

63. The projected increasing temperature and declining rainfall scenario for the northern half of the country, which includes the pilot district, will be a great threat and challenge to the area. It will negatively affect agricultural production, favour spread of pests and disease like malaria, deteriorate infrastructure and worsen the livelihoods of the rural poor in the pilot areas. Market access will be constrained and transport costs will rise to become particular obstacles to agricultural development for the remote rural communities. In short, the pilot Woreda /sites will be highly constrained by a lack in most of the fundamental requirements for successful agricultural development, including investments in rural infrastructure and technology (roads, transport, electricity, and irrigation infrastructure), improved crop varieties, disease control and investments in the development of marketing and distribution of valuable agricultural products. Predicted climate variability and change will exert additional pressures on the already weakened subsistent economy of the pilot areas. Hence, actions need to be taken to avert the gloomy nature of a future scenario of drought and climate change.

C-2-5. Project Strategy

Project Rationale

64. The livelihoods of rural Kalu Woreda are based mainly on mixed agriculture (crop and livestock farming) complemented with some off-farm activities. Water scarcity, food security, human health, and livestock disease are issues of major concern to the Woreda.

65. The long-term average rainfall (1953-2004) has shown a declining trend. Given the erratic nature of rainfall, in addition to rainfall shortages, more than 10 serious droughts have occurred that have impacted negatively on national agricultural economy, leaving the rural community with chronic and acute food deficits. Even in years that are not

considered a 'drought year', an average of 5-7 million people nationwide, and more than 58,000 people in Kalu Woreda, need food assistance each year.

66. Rural communities in Kalu Woreda responded to these dire circumstances by adopting different drought coping strategies, including livestock sales, working as casual labor, selling firewood and charcoal, reducing the number of meals consumed per day, etc. In general, during a drought, the first refuge for food insecure households is the extended family, then the market, and lastly social assistance from the state or other welfare organizations in the form of food aid.

67. In the last ten years, Ethiopia and Kalu Woreda received 870,000 mt and 6,097mt of food aid respectively per year. In fact, drought relief and emergency recovery (food handouts and seed-packs) have become almost institutionalized since the 1970s, as drought conditions prevail from one season to another. Continuation of this trend has led the country to be increasingly less resilient to withstand climatic shocks under the predicted increasing temperature and decreasing rainfall scenario, given the present low level of drought mitigation and preparedness, widespread poverty, recurrent droughts and over-dependence on rain-fed agriculture, coupled with the impacts of past droughts, which have degraded the livelihoods of millions. The consequences of these will be numerous including possible losses of human life and properties.

68. To face these challenges and ensure resilience against drought and climate change, the rural community need production systems that: (i) reduce losses during drought years; (ii) are substantially more productive in good seasons; (iii) improve labor productivity to compensate for loss of family labor to malaria and other diseases including HIV/AIDs and malaria; (iv) sustainably manage lands and exploit the benefits, use-advantages, technologies and use locally-available inputs (e.g. leaf litter, manure) to maintain soil fertility; and (v) foster market development to gain added values for their livelihoods.

69. Thus, the project aims to build resilience of rural households in Ethiopia, particularly Kalu Woreda/District, to deal with climate variability and climate change by analyzing and addressing the major barriers to adaptive capacity of the community to mitigate and cope with climate variability and changes.

70. The strategy adopted in this project builds on the development baseline, and includes additional activities to increase adaptive capacity to cope with drought under changing climatic conditions.

Problems and barriers

71. To identify the barriers to policy support, random interviews and focus group discussions with watershed management planning committees within peasant associations, women's groups and elderly people were carried out and the results used together with on-site observations (using Participatory Rural Appraisal techniques and principles in line with APF and UNDP-GEF guidelines). The focus groups reflected the social structure of the communities and provided a setting for participants to express their

views freely. Finally, secondary data, literature reviews, personal experiences, and insights of local people were used.

72. Barriers to adaptive capacity are analyzed at three levels: (i) household/community; (ii) institutional; and (iii) systemic levels. The principal problems to be addressed by the project are as follows:

- Although opportunities exist for diversified livelihood strategies, rural communities have not been in a position to adapt to them because of low capacity with regard to limited know-how, capital investment, technology, and access to markets. Lack of livelihood diversity exposes individuals and the whole community to external shocks such as droughts. Removal of the barriers would allow new livelihood options to be developed with opportunities for income generation. Technical support in the development of new skills is also limited, as it is focused only on existing livelihood strategies.
- The reliance of livelihoods on natural resources and their pursuit of unreliable rain-fed agricultural practices remain unsustainable activities, especially as population pressure increases. Climate change exacerbates community vulnerability unless the barriers to sustainable livelihoods, such as institutional, policy, technical and systemic issues, are removed.
- As noted previously, tending to await "hard evidence" of an impending disaster instead of taking timely action and responding in advance of any emergency situation that may arise, together with a lack of proper coordination and clear mandates among the various institutions on cross-cutting issues, have constrained application of the various policies available to increase adaptive capacity of the vulnerable communities.

73. Barriers to improved policy support stem from:

- Lack of consideration of drought and climate change in national development planning at all macro and micro-economic levels;
- Narrowly focused sectoral planning;
- Failure to ensure policy conformity across sectors.

74. The barriers to adaptive capacity identified (see Chart 1) were analyzed and converted into a problem tree and objective tree (barrier removal) by community leaders, development agents, woreda experts of WARDO and the Woreda administrator on the stakeholders' workshop held at Kombolcha. The objective tree (Chart-2) was used to formulate the project goal, objective, outcomes and outputs.

Chart-1: Problem Tree: Analysis of adaptive capacity barriers to cope with drought and climate change

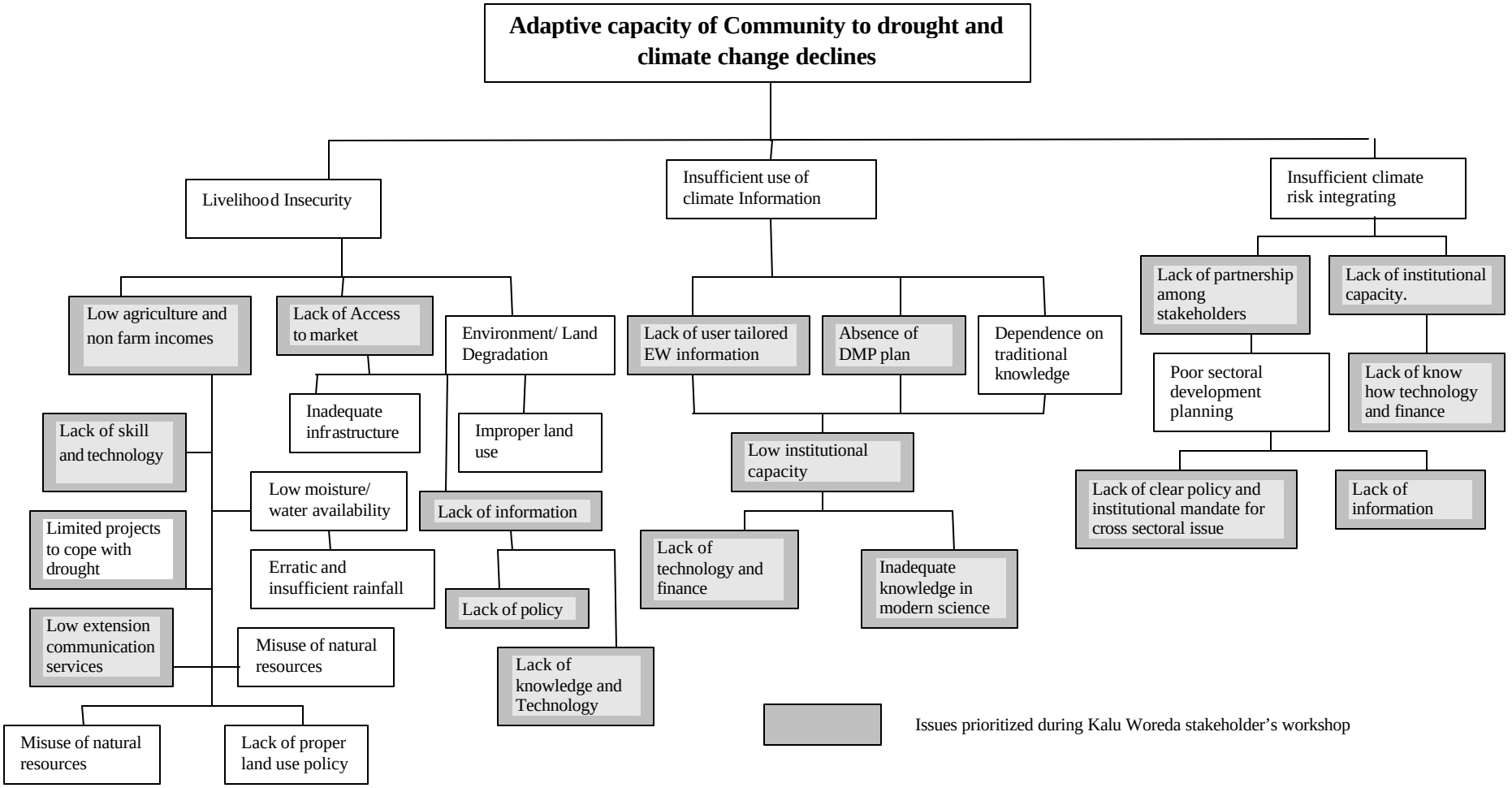
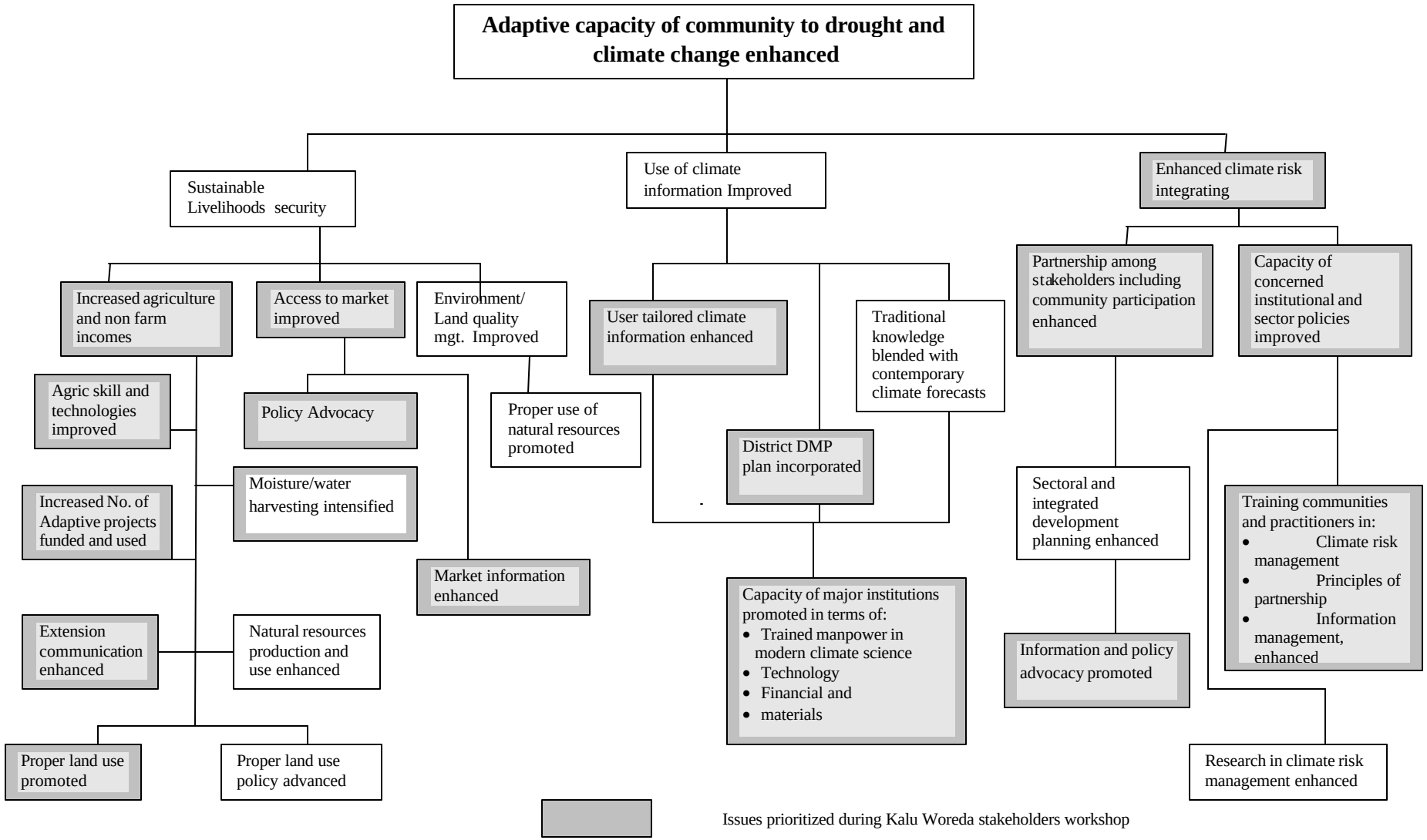


Chart-:-2: Objective Tree: Analysis of adaptive capacity barriers removal strategy to cope with drought and climate change



Project Goal, Objective, Outcomes and Outputs

75. The goal of the project is *to enhance the capacity of agricultural systems in Ethiopia to adapt to climate variability and change*. As a contribution to the achievement of this **goal**, the project **objective** is "to develop and pilot a range of effective coping mechanisms for reducing the vulnerability of farmers, particularly women and children in Kalu Woreda/District to drought shocks".

76. The adaptive capacity barriers removal analysis described above indicated the need for interventions designed to achieve four outcomes in support of the project objective. These are:

- Livelihood strategies and resilience of vulnerable farmers improved and sustained to cope with drought
- Enhanced use of early warning systems in agricultural systems
- Drought preparedness and mitigation activities integrated across sectors and at various levels of society
- Farmers outside the pilot sites replicate successful approaches to cope with drought.

Outcome 1: Livelihood strategies and resilience of vulnerable farmers in the selected pilot sites improved and sustained to cope with drought and climate change

77. A difficult bio-physical environment combined with poor land management practices, the impact of HIV&AIDS, malaria, limited involvement of women in decision-making and low policy implementation have adversely affected livelihoods in Kalu Woreda/District, resulting in worsened food insecurity and other socio-economic challenges. In times of drought, people have resorted to a range of maladaptive strategies described above. These maladaptive strategies exacerbate environmental degradation leaving the ecosystem more vulnerable to buffer livelihoods against future climatic stress.

78. Though poor rural communities have limited income, they have great assets that can be enhanced to improve their livelihoods and resilience in the face of drought and climate change. These assets include social, natural, physical, human, and financial capital. This project will provide support to strengthen and diversify livelihood strategies of the poor, particularly women, in the pilot areas to make them more resilient to climate change in the future. Special care will be taken to ensure gender equity with at least 50% participation by women in the pilot projects. To achieve this outcome the following outputs are envisaged:

Output 1.1 Diversity and resilience of community food and income sources improved.

79. Livelihoods of the rural people of Kalu Woreda/District have revolved around mixed agriculture (crop and livestock farming). Emerging global trends in agriculture show the growing importance of market development, contract farming, knowledge-based agriculture, sustainable agricultural practices, and industrialization of agriculture. This output, taking the existing dryland development packages into consideration (see annex 7), will provide practical and feasible adaptation measures to

ensure that forestry, agricultural and livestock products in the pilot sites are resilient to drought shocks and are marketable for added value. The strategies to be adopted include:

- Irrigated crop production
- Commercial agricultural production
- Crop diversification
- Livestock production and marketing
- Grazing land management
- Woodland management and tree farming
- Production of major crops of the area (eg, barley, wheat, teff and sorghum)
- Improved post harvest storage and processing facilities
- Water harvesting and management
- Community seed producer's network
- Community-based safety nets

80. In an effort to mitigate the impacts of drought, Ethiopia, in its Initial National Communications to the UNFCCC, proposed increasing water storage facilities, improving water management, diversifying crops, developing irrigation systems, enhancing erosion control, improving and changing crop practices and management, improving pasture and livestock management, increasing sustainable tree and forest products, and conserving forest ecosystems, genetic stocks and wildlife resources etc. The project will provide financial and technical support to vulnerable communities, 50% of which will be women's groups, for the design and implementation of a range of small to medium-scale livelihood improvement projects to mitigate the impacts of climate change.

81. The small and medium-scale projects, *inter alia*, will address: lack of skills in managing an integrated crop and livestock agriculture; lack of access to water; limited skills for operation and maintenance of irrigation; insufficient financing mechanisms for rural areas; shortage of non farm opportunities; lack of developed markets; poor access to inputs; and lack of access to appropriate technologies.

Output 1.2 Sustainable land management (woodlands, agriculture and pasture lands) with development of markets for dryland products

82. This output will emphasize assisting communities to develop sustainable production systems; adding value to and securing markets for dryland products. Appropriate technologies, including a number of agro-forestry innovations developed by various organizations such as ICRAF, CIFOR, ICRISAT, CIMMYT SAFIRE, CTDT, EFRI and others, will be used to improve drylands management.

83. Key dryland products from Kalu Woreda/District include livestock and livestock products, small grains (such as barley, wheat, teff and sorghum), wood products, fruits, and vegetables. If the water constraint is removed, horticulture development holds potential for the dryland communities of Kalu Woreda to improve their diet and income. In the absence of markets, there is little incentive for farmers to invest in land management and high value produce. Development and commercialization of the irrigation potential of the pilot sites in the Woreda and promotion

of livestock development for sales may offer a big opportunity to supply the markets of the surrounding towns (including Kombolcha, Dassie, and Addis Ababa).

84. Barriers to exploitation of dryland products by the rural poor include: poor harvesting practices, poor livestock management, weak veterinary services, weak reforestation, poor land management, inadequate market information, poor communication infrastructure, insufficient business skills, and poor access to technology for value addition and storage.
85. To develop markets for dryland products, this output will support:

- Production and marketing of some valuable dryland products, to guide value addition
- Design and implementation at community level of pilot projects including vegetable, fruit and tree farming, in partnership with Community Based Organizations (CBOs), particularly women's organizations, to demonstrate the potential of marketing dryland products, while building the capacity of CBOs to ensure sustainability
- Training of communities in livestock/pasture management and establishment of fodder banks using indigenous and exotic fodder shrubs and trees
- Training of communities in business skills, commercial seed production of major crops of the area (barley, wheat, teff and sorghum).

86. Appropriate market linkage models and community organizations will be explored and used to facilitate trade between dryland producers and external markets. The UNDP Drylands Development Center (DDC) is implementing a pilot project on market development for dryland products in East Africa and will offer an important opportunity to undertake this output.

Output 1.3 Community Based Natural Resources Management (CBNRM) improved

87. Inappropriate natural resources management can exacerbate vulnerability to climate extremes. Integrated forests, grass and water resources management act as buffer systems, diminishing surface runoff in the case of intense rains in addition to providing livelihoods to local communities. This output will provide practical adaptation measures that include application of ecosystem approaches and community based natural resources management (CBNRM) that could enhance holistic approaches to regulate use of ecosystems for community benefit without losing the ecosystem value.

88. Viability of CBNRM requires effective institutional arrangements at the local level to manage access and control issues. The project implementing agency will collaborate with concerned major institutions responsible for this sector (ie CBOs and communities) to establish viable local level structures to support CBNRM.

89. This output supports management of sudden and uncontrolled attacks to the natural resources/vegetation of Kalu Woreda by livestock (cattle and camels) that flock to the area from the neighboring Afar state during drought, thereby setting in place a political and technical arrangement between the Amhara and Afar states.

Output 1.4 Strengthened capacities of stakeholders, including communities, to enhance Climate Change Adaptation

90. This output will ensure that all relevant stakeholders, including communities, have the necessary capacity to perform effectively in their role to implement adaptation options at a minimum cost to the pilot site. The natural resource management approaches, community participatory methodologies and adaptation approaches being proposed require that stakeholders acquire additional skills. For example, use of the ecosystems approach to water, forestry management, and other land uses will require integrated knowledge to make informed and practical decisions. Hence all stakeholders, including communities have to gain necessary skills to apply the CBNRM approach.

91. If communities are to be involved in value-added agricultural production, irrigation management, water, forests resource and drylands management, then they need agricultural and livestock production skills in drylands, skills for operation and maintenance of irrigation, resource conservation and entrepreneurship. Discussions with the communities in the pilot sites of Kalu Woreda/District, and lessons learned in previous projects, reveal that skills in these areas are lacking.

92. The project will develop instructional materials (including multimedia materials) that can be adapted to local needs, provide information on learning resources, and connect people and organizations to foster continued learning. This learning and mentoring service will empower people to develop, deliver and use information and products that provide new options for livelihoods. This output will also support outcome 4.

Outcome 2: Enhanced use of Early Warning information in agricultural systems at the selected pilot sites.

93. Adaptation is likely to succeed if people are informed about climate variability and change, its possible impacts on their livelihoods and the options available to respond to and counter the effects. This requires a high quality, accessible, and relevant information flow (overcoming shortcomings of existing early warning systems described previously) to allow effective decision-making. Agricultural climate information is now used elsewhere to advise farmers about their choice of crops and methods of cultivation and has led to improved yields and farm income. Better information and early warning systems for farmers and natural resource managers can reduce vulnerability to inter-annual climate variations and enable responses to be proactive rather than reactive. This project will seek to enhance the use of early warning systems through the following outputs:

Output 2.1 Integrated drought information system enhanced

94. This output will study the dissemination and effectiveness of drought information of the NEWS, including that of Kalu Woreda's EWS, and propose an improved drought information dissemination and utilization system for Kalu Woreda; this will ensure early response of the rural community to minimize adverse impacts on their livelihoods. This output will include activities focusing on the compilation and analysis of climate data, stream flow, reservoir levels, short-, medium- and long-range forecasts, crop and livestock condition, and food security vulnerability mapping. The rationale for an integrated drought information system is that all water users –

farmers/pastoralists, land managers, business owners, wild-life managers, and decision makers at all levels of government - must be able to assess their drought risk in near real time and be prepared prior to the onset of drought. The project will collaborate with local communities, the National Meteorological Agency, Ministry of Water Resources, Ministry of Agriculture and Rural Development, DPPC, Amhara Regional Government, Kalu Woreda, WFP, Regional Drought Monitoring Centre Authority, and other relevant international centers of expertise to achieve this output. The project will also strengthen capacity for local level monitoring (including indigenous knowledge systems) and prediction of the diverse physical indicators of drought, as well as relevant economic, social and environmental impacts. Developing local level capacity will ensure sustainability of the output.

95. GIS and other tools will be used in a modeling framework to provide relevant, understandable and timely (historical and current) drought related information to decision-makers and the public. An internet-based information delivery system, local radio programme and district level drought information newsletter will be developed to ensure that extension agents, natural resource managers and district political decision-makers have ready access to information.

96. Key barriers to uptake of climate information identified in the baseline study include lack of integrated indigenous knowledge systems, poor spatial and temporal resolution of the products, lack of access to the information, poor packaging, poor structure of the decision set, and low accuracy.

Output 2.2 Capacity of community-level institutions and practitioners to apply climate information in decision-support developed

97. The project, in collaboration with other partners, will develop methodologies to integrate data on climate, hydrology, socio-economic and ecosystem conditions in decision support for the benefit of farmers who respond to drought. It will build capacities of community level institutions and development practitioners in early warning information management and integration in development programmes. This will involve the compilation of training materials and provision of training courses.

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Output 2.3 Community education and awareness programme on climate risk management developed and implemented

98. Education and awareness-raising are critical for changing attitudes, developing a conservation ethic and for success in risk reduction. Vulnerable communities, particularly women, usually lack skills and have no access to information on their risks from environmental degradation and climate change. The project will partner with all stakeholders to raise awareness among local communities, particularly women and children through advocacy, information kits, educational materials, training workshops and in-depth analysis of drought risk and impact on socio-economic development.

Outcome 3: Drought mitigation and preparedness activities integrated across sectors and programmes at various levels of society in the pilot sites

99. While climate change is just one out of several possible external events to which economies and societies are exposed, appropriate adaptation strategies may be critical to maintain growth prospects. The rationale for integrating adaptation in development strategies and practices is underpinned by the fact that many of the interventions required to increase society's resilience to climate changes generally benefit development. Integrating ensures that climate issues are considered in decision-making processes such as planning and budgeting. The project will seek to ensure that sectoral and other policies and strategies do not undermine, but rather reinforce the opportunities of the poor to access resources, build assets, and diversify their economic activities to increase their adaptive capacity to climate change through the following project outputs:

Output 3.1 Community-Based Drought Mitigation and Preparedness Plan developed

100. A Community-Based Drought Mitigation and Preparedness Plan is a set of activities and an implementation strategy that a community should follow to avoid scarcity of food, drinking water, fodder and feed, loss of life and livelihoods as well as providing employment and food security to the most vulnerable households during droughts. The objective is to increase community participation in: preparedness; preventative risk management approaches to drought management; response and recovery. Having a plan reduces vulnerability to drought and dependence on emergency assistance from governments and international organizations. The process of developing a plan will identify vulnerable areas, population groups, and economic and environmental sectors. The process also seeks to identify data and informational gaps and research and institutional needs. Ultimately, preparedness plans will improve coordination within and between levels of government; procedures for monitoring, assessing, and responding to water, food and animal feed shortages; information flow to primary users; and efficiency of resource allocation. The plan will be prepared in a participatory approach, with all concerned stakeholders, the community being the main core; special care will be made to include women.

Output 3.2 Advocacy programme on integrated climate risk management developed and implemented

101. The key responsibility to create a culture of mitigation in the country vests with the Government of Ethiopia, which has developed effective national policies and strategies to this end. The project, in collaboration with other partners, will develop and implement an advocacy programme to have climate risk management incorporated in sector policies and national development strategies, such as 5-year development plans and a poverty reduction strategy. Tools such as policy briefs, booklets, posters, conferences and media campaigns will be used for advocacy.

Output 3.3 Strengthened capacities of stakeholders to develop and implement effective Community-Based Drought Mitigation and Preparedness Plan

102. Working in collaboration with other stakeholders, this output will ensure that all relevant stakeholders, including communities, have the necessary capacity to develop and implement the Community-Based Drought Mitigation and Preparedness Plan to perform effectively in their role to implement adaptation options at a minimum cost to the pilot site.

103. Developing and implementing a community-based drought mitigation and preparedness plan require that stakeholders acquire additional skills in integrated development concepts, use of participatory rural appraisal (PRA) techniques, organizational/institutional interrelationships, holistic and/or CBNRM approaches. Field studies at the pilot sites and lessons learned in previous projects reveal that skills in these areas are lacking.

104. The project, in collaboration with other stakeholders, will develop instructional materials (including multimedia materials) that can be adapted to local needs, provide information on learning resources, and connect people and organizations to developing and implementing an effective community-based drought mitigation and preparedness plan.

Outcome 4: Farmers/pastoralists outside the pilot sites replicate successful approaches to cope with drought

105. Although the project is primarily designed to build adaptive capacity to cope with drought among communities in Ethiopia, many of the constraints to adaptive capacity are similar to those found in other parts of east and southern Africa. Consequently, exchange of knowledge among countries implementing similar projects, specifically Mozambique, Kenya, and Zimbabwe in the first instance, will greatly add to the value of the project in terms of identifying effective approaches to build adaptive capacity to cope with drought. Experiences generated in the different countries will result in a greatly expanded body of knowledge than from any one country. The consumers of this knowledge include:

- Policy makers and sector managers in countries subject to frequent and intense droughts. Lessons learned through this and similar projects will guide policy development in such countries;
- The GEF. As the GEF seeks to improve the effectiveness and efficiency of its emerging portfolio in adaptation to climate change, lessons learned through projects will guide future project design. The Adaptive Learning Mechanism (ALM) project provides an overall framework for learning related to adaptation. This and similar projects will contribute to "Immediate Objective 2" of the ALM, namely "To design, establish and operationalize a knowledge base and active learning process for the ALM". However, while the ALM will establish the knowledge base, the process of "populating" the knowledge base requires inputs from other projects. In this case, knowledge is generated not only from Ethiopia, but also from countries with similar projects
- UNDP and other Implementing and Executing Agencies. The GEF's Implementing and Executing Agencies seek to integrate environmental issues such as adaptation to climate change in their own programmes. Consequently, lessons from this and similar projects will improve the quality of such programmes.

106. This regional component of the project will be implemented by a qualified international agency, selected on the basis of an open tendering process. Activities under this Outcome will focus on regional coordination and cooperation, under the following two Outputs:

Output 4.1 A platform for exchange of knowledge.

107. The establishment and operation of such a platform will improve the effectiveness and efficiency of each national MSP by exposing national teams to wider experiences than would otherwise have been possible. It also means that project results will be more widely applicable. The operation of the platform will involve several types of learning events, and indicative activities under this Output include:

- Documentation and reporting of good practices and success-stories. The local implementing agency will be responsible for developing a system of reporting aimed at domestic dissemination. In addition, however, the local implementing agency and UNDP Country Office will be responsible for regular reporting to the selected agency, which will maintain a web-site where lessons will be documented.

- Learning tours. The project will support two types of learning tours. One type will be for farmers and policy makers to visit both the pilot sites and other drought-affected sites in Ethiopia, to learn first-hand of both the impacts of drought and measures that can increase adaptive capacity to deal with climate change. Such study tours will support Outputs under Outcome 3. The second type of study tour will be for farmers, policy makers and technical specialists to visit pilot sites in other countries where adaptation projects are being implemented to learn from experiences in similar and differing climatic and socio-economic situations.

Output 4.2. Technical support to the national project team

108. Technical support mechanisms have been previously established for some parts of the UNDP-GEF project portfolio, for example, OP13 projects. Since the engagement of communities in adaptation to climate change is an emerging issue, a similar support mechanism will be provided. The national project team will be responsible for identifying issues or topics for which local technical expertise may not be adequate. Existing rosters of technical expertise, such as that maintained by UNDP's DDC [http://drylandsnetwork.undp.org/roster.cfm] will be used to identify potential technical expertise. Indicative activities contributing to this Output include:

- Design and mobilization of technical support missions in response to demands form the national project team.

C-2-6. Assumptions and Risks

109. The proposed project requires a substantial change in emphasis within government, NGOs and communities from reactive crisis management to proactive risk management, including emphasis on addressing issues of land use planning and natural resources management.

110. The National Meteorological Agency, as a focal Point for UNFCCC is a leading executing agency of the project and the prime producer of climate forecast information, the core element of the early warning information. It is not the direct implementer of the early warning information;

this is implemented by MoARD and DPPC, which deal with agriculture development and coping with drought. So NMA will need to establish a strong partnership and work with these and other government bodies, private companies, community based organizations, and other stakeholders responsible for various aspects of environmental management and response to drought. An important assumption is that the various agencies will be willing to work together to produce a shared framework for assisting communities to cope with drought and climate change.

111. As part of community participation, involving religious organizations and traditional leaders in drought and natural resources management is a key aspect of this project. An assumption is made that traditional leaders will be willing to be involved in training, awareness raising, advocacy, CBNRM, and drought mitigation and preparedness planning.

112. In order to be effective, the Coping with Drought and Climate Change project should be a focal point where information on drought in the pilot site and drought management technologies can be easily obtained. This requires that all relevant stakeholders are willing to share data/information promptly and freely. As the main actors in using the early warning system and climate forecast information, MoARD and DPPC need to play major roles and be willing to bear more responsibilities than other stakeholders to work with NMA and lead project implementation. Production of user-tailored early warning information and its dissemination also require effective information and communication technology. This is an important assumption given the poorly developed ICT infrastructure and low attention to data and information management by many organizations.

113. Community participation and involvement in all aspects of the project is key to the success of the project especially when piloting the project. An important assumption is that individuals, women and communities within the pilot areas will be willing and motivated to participate and co-operate in the project. The project aims to address these potential risks by choosing pilot areas where substantial community involvement with prominent stakeholders and NGOs already exists and communities have already shown motivation towards improved drought management.

114. Unfavorable climatic conditions, possibly including drought, may occur during the project life cycle but remain within coping range of the project. It is anticipated that existing institutions and community groups will rapidly absorb and act on the new skills, technical approaches and knowledge acquired.

115. A project this large with so many collaborating partners always faces operational risks. However, it is expected that this risk will be mitigated by imploring collaborating partners to deploy trained personnel to meet their obligations under this project. High staff turnover of skilled and experienced personnel at all levels of operation could compromise the effectiveness of this project. Proper systems and training programmes that benefit more staff will need to be put in place to ensure institutional memory for the benefit of any new staff that could come on board.

C-2-7. Additionality

119. This project addresses the future impacts of long-term climate change, which requires to increase the adaptive capacity of local and national stakeholders to cope with increased frequency and intensity of drought, which the INC has identified as a major consequence of climate change. This means that project stakeholders need to build their capacity to adapt to changing climatic conditions. Thus, for example in a scenario without climate change, diversification of agricultural systems as a means of promoting sustainable land management would constitute a sufficient intervention. However, the project strategy presented here also builds capacity to continually review the sustainability of such systems and adapt them as the impacts of climate change alter the underlying drivers of productivity. As such, the project meets the eligibility criteria of the SCCF.

120. Adaptation to climate change starts with an understanding of current coping strategies for dealing with droughts experienced under current climate variability. Under conditions of climate change, droughts in Ethiopia will become both more frequent and more intense. SCCF funding to this project will support the additional cost of the adaptation activities.

121. The baseline scenario for this project represents a "business-as-usual" wherein Ethiopia undertakes only those activities in its baseline development planning. This envisages a situation in which rural communities continue to use their current coping strategies, which will become inadequate as drought increases in frequency and intensity. The specific coping strategies currently used are described in section C-2-4. The project will improve the resilience of the social systems to cope with drought. SCCF funding will cover the difference between relative costs associated with the baseline scenario and the alternative scenario.

C-2-8. Expected National and local benefits

120. The community of Kalu Woreda has been suffering from recurrent droughts that have pushed their livelihoods to severe poverty and destitution. Lack of knowledge, lack of effective climate and other early warning information, absence of drought mitigation and preparedness plans, and use of unproductive, old agricultural technology have eroded the adaptive capacities of the community and left them vulnerable to climate change. This project will address these problems at grass roots level to build capacity of the poor rural community to cope with drought and climate change and ultimately to improve their livelihoods. The project will also build the capacity of core institutions, such as NMA, MORD, DPPC, etc at different levels, to enable them to generate and disseminate effective climate and other early warning information, in order that the rural communities and other users have advance warning of the situation and can take corrective measures to avert the effects of climate changes.

121. Partnership promotion, which is one of the core interventions of this project, will enable all concerned stakeholders to collaborate and work together; in so doing, partners are able to generate energy and synergy to collaborate efficiently with fewer resources and less energy. The disaster mitigation and preparedness plan forum will serve as a platform for the stakeholders's mutual interaction and cooperation. Data and information generated by the project will benefit researchers and practitioners for use elsewhere to solve similar cases. At national level, the project will provide the necessary guidelines, up-to-date data, and information for improving disaster mitigation and preparedness.

Costs to be borne by the SCCF

122. The level of the SCCF contribution to the project has been determined following the principles of additional cost reasoning.

123. The project design process, which followed the logical framework approach, outlined the baseline scenario, described above, which represents a "business-as-usual" scenario wherein Ethiopia undertakes only those activities considered to be in its baseline development planning. The alternative scenario includes activities that will ensure that capacity is built to adapt to long-term climatic changes.

124. The total cost of the alternative is estimated to be US$ 2,911,671. Of this total, the costs of the baseline scenario are estimated to be US$ 250,000, and the additional costs of the alternative are US$ 2,661,671. Of this total, US$ 1,916,671 will be contributed from sources of co-financing, including several agencies of the national government and the WFP. These contributions are listed in section D3 below. The contribution requested from the SCCF amounts to US$ 995,000, which represents the costs associated with activities necessary to build capacity to adapt to long-term climatic changes. SCCF funds will be applied primarily in relation to activities designed to enhance adaptive capacity, which are relevant to each of the four Outcomes. However, in terms of the ratio of SCCF funding to co-financing, the ratio is lowest for Outcome 1, which deals to a large extent with food security, with relatively minor contributions to enhance adaptive capacity under conditions of climate change. In contrast, the ratio is highest for Outcome 4, which is almost exclusively associated with adaptation to climate change. Section D1 below, shows the distribution of SCCF and co-financing funds.

C-3. Sustainability (including financial sustainability)

125. One development principle to ensure sustainability is to maintain capacity building of beneficiaries in line with the skill and knowledge of the technologies introduced. The other factor for sustainability is to involve the beneficiaries from inception up to completion of the project and hand over. This project is jointly designed with the community and other partners and continues with the community being at the center of project implementation, monitoring and evaluation. The project has given due attention to capacity building of the beneficiaries to confirm that the community has sufficient know-how and capacity to take over and continue with the project results after hand over. The project has full support of polices such as the NDMP, SDPRS, Food Security Strategy, and ratification of major UN Rio Conventions etc that would lay a base for its sustainability.

126. The project is in line with the interests and priorities of the Government of Ethiopia who is already supporting the formulation of the project and willing to provide co-finance. Working with government counterparts, building capacity of government institutions and development practitioners, and pursuing a new approach to adaptation to climate change uniquely complement and fill gaps in the Government's efforts to cope with drought and reduce vulnerability. The correlation of the project with Government's programme will facilitate its integrating into national development programmes and contribute to project sustainability.

127. The project will overcome barriers to adaptive capacity that currently limit the ability of communities to cope with drought, leading to maladaptive coping strategies. For this reason, recurrent costs in the pilot sites are negligible – once the barriers to adaptive capacity have been overcome, there is

no necessity to deal with them again. The communities themselves, which developed the current coping strategies, will make use of their increased adaptive capacity to develop improved strategies, which will continue to evolve as the climate changes to ways that are socially and culturally appropriate.

128. Consequently, the major costs to be incurred following project completion are associated with replication and scaling up of experiences generated by the project for other sites and communities in Ethiopia. Much of the replication will be spontaneous, taking advantage of long-established traditions of social learning and knowledge exchange. However, the Government of Ethiopia will also provide on-going funding as part of its development planning to support scale-up.

129. On-going international exchange of experiences and lessons learned will be mainstreamed into the programmes of international partners, with the Drylands Development Centre expected to play a central role in sustaining this aspect of the project.

C-4. Replicability

127. Experiences gained and lessons learned from Kalu Woreda pilot project need to be replicated. To do so, the lessons should be compiled and organized in an easily usable way. In addition, a channel is required to disseminate the lessons learned as well as a receptive society capable of accepting and applying them. As most of the rural societies are poor, they may require some form of support to accept and replicate the project outcomes. Once the benefit of the project is recognized, Government and other community development organizations need to collaborate to replicate the lessons learned from Kalu Woreda pilot project areas; replicability will demonstrate the benefits and effectiveness of a range of drought coping mechanisms. To achieve this, and as part of project design, significant awareness and publicity campaigns will be carried out, as well as workshops and training for policy makers, community development practitioners, and communities in other geographical areas. Physical interactions and knowledge sharing will take place through exchange visits with communities inside and outside the pilot area sites. Materials on lessons learned from the project will be compiled and disseminated to other communities for replicability.

C-5. Management Arrangement

128. The project will be managed across four administrative levels (National, Regional, Woreda and kebele/community) in line with government institutional set-up. Project implementation arrangements will include a National Steering Committee, a Secretariat and contact officers in each prominent stakeholder organization.

National level

129. The National Meteorological Agency (NMA), as UNFCCC focal point, will in consultation and support from UNDP-CO and other key stakeholders including the Agriculture and Rural Development (MoARD) and Ministry of Finance and Economic Development (MOFED), lead the implementation of the "Coping with Drought and Climate Change" project,.

130. The National Steering Committee will be chaired by the Director General of NMA. The Steering Committee shall comprise representatives from: NMA, UNDP-CO, Ministry of Economy and Development Cooperation (MEDC), Environmental Protection Authority (EPA), Ministry of Agriculture and Rural Development (MoARD), Disaster Prevention and Preparedness Agency (DPPA), Ministry of Water Resources Development (MoWR), MOFED and WFP.

131. The National Steering Committee will provide policy guidance, review and approve work plans and assist in integrating adaptation across sectors. It will also establish a technical advisory committee, comprising professionals from NMA, MoARD, MOFED, DPPC, and MoWR to provide technical advice to the Steering Committee.

Regional Level

132. The Regional Meteorological Agency Office will contribute to project implementation at the regional level. A regional Steering Committee will be established and include representatives from: Regional Meteorological Agency (NMA RMA), WFP, Food Security Coordination Office, Land Use and Environmental Protection Authority (LUEPA), Bureau of Agriculture and Rural Development (BoARD), Disaster Prevention and Preparedness Department, and the Bureau of Water Resources (BoWR).

133. The Regional Steering Committee will provide technical support, policy advice and follow up project implementation at Kalu Woreda.

Woreda Level

134. The Head of Kalu Woreda's Agriculture and Rural Development Office will chair the Woreda Steering Committee and lead the implementation of the "Coping with Drought and Climate Change" project.

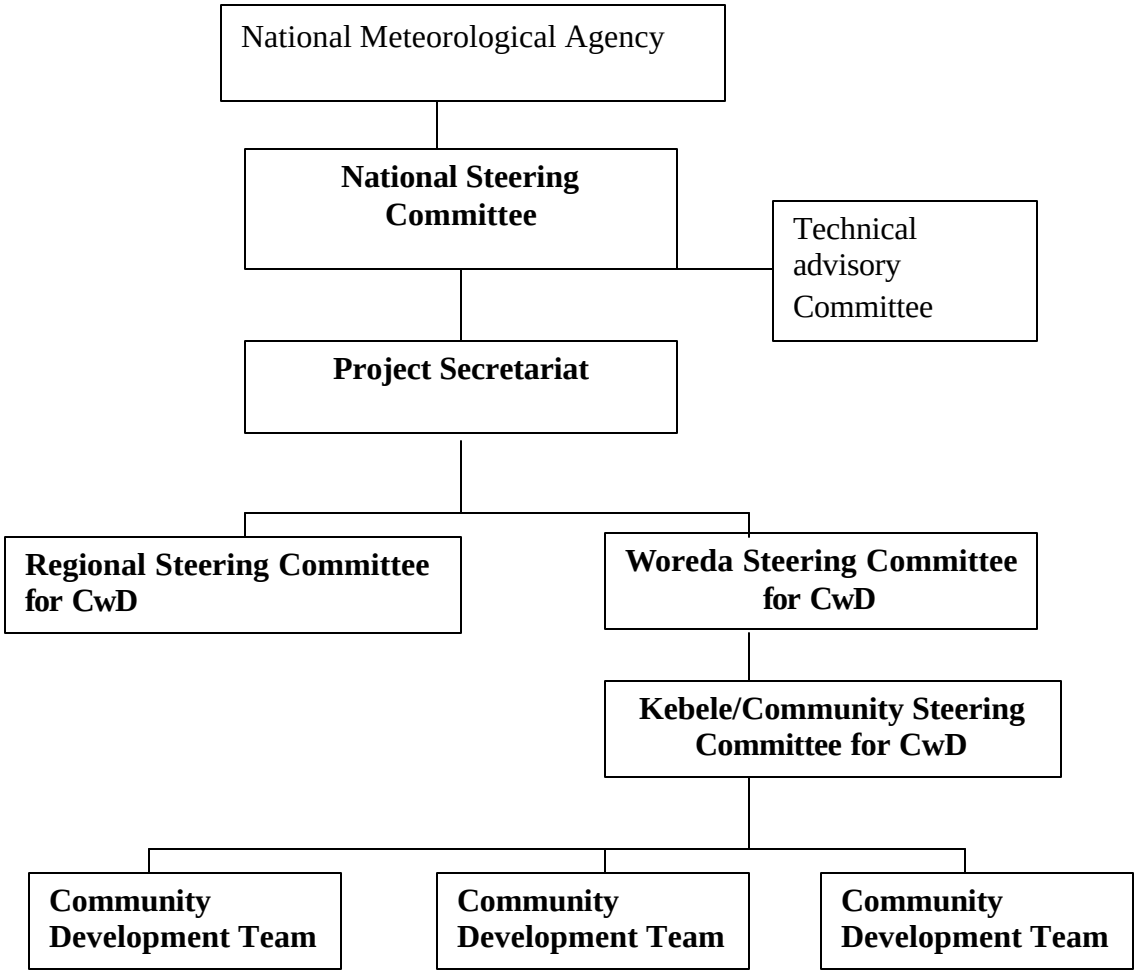
135. The Woreda Steering Committee shall comprise representatives from: Woreda Administrative Office, WARDO, WFP Sub-Office, NGOs and two community representatives from each pilot site. The Woreda Steering Committee will develop a detailed project implementation plan that will include ensuring that drought mitigation and preparedness is in place.

Community level

136. Kebele Administration is the lowest level community organization that deals with all kinds of security services and development activities of the Kebele. The communities are already organized into various committees, including a Development Committee that comprises farmers, women, teachers and extension agents.

137. The development team or committee, led by the Chairman of Kebele Administration, will be responsible for implementing the project. The Development Committee may be split into smaller sub-committees in order to execute different activities of the project.

Chart-3: Organigram for implementation of the 'Coping with Drought and Climate Change' Project in Ethiopia



C-5. Stakeholder Involvement

136. As indicated above, the National Communication identified a suite of adaptation measures. Once the pilot sites had been identified extensive stakeholder consultations were undertaken with the local communities to identify which adaptation measures are relevant to each pilot site (minutes of stakeholder consultations are available on request). It is essential that an adaptation project responds to real community needs. PRA approaches were used to validate the community's vulnerability profile. Other secondary data sources were used to validate the findings.

137. This highlights the importance of stakeholder involvement - the National Communications provided a useful reference point but the scale of analysis demanded that further work de done at a micro-scale level to better appreciate the issues. Similarly, the local communities are not only

the primary beneficiaries of the project, but also key partners during the implementation of the project. A project, which attempts to introduce or impose externally designed improvements to existing coping strategies, will fail.

138. All concerned stakeholders were involved in formulation of this project. The communities were key players in WMO, USAID and UNDP/UNSO supported farmer surveys, conducted between 1997 and 1999 on use of climate information, drought preparedness and mitigation in selected African countries, including Ethiopia. The communities also participated in preparation of the current phase of the project through Participatory Rural Appraisal interviews and discussions. Inception and Stakeholder workshops were conducted in 2006 during the PDF phase of this project where numerous key stakeholders from government, development agencies, NGOs, International Organizations, academic and research communities participated and provided input for the design of the project. Further stakeholder involvement will be ensured in the process of implementation of the project through their inputs and awareness raising advocacy. The Government is interested in the project and ready to commit some resources to co-finance the project. Kalu Woreda Administration and WARDO have already provided written confirmation of their interest in the Project. Key stakeholders in the implementation process are listed in Table-7.

Table-7: Key Stakeholders, their Roles and Technical Capacities

Organization	**Roles**	**Technical Capacity**
Ministry of Finance and Economic Development	Policy	Policy formulation
Environmental Protection Agency	• Serves as National Government Coordination Body for UNFCCC • Over-seeing project execution, facilitating project implementation	• Environmental management • formulation of legal frameworks • environmental law enforcement • monitoring and control of land degradation • working with other organizations and communities
Disaster Prevention and Preparedness Agency	• Creation of drought preparedness plan	• Disaster management
National Meteorological Agency	• Provision of climatic information	• Run weather stations, climate monitoring and forecasting. Weakness: Limited capacity to produce and disseminate user-tailored climate forecast.
WHO – if the NMA then cells should be merged	• Project coordination. • Hosting of a project secretariat . • Reporting to GEF • Implementation of selected activities	• Environmental management • formulation of legal frameworks • environmental law enforcement • monitoring and control of land degradation • working with communities
Ministry of Water Resources	• Provision of hydrological data and information • Technical support on water resources management	• Hydrological modeling • Watershed management • Water harvesting and water supply

Organization	Roles	Technical Capacity
Ministry of Agriculture and Rural Development	• Provide agricultural extension services, • Undertake natural resources conservation and land management • Serve as member of EWG • Use early warning information • Production of the land-use information • Data analysis for drought risk mapping	• Land use planning • soil and water conservation • agricultural extension and training Key weakness: limited manpower and ICT capacity
Agricultural Research Organization (EARO)	• Provision of research outputs on various agricultural crops and soil conservation technologies including dry land crops	• Provision of productive crop varieties and other agricultural technology Key weakness: limited manpower and inputs to carry out farmers based researches
Irrigation Department, MoARD	• Technical support for irrigation development • Operation and maintenance	• Irrigation development
Livestock Development Department, MoARD	• Technical support for livestock development	• Livestock production Weakness: poor funding
Food Security Coordination Office, MoARD	• Food Security Assessment	• Vulnerability and Food Security Assessment
Kalu Woreda Administrative Council	• Facilitating community leadership involvement	• Coordination of local socio-economic development
Institute of forest research of Ethiopia and Center for International Forestry Research (CIFOR)	• Technical support for livelihoods improvement through forests • Technical support in drought management techniques	• Forests and livelihoods research. • Participatory methods
UNDP-CO	• Accountability to GEF for fund disbursement and for overall delivery of the project results	• Ensure project implementation adheres to guidelines of the SPA and also alignment with UNDP-GEF's Adaptation Portfolio
International Water Management Institution (IWMI)	• Technical support for improving water use efficiency	• Not Applicable
WFP	• Technical support and partnership in implementation of drought-related projects	• Not Applicable
Communities	• Decision making on adaptation projects • Raise awareness on key issues affecting livelihoods • Implementation of Community projects	• Have local knowledge and traditional adaptation strategies. Key Weakness: lack of know-how of contemporary climate information, technological, financial and material capacities

C-6. Monitoring and Evaluation

139. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the project team and the UNDP Country Office (UNDP-CO), with support from UNDP-GEF. The Logical Framework Matrix (see Annex 1) provides *performance* and *impact* indicators for project implementation along with their corresponding *means of verification*. These will form the basis on which the project's Monitoring and Evaluation system will be built.

140. The following sections outline the principle components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be presented and finalized in the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

C-6-1. Monitoring and Reporting

141. Monitoring and evaluation will follow standard UNDP procedure, reflecting guidance from the GEF Office of Evaluation (http://gefweb.org/MonitoringandEvaluation/MEPoliciesProcedures/MEPTools/meptstandards.html). See Annex 2 for detailed information on monitoring and evaluation, including a costed M&E plan.

142. A Project Inception Workshop will be conducted with the full project team, relevant government counterparts, co-financing partners, the UNDP-CO and representation from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF (HQs) as appropriate.

143. Periodic monitoring of implementation progress will be undertaken by the UNDP-CO through quarterly meetings with the project proponent, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

144. Annual Monitoring will occur through the ***Tripartite Review (TPR).*** This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Tripartite Review (TPR) at least once every year. The first such meeting will be held within the first twelve months of the start of full implementation. The project proponent will prepare an Annual Project Report (APR) and submit it to UNDP-CO and the UNDP-GEF regional office at least two weeks prior to the TPR for review and comments.

145. The Project Implementation Review (PIR) is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, a Project Implementation Report must be completed.

146. The project will be subjected to at least two independent external evaluations as follows:

(i) Mid-term Evaluation

147. An independent Mid-Term Evaluation will be undertaken at the end of the second year of implementation. The mid-term evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will: focus on the effectiveness, efficiency and timeliness of project implementation; highlight issues requiring decisions and actions; and present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The terms of reference for this mid-term evaluation will be prepared by the UNDP-CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

(ii) Final Evaluation

148. An independent final evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The final evaluation should also provide recommendations for follow-up activities. The terms of reference for this evaluation will be prepared by the UNDP-CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

C-6-2. Learning and Knowledge Sharing

149. The GEF's Adaptation Learning Mechanism Project is designed to contribute to the integration of adaptation to climate change within development planning of non-Annex I countries, and within the GEF's portfolio as a whole. To support this goal, adaptation projects should generate knowledge that can help guide implementation of the GEF's adaptation to climate change initiatives. From the GEF family perspective, sharing knowledge among users will ensure that the GEF portfolio, as a whole, can benefit from the comparative strengths and experience of the various Agencies.

150. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and fora. In addition:

- the project will participate, as relevant and appropriate, in UNDP-GEF sponsored networks, organized for senior personnel working on projects that share common characteristics. UNDP-GEF shall establish a number of networks that will largely function on the basis of an electronic platform.

- the project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned.

D - Financing

D-1. Financing Plan

Financing for the project will come from the SCCF in the amount of US$ 995,000 as well as from the Government of Ethiopia in the amount of US$750,000. The Government's contribution will be both in cash and in kind to the project activities. In addition, WFP has pledged a co-financing contribution of USD 1,116,667.

153. Funding requirements have been discussed with key stakeholder organizations and project partners in consultation and workshops during preparatory phase of the project.

BUDGET SUMMARY

Description	SCCF	Co-financing	Total
Project Outcomes and Outputs			
Outcome 1: Livelihood strategies and resilience of vulnerable farmers in the selected pilot sites improved and sustained to cope with drought and climate change			
Output 1.1 Diversity and resilience of community food and income sources improved.	230,000	250,000	480,000
Output 1.2 Sustainable land management (woodlands, agriculture and pasture lands), value addition and markets for dryland products developed	170,000	160,000	330,000
Output 1.3 Community Based Natural Resources Management improved	140,000	40,000	180,000
Output 1.4 Strengthened capacities of stakeholders including communities to enhance Climate Change Adaptation	50,000	1,116,667	1,166,667
OUTCOME 1 TOTAL BUDGET	**590,000**	**1,566,667**	**2,156,667**
Outcome 2: Enhanced use of Early Warning information in agricultural systems of the selected pilot sites.			0
Output 2.1 Integrated drought information system enhanced,	70,000	60,000	130,000
Output 2.2 Capacity of community level institutions and practitioners in application of climate information in decision support developed	50,000	50,000	100,000
Output 2.3 Community education and awareness programme on climate risk management developed and implemented	35,000	50,000	85,000
OUTCOME 2 TOTAL BUDGET	**155,000**	**160,000**	**315,000**
Outcome 3: Drought mitigation and preparedness activities integrated across sectors and programmes at various levels of society in the pilot sites.			
Output 3.1 Community Based Drought Mitigation and Preparedness Plan developed	25,000	60,000	75,000
Output 3.2 Advocacy programme on integrated climate risk management developed and implemented	30,000	40,000	70,000
Output 3.3 Strengthened capacities of stockholders to develop and implement effective Community Based Drought Mitigation and Preparedness Plan	30,000	40,000	70,000
OUTCOME 3 TOTAL BUDGET	**85,000**	**140,000**	**215,000**
Outcome 4: Farmers outside the pilot sites replicate successful approaches to cope with drought			0
Output 4.1 A platform for exchange of knowledge	70,000		70,000
Output 4.2 Technical support to the project team	45,000		45,000
OUTCOME 4 TOTAL BUDGET	**165,000**		165,000
GRAND TOTAL	**995,000**	**1,856,667**	**2,911,671**

D-2. Cost Effectiveness

154. In general, evaluations of community-based projects such as this one have consistently identified that community-based projects are more cost-effective.

155. The project will operate with participation and collaboration of different stakeholders. This will avoid redundancy and promote complementarities among different projects thus contributing to cost effectiveness. In addition the communities' willingness to participate in the project with their labor and in-kind contribution are also contributing to cost effectiveness. The project will also undertake intensive capacity-building interventions as an investment in human capital, producing a viable capacity to adapt to drought and climate change, which is a cost effective way of ensuring sustainability.

D-3. Co-financing

CO-FINANCING SOURCES				
Name of Co-financier (source)	Classification	Type	Amount (US$)	Status
Ministry of Finance	Government	Cash	$500,000	Confirmed
National Meteorological Services Agency	Government	In-kind	$250,000	Confirmed
WFP	Bilateral Donor	Cash	$1,116,667	Confirmed
Sub-Total Co-financing			$1,866,667	

E - Institutional Coordination and Support

E-1. Core Commitments and Linkages

156. The Project will add impetus to the synergies among UNFCCC, UNCBD and the United Nations Convention to Combat Desertification (UNCCD), specifically with regard to the implementation of National Action Plans (NAPs). The NAPs are being used as the framework for identifying key priority areas where efforts to combat desertification are to be directed. The NAPs will be linked to the regional Eastern and Southern Africa Climate Outlook Forum, which is convened annually by producers and users of climate forecast. During the Forum, forecasts from various national meteorological services and global centers are presented and discussed to generate a consensus on the seasonal forecast for the region and its implications for different scenarios in ecosystem management. The focal point for the UNCCD and UNFCCC together with an expert from EWD of MoARD were involved in the site selection for this project.

157. A number of GEF and other UN projects, summarized in Table-9, have fostered activities in Ethiopia of relevance to adaptation to drought and climate change. For example, the project entitled "Dynamic Farmer-Based Approach to the Conservation of Ethiopia's Plant Genetic

Resources", which is a community-based in-situ conservation initiative, focused on indigenous crop varieties maintained by farmers in dynamic agro-ecosystems. This successful Project was initiated in 1994.

158. This project is related to the Community-based Adaptation programme (CBA), in that both work with rural communities to increase their adaptive capacity to cope with the impacts of climate change, in order to secure global environmental benefits. Both projects are managed by UNDP-GEF, and opportunities to expand the scope of knowledge management activities in both projects, through the ALM, will be sought.

Table: 9 GEF (and other UN) projects Relevant to Climate Change Adaptation*

Title	Focal Area	Implementing Agency	Approval Date
A Dynamic farmer-based approach to the conservation of African Plant Genetic Resources	Biodiversity	UNDP	December 1992
African NGO-Government Partnerships for Sustainable Biodiversity Action	Biodiversity	UNDP	February 1998
Integrating Land Degradation Concerns in Local and National Development Policies and Strategies in Eastern Africa	Biodiversity	UNEP	December 2001
Building Sustainable Commercial Dissemination Networks for Household PV Systems in Eastern Africa	Climate Change	UNEP	December 2001
Protection of Key Bottleneck Sites for Soaring Migratory Birds in the Rift Valley and Red Sea Flyways	Biodiversity	UNDP	March 2002
Removing Barriers to Invasive Plant Management in Africa	Multiple	UNEP	March 2002
National Capacity Self-Assessment for Global Environmental Management	Multiple	UNEP	March 2002
Coping with Drought and Climate Change: best use of climate information for mitigation of biodiversity loss, land degradation and climate change	Biodiversity	UNDP	In development
Conservation and Sustainable Use of Biodiversity in the Eastern Rift Valley Lakes	Biodiversity	UNDP	In development
Establishment of a Wildlife Protected Areas System in Ethiopia (Federal and Regional Levels) including a Biodiversity Assessment of the System	Biodiversity	UNDP	In development
'Top-up' funds to continue Enabling Activity processes and studies related to fulfilling national obligations under the UNFCCC	Climate change	UNDP	In effect since August 2002
Source: UNDP-GEF website: http://cfapp2.undp.org/gef/site/ UNDP website: http://roo.undp.org/gef_dev/site/			

* Adopted from: Preparation of a National adaptation programme of Action, NMA, 2003

159. Government organizations from national to woreda and community level have been participating in implementation of the above mentioned projects, which have been linked to community interests and national programmes. The experiences gained in the implementation of the projects outlined above, as well as the existing willingness of the Government, will ensure

core commitment and linkages of the project with past and future projects. Linkages with other operational projects in the pilot areas will be maintained.

160. NMA is in the process of preparing the National Adaptation Programme of Action (NAPA); this project is linked to the priority actions as identified in the NAPA.

161. The Project will be linked to the programmes of ministries such as the Ministry of Agriculture and Rural Development (MoARD), Disaster Prevention and Preparedness Agency (DPPC), Ministry of Water Resources (MoWR), Environmental Protection Authority (EPA) as they are all dealing with core issue relevant to the project. In addition, these agencies can provide expertise and other appropriate inputs to the project and, in return, can benefit from capacity development on integrating climate risk management, information sharing and improved coordination of interventions.

Lessons learned:

162. Pertinent issues emerging from reviews and past experiences include the following:

- Previous efforts to combat drought focused on implementing technologies such as terrace construction, water harvesting and others without taking human resources development into account. A lesson learnt is that integration of human capacity development is an integral part of drought management.
- Drought and climate changes are better mitigated when stakeholders and programmes/projects are well coordinated and implemented in an integrated manner.
- Use of integrated approaches to natural resources management and land use is a core measure to improve livelihood of rural communities to adapt to drought and climate change.
- The two large rivers that bring water to the pilot sites have a potential for irrigation development. Using these rivers for irrigation will build the resilience of the communities at the pilot sites to cope with drought and climate changes.
- To date, the focus for drought management has been on emergency relief alone. A lesson learned is that to tackle drought, advance preparation is needed.
- The importance of proactive climate forecasting and an early warning system has been realized.
- Traditional climate prediction has great value to the rural community who have no access to contemporary early warning systems. The two systems have much in common and it is now recognized that there is a need to incorporate traditional climate predictions with contemporary ones.
- Absence of a drought mitigation and preparedness plan has affected the entire nation in coping with drought and climate change. Integrating of a drought mitigation and preparedness plan in all development programmes is imperative.
- The need for a well-developed market that will generate added value to rural community products has been realized.

E-2. Consultation, Coordination and Collaboration between and among Implementing Agencies, Executing Agencies, and the GEF Secretariat

163. This project was originally conceived as a regional project, involving four countries (Mozambique, Zimbabwe, Kenya and Ethiopia). However, due to difficulties in ensuring regional coordination of PDF-B activities, and considering the likelihood that such difficulties would be serious in unforeseen circumstances, the approach was revised, in consultation with the GEF Secretariat, to present four national MSPs, each of which will include Outputs and Activities designed to secure the same level of regional cooperation and exchange of lessons that was envisaged for the Full Project.

164. An Inception Workshop for the regional PDF-B was held in Nairobi, 29-30August, 2005.

PART II - LIST OF ANNEXES

Annex-1 Log frame matrix: Coping with drought and climate change project, UNDP-GEF Ethiopia, 2005

Result	Indicator	Baseline value	Target and benchmarks	Means of verification and frequency	Assumptions
Overall Goal: To enhance the capacity of agricultural system in Ethiopia to adapt to climate variability and change.					
Project Objective: To develop and pilot a range of effective coping mechanisms for reducing the vulnerability of farmers, particularly women and children in Kalu Woreda/District to drought and climate change	• Drought vulnerability reduction assessment	• To be assessed in the first three months of the project	• By end of project the drought vulnerability assessment value is less than 60% of the 2006 value in the two pilot sites of Kalu Woreda/District.	• Project reports • Household survey	• There is sustained willingness among stakeholders to shift from reactive to proactive risk management. • Stakeholders are willing to collaborate.
Outcome 1: Livelihood strategies and resilience of vulnerable farmers in the selected pilot sites improved and sustained to cope with drought and climate change.	• Number of food secure households • Mix of livelihood strategies • Policy formulation	• 27% of households food secure in the two pilot sits in 2006 • 20% of poor households undertake non-farm activities as value added dryland products. • No of natural resources management policy implemented	• By end of project number of food secure households in the pilot areas increased to 80%. • By end of project number of poor households in the pilot sites engaged in non farm value added dryland products to diversify their livelihood increased to 70% • By the end of project number of natural resources management policies implemented increase by 80%	• Household survey (annual) • WARDO Report • Workshop reports • Existence and application of policy documents	• Extreme climatic variability will not exceed the anticipated measures • Partners will provide technical input required • Community participation is strong and their training effective
Outcome 2: Enhanced use of Early Warning Information in agricultural systems in the selected pilot sites.	• Production of user tailored climate forecast and other Early Warning information • Dissemination of user tailored climate forecast and other Early Warning	• No one local weather stations (synoptic) making area specific climate prediction. • No location is provided with area specific user tailored climate prediction by NMA.	• By mid life of the project Kombolch weather station make area specific user tailored climate forecast for pilot sites. • 2 locations provided with area specific user tailored climate information by end of the project period	• Field survey (annual) • NMA reports • WARDO reports	• Training of community practitioners is effective and they undertake extension support as part of their standard procedures. • Data generation and

Result	Indicator	Baseline value	Target and benchmarks	Means of verification and frequency	Assumptions
	information • Use of climate information by farmers, including women in decision making • Productivity of agriculture	• 10% woreda planners, extension agents receiving or using formal early warning information timely in 2006 • 5% numbers of farmers receiving and using formal early warning information timely in 2006. • 5 Qutl/HH Annual agricultural production of HHs in 2005, in	• By end of project, woreda development practitioners that receive and use timely early warning information increase by 80% • 50% of farmers in pilot sites receive and use timely early warning information by the end of project period. By end of project average crop production per HH among small-holder farmers in the two pilot areas increase by 70%		analysis is user tailored and usable. • Information packaging and dissemination is effective and free.
Outcome 3: Drought preparedness and mitigation activities integrated across sectors and programmes at various levels of society in the pilot sites.	• Presence of elements of climate risk management in District institutional planning and programmers • Community drought mitigation activities	• No district's development programmes that incorporated drought mitigation plan in 2006 • No community owned drought mitigation schemes exists in 2006	• By end of project drought risk management plan integration in Woreda's annual development programme increase by 50% • By end of project drought risk management plan integration in pilot sites annual development programme increase by 70%	• Field visits • WARDO Reports	• Institutional willingness to review policies, procedures and standards to incorporate DMP;
Outcome 4: Farmers/ pastoralists outside the pilot sites replicate successful approaches to cope with drought	1. Local awareness of international lessons 2. Central government awareness of	1. No adoption of successful drought coping strategies based on lessons from elsewhere 2. No awareness of local or international lessons related to successful drought coping	1. By the end of the project, community leaders in the project pilot sites are able to describe at least one lesson in coping with drought learnt from another site (not necessarily in Ethiopia) 2. By the end of the project, senior officials in relevant sectoral ministries are able to	1. Field surveys at end of project 2. Interviews and surveys at end of project	Funds availability and other community willingness

Result	Indicator	Baseline value	Target and benchmarks	Means of verification and frequency	Assumptions
	international lessons.	strategies	describe strategies to increase adaptive capacity to cope with drought from both Ethiopia and neighbouring countries.		
	3. Existence of technical constraints to implementation	3. No project	3. Throughout the project, annual PIRs do not identify access to technical inputs as a constraint to project implementation.	3. PIR documents	

Annex 2: List of Acronyms

AIDS	Acquired Immune Deficiency Syndrome
CSO	Central Statistical Office
EPA	Environmental Protection Agency
ENSO	El Nino – Southern Oscillation
FAO	Food and Agriculture Organization
FEWSNET	Famine Early Warning System Network
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GoE	Government of Ethiopia
HDI	Human Development Index
HIV	Human Immuno Virus
IPCC	Inter-Governmental Panel on Climate Change
ITCZ	Inter-Tropical Convergence Zone
MOARD	Ministry of Agriculture and Rural Development
NAP	National Action Plan
NEWS	National Early Warning System
NGO	Non-Governmental Organization
NR	Natural Resources
PRA	Participatory Rural Appraisal
SGP	Small Grants Programme
UNCCD	United Nations Convention to Combat Desertification
UNCBD	United Nations Convention on Biodiversity
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme
WARDO	Woreda Agriculture and Rural Development Office

Annex 3: References

Adaptation Policy Frameworks for Climate Change. Developing Strategies, Polices and Measures: (UNDP, GEF 2005, USA)

The Federal Democratic Republic of Ethiopia, *State of Environment Report for Ethiopia*: (EPA, August 2003 Addis Ababa, Ethiopia)

Agro-Ecological Zones of Ethiopia; Natural Resources Management and Regulatory Department: (Ministry of Agriculture, September 2000, Addis Ababa)

Patrick Webb, International Food Policy Research Institute, & ***Joachim von Braun,*** University of Kiel, Germany, USA, *Famine and Food Security in Ethiopia, lesson for Africa*

Federal Democratic Republic of Ethiopia Ministry of Water Resources, *Water Works Design & Supervision Enterprise (WWDSE)Water Sector Development Programme (Project* ETH/98/001, Volume II- Main Report (DRAFT), (October,2001 Addis Ababa)

Federal Democratic Republic of Ethiopia: *Statistical Abstract*: (Central Statistics Agency, 2005)

Upper Mille & Cheleka Catchments Disaster Prevention Programme, UMCC-DPP, Volume III Socio-economic Features: Ethiopia Red Cross Society, ERC/DPP/86/004, June 1986)

Alemayehu Geda, *Macroeconomic performance in post-reform Ethiopia, A Symposium for Reviewing Ethiopia's Socioeconomic Performance* (1991-1999): Organized by the Inter Africa Group, UN Conference Hall (April 26-29,2000)

The Federal Democratic Republic of Ethiopia, Amhara National Regional State Bureau of Rural Development: Rural Households Socio-Economic Baseline Survey of 56 Woreda in the Amhara Region, (Volume VI – *Water Resources*, April 2003, Bahir Dar)

The Federal Democratic Republic of Ethiopia, Amhara National Regional State Bureau of Rural Development: Rural Households Socio-Economic Baseline Survey of 56 Woreda in the Amhara Region, (Volume V – *Natural Resources*, April 2003, Bahir Dar)

The Federal Democratic Republic of Ethiopia, Amhara National Regional State Bureau of Rural Development: Rural Households Socio-Economic Baseline Survey of 56 Woreda in the Amhara Region, (Volume XI – *Non and Off-Farm Income Generating Activities*, April 2003, Bahir Dar)

The Federal Democratic Republic of Ethiopia, Amhara National Regional State Bureau of Rural Development: Rural Households Socio-Economic Baseline Survey of 56 Woreda in the Amhara Region, (Volume IX – *Food Security*, April 2003, Bahir Dar)

Food Security Coordination Office Report on Household Survey, Kalu Woreda, Wollo: (Unpublished documents)

Harbu IWSM Project Baseline Survey, Statistical Output Tables, (Unpublished documents)

S. Paris, with assistance of Fetsum Fetwi, Naizgi Asfaw, H.Y Bruggeman: *Assistance to Land Use Planning Ethiopia, Soil Survey of the Borkena Area (WELLO)* (Addis Ababa, July 1985)

Upper Mille & Cheleka Catchments Disaster Prevention Programme, UMCC-DPP, Volume II Land and Water Development: Ethiopia Red Cross Society, (ERC/DPP/86/004, June 1986)

Assistance To Land Use Planning, Ethiopia: *Vegetation & Land Use Survey of the Borkena Area (WELLO)*: Report prepared for the Government of Ethiopia by the Food and Agriculture Organization of the United Nations acting as executing agency for the United Nations Development Programme (Addis Ababa, 1985)

Upper Mille & Cheleka Catchments Disaster Prevention Programme, UMCC-DPP, Volume I Project Plans and Budget: Ethiopia Red Cross Society, (ERC/DPP/86/004, June 1986)

NMSA (National Metrological Services Agency of Ethiopia) *Assessment of Drought in Ethiopia,* (No. 2, January 1996)

Ethiopia Rural Development Policies Strategies and Instruments by Ministry of Information Press and Audiovisual Department, Draft Translation: (November 2001, Addis Ababa)

Lemma Gonfa, NMSA (National Metrological Services Agency of Ethiopia) *Climate Classifications of Ethiopia* (No. 3 May 1996)

NMSA (National Metrological Services Agency of Ethiopia): *Climatic & Agro Climatic Resources of Ethiopia* (Vol. 1, No. 1, January 1996)

Annex 4: Letters of endorsement and financial commitment

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The Federal Democratic Republic of Ethiopia
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National Meteorological Services Agency

ቁጥር Ref. No ኢሀ-7/120
ቀን Date 17 MAR 2006

Mr. Martin Krause
UNDP/GEF Regional Technical Advisor for climate change
Southern and East Africa
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South Africa
Pretoria,
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Fax: +27-12-354-8058/9

Subject: Co-Financing for Coping with Drought and Climate Change Project (CWD)

Dear Mr. Krause,

You may recall that the National Meteorological Agency (NMA) has been the national counter part for coordinating the PDF B phase of the above mentioned project.

This is to inform you that NMA will make in kind contribution in terms of climate monitoring, climate data base, premises, and climate related technical expertise which is equivalent to about USD 250, 000 (two hundred fifty thousand United States Dollar) over the period of the project.

Sincerely yours,

Kidane Asefa
Director General

cc.
Mr. Yonis Berkele
National consultant, CWDCC Project
Addis Ababa
Ethiopia

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ስልክ Tel.: 51 22 99/61 57 79 ፖ.ሣ.ቁ. P.O.Box: 1090 ፋክስ Telefax: 251-1-51 70 66
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The Federal Democratic Republic of Ethiopia
Ministry of Finance and Economic Development

ቁጥር Ref.No ML-9/4.1.1/563/0

ቀን Date 20 MAR 2006

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Tel: +27-12-354-8041
Fax: +27-12-354-8058/9

Subject: **Co-financing UNDP/GEF Project: Coping With Drought and Climate Change (CwDCC)**

Dear Mr. Martin,

The National Meteorological Service Agency (NMSA), the focal point for UNFCCC, in its letter of March 17, 2006, Ref No I-O3-1/44, has informed us that preparation of draft project: "Coping with Drought and Climate Change (CwDCC)" has been completed according the PDF-B project preparation guideline and is ready for submission to UNDP/GEF Council for review and endorsement. In meantime, NMSA has requested our ministry to write a co-financing letter that should accompany the draft project proposal and sent to you according to the UNDP/GEF guidelines for preparation and submission of such a Medium Size Project (MSP) proposal.

The Government of Ethiopia has currently been working vigorously towards reducing the impact of drought in most of the chronically food insecure Woredas/Districts through its Food Security and other programs. The CWDCC project is, therefore, in line with the Government's endeavor towards addressing the problem of recurrent drought and climate change in the country.

Hence, while disclosing the great importance we attach to this project because it stands at the heart of international community's collaboration and support to the country's effort to withstand the effects of recurrent drought and climate change, the Ministry of Finance and Economic Development (MoFED), on behalf of the Government of Ethiopia, would like to confirm, on top of NMSA's commitment, will contribute about US$ 500,000 (Five Hundred Thousand US Dollar) by financing parallel activities (half in kind and half in cash) in the project pilot areas.

However, MoFED believes that co financing is not a one-time decision and/or a one-time action. Rather, it is a continuous move. Therefore, MoFED, in consultation with UNDP/GEF concerned entities will continue its efforts to raise more funds for additional co-financing of the project in the process of implementation.

Thank you for your cooperation and support.

The Federal Democratic Republic of Ethiopia
Ministry of Finance and Economic Development

Sincerely,

for

Fisseha Aberra
Head, Multilateral Cooperation Department

Cc: **National Meteorological Agency**
Addis Ababa
Ethiopia

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Annex 5. Monitoring and Evaluation Plan

Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from UNDP-GEF. The Logical Framework Matrix provides *performance* and *impact* indicators for project implementation along with their corresponding *means of verification*. These will form the basis on which the project's Monitoring and Evaluation system will be built.

The following sections outline the principle components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be presented and finalized at the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

MONITORING AND REPORTING

Project Inception Phase

A Project Inception Workshop will be conducted with the full project team, relevant government counterparts, co-financing partners, the UNDP-CO and representation from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF (HQs) as appropriate.

A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project's goals and objectives, as well as finalize preparation of the project's first annual work plan on the basis of the project's logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

Additionally, the purpose and objective of the Inception Workshop will be to: (i) introduce project staff with the UNDP-GEF *expanded team* which will support the project during its implementation, namely the CO and responsible Regional Coordinating Unit staff; (ii) detail the roles, support services and complementary responsibilities of UNDP-CO and RCU staff vis à vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR), Tripartite Review Meetings, as well as mid-term and final evaluations. Equally, the IW will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget rephasings.

The Inception Workshop will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures,

including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed, in order to clarify for all, each party's responsibilities during the project's implementation phase.

Monitoring responsibilities and events

A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Tripartite Reviews, Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.

Day to day monitoring of implementation progress will be the responsibility of the Project Director based on the project's Annual Work Plan and its indicators. The Project Team will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

The Project Coordinator and the Project GEF Technical Advisor will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the Inception Workshop with support from UNDP-CO and assisted by the UNDP-GEF Regional Coordinating Unit. Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. The local implementing agencies will also take part in the Inception Workshop in which a common vision of overall project goals will be established. Targets and indicators for subsequent years will be defined annually as part of the internal evaluation and planning processes undertaken by the project team.

Measurement of impact indicators related to global benefits will occur according to the schedules defined in the Inception Workshop and tentatively outlined in the indicative Impact Measurement Template. The measurement, of these will be undertaken through subcontracts or retainers with relevant institutions or through specific studies that are to form part of the projects activities or periodic sampling.

Periodic monitoring of implementation progress will be undertaken by the UNDP-CO through quarterly meetings with the project proponent, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

UNDP Country Offices and UNDP-GEF RCUs as appropriate, will conduct yearly visits to projects that have field sites, or more often based on an agreed upon scheduled to be detailed in the project's Inception Report / Annual Work Plan to assess first hand project

progress. Any other member of the Steering Committee can also accompany, as decided by the SC. A Field Visit Report will be prepared by the CO and circulated no less than one month after the visit to the project team, all SC members, and UNDP-GEF.

Annual Monitoring will occur through the ***Tripartite Review (TPR).*** This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Tripartite Review (TPR) at least once every year. The first such meeting will be held within the first twelve months of the start of full implementation. The project proponent will prepare an Annual Project Report (APR) and submit it to UNDP-CO and the UNDP-GEF regional office at least two weeks prior to the TPR for review and comments.

The APR will be used as one of the basic documents for discussions in the TPR meeting. The project proponent will present the APR to the TPR, highlighting policy issues and recommendations for the decision of the TPR participants. The project proponent also informs the participants of any agreement reached by stakeholders during the APR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

Terminal Tripartite Review (TTR)

The terminal tripartite review is held in the last month of project operations. The project proponent is responsible for preparing the Terminal Report and submitting it to UNDP-CO and UNDP-GEF's Regional Coordinating Unit. It shall be prepared in draft at least two months in advance of the TTR in order to allow review, and will serve as the basis for discussions in the TTR. The terminal tripartite review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learnt can be captured to feed into other projects under implementation of formulation.

The TPR has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks will be developed at the Inception Workshop, based on delivery rates, and qualitative assessments of achievements of outputs.

Project Monitoring Reporting

The Project Coordinator in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process.

(a) Inception Report (IR)

A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year/ Annual Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation

during the first year of the project. This Work Plan would include the dates of specific field visits, support missions from the UNDP-CO or the Regional Coordinating Unit (RCU) or consultants, as well as time-frames for meetings of the project's decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame.

The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation.

When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the Inception Report, the UNDP Country Office and UNDP-GEF's Regional Coordinating Unit will review the document.

(b) Annual Project Report (APR)

The APR is a UNDP requirement and part of UNDP's Country Office central oversight, monitoring and project management. It is a self -assessment report by project management to the CO and provides input to the country office reporting process and the ROAR, as well as forming a key input to the Tripartite Project Review. An APR will be prepared on an annual basis prior to the Tripartite Project Review, to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work.

The format of the APR is flexible but should include the following:

- An analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome
- The constraints experienced in the progress towards results and the reasons for these
- The three (at most) major constraints to achievement of results
- AWP, CAE and other expenditure reports (ERP generated)
- Lessons learned
- Clear recommendations for future orientation in addressing key problems in lack of progress

(c) Project Implementation Review (PIR)

The PIR is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, a Project Implementation Report must be completed by the

CO together with the project. The PIR can be prepared any time during the year (July-June) and ideally prior to the TPR. The PIR should then be discussed in the TPR so that the result would be a PIR that has been agreed upon by the project, the executing agency, UNDP CO and the concerned UNDP-GEF Technical Advisor.

(d) Quarterly Progress Reports

Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP-GEF regional office by the project team. See format attached.

(e) Periodic Thematic Reports

As and when called for by UNDP, UNDP-GEF or the Implementing Partner, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learnt exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

(f) Project Terminal Report

During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved, structures and systems implemented, etc. and will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

INDEPENDENT EVALUATION

The project will be subjected to at least two independent external evaluations as follows:-

(iii) Mid-term Evaluation

An independent Mid-Term Evaluation will be undertaken at the end of the second year of implementation. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term

evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

(iv) Final Evaluation

An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

AUDIT CLAUSE

The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

LEARNING AND KNOWLEDGE SHARING

Learning is an important goal of this GEF pilot phase on adaptation. Each adaptation project should incorporate a significant learning component in its project design, using monitoring and evaluation good practices. Rigorous evaluation will enable the GEF and other agencies to measure progress and the GEF to learn how to strengthen and widen its portfolio. The UNDP-GEF's Adaptation Learning Mechanism (ALM) has been launched to facilitate this learning process.

The ALM is designed to contribute to the integration of adaptation to climate change within development planning of non-Annex I countries, and within the GEF's portfolio as a whole. To support this goal, adaptation projects should generate knowledge that can help guide implementation of the GEF's adaptation to climate change initiatives. From the GEF family perspective, sharing knowledge among users will ensure that the GEF portfolio, as a whole, can benefit from the comparative strengths and experience of the various Implementing Agencies.

Lessons learned from projects should be classified into the following criteria.
(1) Does the adaptation deal with:

- climate change (inter-annual and/or multi-decadal) risks?
- single sectoral and/or socio-economic issues?
- ecosystems?

(2) What are the best practices in:

- integrating adaptation into national and local development policy?
- project design and implementation mechanisms?

The above should include lessons on how to prioritise adaptation options (strategies/policies or operations), the scope of the adaptation project (local, sub-regional, national to sub-regional scales), and capacity development approaches on adaptation, including engaging key stakeholders on adaptation. Also consider:

- project- and programme-level impact indicators.

(3) Share knowledge and experiences on adaptation, especially lessons learned on the following:

- which are the most common barriers to adaptation, at the information supply or uptake end? (What lessons emerge that have relevance to the role of UNDP, GEF and/or local partners with respect to designing and implimenting adaptation project)?
- what are the conditions for success (or failure), including replication and scaling up?
- when do current coping strategies become 'off-limit', and over what time scales?

Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and fora. In addition:

- The project will participate, as relevant and appropriate, in UNDP-GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics. UNDP-GEF shall establish a number of networks that will largely function on the basis of an electronic platform.
- The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned.

The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analyzing lessons learned is an on- going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP-GEF shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned. To this end a percentage of project resources will need to be allocated for these activities.

INDICATIVE MONITORING AND EVALUATION WORK PLAN AND CORRESPONDING BUDGET

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team Staff time*	Time frame
Inception Workshop	▪ Project Coordinator ▪ UNDP CO ▪ UNDP GEF	$8,000	Within first two months of project start up
Inception Report	▪ Project Team ▪ UNDP CO	None	Immediately following Inception Workshop
Measurement of Means of Verification for Project Purpose Indicators	▪ Project Coordinator will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members	To be finalized in Inception Phase and Workshop. Indicative cost $30,000	Start, mid and end of project
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	▪ Oversight by Project GEF Technical Advisor and Project Coordinator ▪ Measurements by regional field officers and local IAs	To be determined as part of the Annual Work Plan's preparation. Indicative cost $15,000	Annually prior to APR/PIR and to the definition of annual work plans
APR and PIR	▪ Project Team ▪ UNDP-CO ▪ UNDP-GEF	None	Annually
TPR and TPR report	▪ Government Counterparts ▪ UNDP CO ▪ Project team ▪ UNDP-GEF Regional Coordinating Unit	None	Every year, upon receipt of APR
Steering Committee Meetings	▪ Project Coordinator ▪ UNDP CO	None	Following Project Inception Workshop and subsequently at least once a year
Periodic status reports	▪ Project team	5,000	To be determined by Project team and UNDP CO
Technical reports	▪ Project team ▪ Hired consultants as needed	8,000	To be determined by Project Team and UNDP-CO
Mid-term External Evaluation	▪ Project team ▪ UNDP- CO ▪ UNDP-GEF Regional Coordinating Unit ▪ External Consultants (i.e. evaluation team)	15,000	At the mid-point of project implementation.
Final External Evaluation	▪ Project team, ▪ UNDP-CO ▪ UNDP-GEF Regional Coordinating Unit ▪ External Consultants (i.e. evaluation team)	25,000	At the end of project implementation
Terminal Report	▪ Project team ▪ UNDP-CO ▪ External Consultant	None	At least one month before the end of the project

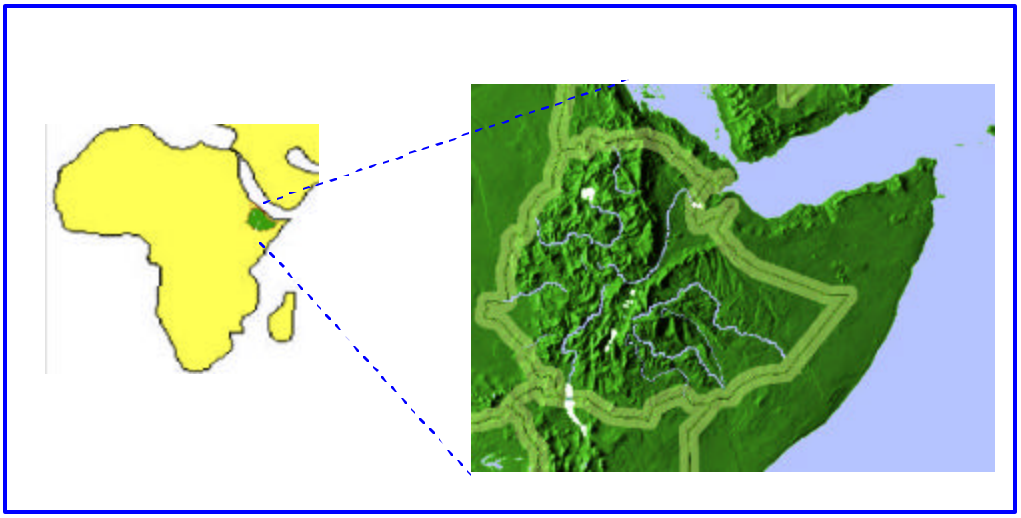
Lessons learned	▪ Project team ▪ UNDP-GEF Regional Coordinating Unit (suggested formats for documenting best practices, etc)	8,000	Yearly
Audit	▪ UNDP-CO ▪ Project team	4,000 (average $1000 per year)	Yearly
Visits to field sites (UNDP staff travel costs to be charged to IA fees)	▪ UNDP Country Office ▪ UNDP-GEF Regional Coordinating Unit (as appropriate) ▪ Government representatives	15,000 (average one visit per year)	Yearly
TOTAL INDICATIVE COST *Excluding project team staff time and UNDP staff and travel expenses*		US$ 110,000	

Annex 6: National environmental context

Location

Ethiopia is located in the Horn of Africa within 33^{o} and 48^{o} longitude and 3^{o} and 15^{o} latitude. It is a land-locked country bordered by Eritrea, Djibouti, Somalia, Kenya and Sudan. It covers an area of 1.13 million km^{2}, with a population estimated at 72 million and a population growth rate of 2.9% per annum (UNDP 2006). It has adopted a Federal State Government system since 1993 with nine regional states and two city administrative councils.

Figure 1: Map of Ethiopia



Topographically, the country is diversified with high, rugged mountains, plateaux, deep gorges, river valleys and flat plains. The altitude ranges from 110 m below sea level at Kobar sink in the Afar depression to a peak of 4620 m amsl[20] at Ras Dejen Mountain in North Gonder.

Land and Vegetation

The varying topography and geographical positions of the country have greatly influenced the climate patterns and moisture regimes, with the result that the country has about 18 agro-ecological zones and 62 sub-zones (grouped into seven major categories, namely arid, semi-arid, dry sub-humid, moist, semi-humid, and per-humid). This variation has permitted growth of different plant species including many endemic to Ethiopia.

About 66% of the total land mass is suitable for agriculture whilst only 28% has been cultivated. Out of a potentially irrigable 3.5 million hectares, only 5% is used. The country is home to the world's most important food crops (wheat, barley, sorghum, and

[20] All lands with altitude of 1500 m amsl and above are classified as high lands while those below 1500 m amsl are grouped as lowlands.

peas), industrial crops (linseed, castor bean, and cotton), and cash crops (coffee), as well as regionally and locally important food crops (teff[21], finger millet, noug[22], sesame, enset[23]). Ethiopia is one of the 12 Vavilov centers of the world due to its crop genetic diversity induced by different agro-climatic zones.

According to the Biomass Project report (2000), 3.9 million ha of natural forest (3.43% of the area of the country) stretch over the western, south-western and southern parts of the country. A recently completed study of the flora of Ethiopia notes that there are between 6500-7000 species of higher plants, of which about 12 % are endemic.

There is high demand for forest products for construction and fuel wood, and forest lands are also being cleared for different land uses such as farming, settlement and other investment activities.

In response to the deforestation taking place, demarcation of natural forest reserves and a tree plantation programme are underway in the country. However, the tree plantation covers less than 17% of the 1.75 million ha forest cut annually[24]. Therefore, a significant reforestation programme needs to be implemented in order to produce and use forest products.

Because of recurrent drought and environmental degradation, limited capacity and poor management of natural resources, since the 1960s the country has not produced enough crops/food to feed itself despite having productive genetic diversities.

Soils

In 1984, the Ministry of Agriculture (MoA) identified 18 major soil associations out of which 8 include Nitosols, Cambisols, and Vertisols comprises 60% of the arable lands. Soil management is very poor resulting in losses of about 400 tonnes/hectare from lands where there is insufficient vegetation cover and conservation measures, whereas the total annual soil loss nationally ranges from 1.5 to 1.9 billion tones, out of which 45% comes from farmlands and 21% from grazing lands[25].

Water Resources

Ethiopia has a large water resource potential which includes 11 major lakes with a total area of 7400 km^2, twelve river basins with a total annual run-off of about 10 billion m^3, and ground water with an estimated capacity of 2.56 billion m^3. The water resources provide large potential for hydropower, irrigation and fisheries. However, these high potentials have not been properly tapped and used for the country's development. More

[21] Teff grass *(Eragrostis tef)* is native to northeastern Africa and southwestern Arabia and is used as a cereal crop and livestock forage

[22] Noug (*Guizotia abyssinica*) is extensively cultivated in Ethiopia and contributes towards 50 - 60% of the Ethiopia's edible oil needs

[23] Enset (*Ensete ventricosum*) is commonly known as "false banana" for its close resemblance to the domesticated banana plant. It is Ethiopia's most important root crop.

[24] EPA and MEDaC, 1997: Conservation Strategy of Ethiopia, Vol.I,II,III.IV, EPA and MEDaC, Addis Ababa

[25] EPA, 2003: State of Environment Report of Ethiopia, EPA, Addis Ababa

than 75% of the annual surface run-off drains out of the country through the transboundary rivers[26].

In addition, the water resources and their aquatic ecosystems are under great threat from severe soil siltation, pollution and disruption of the temporal and spatial rainfall distribution[27].

Livestock

According to the 2000/01 estimate of the CSA, there are about 35.4 million cattle, 11.4 million sheep, 9.6 million goats, 4.9 million equines, 0.6 million camels and 38.0 million chickens in Ethiopia.

Shortage of water resources and animal feeds, repeated drought, undeveloped marketing systems and infrastructures, together with the spread of livestock diseases and a shortage of veterinary services have greatly impeded efficient development of livestock sectors and management of range lands.

[26] MoWR, 2001:Water Sector Development Programme, Vol. II, MoWR, Addis Ababa
[27] EPA, 2003: State of Environment Report of Ethiopia, EPA, Addis Ababa

Annex 7: Policies and Institutional Context

Over 15 line ministries and agencies are working on activities related to coping with drought and climate change. The most important institutions and the policies they are mandated for, and which have direct relevance to this project, include the following:

1. The National Meteorological Agency (NMA) is responsible for all national climate affairs. It is also responsible for numerous activities related to weather prediction and climate forecast.

2. The Environmental Protection Authority (EPA) is responsible for environmental management and control. The following two policies have direct links to the project:

    - *Conservation Strategy of Ethiopia (CSE)* - the CSE, together with the Environmental Policy, comprises Ethiopia's primary sustainable development plan. As such, the CSE has a large number of links with climate change adaptation, from shared objectives (such as human security and ecosystem resilience) to shared policy recommendations and overlapping institutional involvement. The CSE provides a cross-sectoral framework for integrated natural resource management taking a "holistic" view of natural, human-made and cultural resources. It is important for this project to facilitate the CSE's intervention in an integrated manner.

    - *Environmental Policy* - like the CSE, Ethiopia's Environmental Policy has many direct linkages to climate change adaptation. It deals with specific issue such as climate change and atmospheric pollution, effective climate monitoring and increased renewable energy use. This policy aims to provide the country with a framework for achieving environmental sustainability.

3. The Ministry of Agriculture is the central government agency responsible for development of rural communities. It carries out its mandate through various policies, legislations, and programmes. It also implements pastoralist development policies with the Ministry of Federal Affairs (MoFA), the most important ones for this project being the following;

    - *National Protected Areas Management Plan* - Ethiopia's protected areas policy is related to climate change adaptation in large part through the role that protected areas can play in maintaining the capacity of species, watersheds, forests, rangelands, and other valuable national resources, to withstand and recover from climate-related shocks and stresses, in addition to contributing to global benefits through carbon sequestration and reduction of elbedo(check spelling).

    - *Rural Land Use and Administration Policy* - nationally, there is no land use policy. However, recently land-user certificates have been issued that, it is

believed, will cultivate a sense of ownership and motivate the rural community to take care of the land.

- *Forestry policy* - although still in its draft stage, the Ethiopian Forestry Action Plan seeks to meet the national demand for forest products whilst addressing conservation and ecological resilience-building needs, including the development of community forestry projects. The Forestry policy can help to ensure the provision of critical ecosystem services (such as regulation of run-off and prevention of desertification) as well as the opportunities that forests can offer for livelihood diversification and security.

- *National policy on Biodiversity Conservation Research and Development* – in its effort to provide opportunities for the wise use of genetic resources, this type of policy has the potential to increase livelihood security, and thus adaptive capacity. The policy is designed to encourage and regulate the use of Ethiopia's genetic resources; at the same time, it encourages community participation and benefit sharing in this potentially income generating field.

- *Pastoral Development Policy* - the pastoral development policy is directly related to climate change adaptation, as it seeks to govern effectively one of the country's most vulnerable sectors. Under climate change, Ethiopian grasslands are expected to succumb to desertification in certain areas, heavily impacting dependent communities. Though quite new, and largely untried, this policy holds promise for providing pastoral populations with the type of support needed to secure livelihoods and combat desertification.

- *Soil and Water Conservation programme* - over the past twenty years, Ethiopia's development plans have fostered soil and water conservation activities; although centralized initially through the Ministry of Agriculture, now increasingly being decentralized to the regional level. Research has been carried out in partnership with various universities and research institutes.

- *Forestry* - Ethiopia's key forestry programmes are the Priority Forest Area Programme, which includes previously unlinked forest projects and aims to ensure effective forest management of degraded or threatened areas, and the Ethiopian Forestry Action Programme, which aims to foster participatory resource management among forest-dependent communities.

- *Livestock Resources Development Programme* - research and development projects on Ethiopia's rangelands have tended to focus on increasing rangeland productivity and forage availability, and to a lesser extent on conservation and rehabilitation.

- *National food security and entitlement strategies* - food security and entitlement policy is directly related to climate change adaptation in Ethiopia through its implications for vulnerable people under changing climatic conditions and

potential increases in crop failure and food insecurity. The food security strategy focuses on improving agricultural production, food entitlement, and the country's capacity to manage food crises.

4. The Ministry of Water Resources is responsible for water resources development and utilization based on watershed management principles. It is responsible for water supply, irrigation development, and moisture harvesting. Its activities are directly related to coping with drought and climate change. The Ministry uses the following water policy to guide its programme:

   - *National water resources management policy and water resources development strategy* - in general terms, Ethiopia's water policy is directly related to climate change adaptation in that it seeks to govern one of the sectors identified as particularly vulnerable under climate change scenarios.

5. The Ethiopian Agricultural Research Organization is responsible to determine and recommend those technologies that could promote agricultural productivity. It is a very important organization researching drylands agriculture in an attempt to identify crops resilient to drought and climate change. It is guided by the following policy:

   - *National agricultural research policy and strategy* - agricultural policy is geared toward ensuring food security and self-sufficiency for Ethiopia, key challenges under a dimate change future. Major goals of this draft policy and strategy include increased self-sufficiency in food production, largely through the introduction of sustainable agricultural technologies, as well as the expansion of traditional farming technologies.

6. The Disaster Prevention and Preparedness Agency is responsible for disaster management. It provides an emergency relief programme to drought and other disaster victims. Its work has a close relationship with this project through the following policy:

   - *Disaster Prevention and Management Policy* - because of the anticipated increase in natural disasters in a climate change future, and the mounting challenge that climate change may pose to disaster management strategies, disaster prevention and management policy is directly related to climate change adaptation. The primary foci of this policy, which is currently under-utilised, are to: 1) relieve efforts to eliminate the root causes of disaster vulnerability; 2) ensureeffective natural resource management to prevent future disasters; and 3) enhance community involvement in disaster management and prevention planning.

7. The Ministry of Finance and Economic Development MoFED, is responsible for implementation of macro-level policies and strategies. The most important ones for this project are:

- ADLI is one major policy framework that addresses the issue of high variability (as seen during past persistent drought) of rain fed agriculture to drought and climate change;

- *Poverty Reduction Strategy Paper* - poverty reduction is intrinsically linked to climate change adaptation. In the sustainable livelihoods school of thought, for example, poverty is equated with vulnerability to shock; thus, efforts to reduce poverty also reduce vulnerability to climate variability and climate change. The Sustainable Development and Poverty Reduction Programme (SDPRP) (published in June 2002) lays out a comprehensive strategy for responding to the development needs of Ethiopia's overwhelmingly poor population. Numerous components of the strategy are aimed at increasing the resilience of vulnerable people to cope with shocks.

8. UN Agencies use the United Nations Development Assistance Framework (UNDAF)to carry out their responsibilities and support to the country, for example:

    - *United Nations Development Assistance Framework (UNDAF) for Ethiopia* - in Ethiopia, the UNDAF is intended to enhance "collaboration and coherence in the UN programme of assistance", through endeavors that will subsume a range of climate change adaptation and adaptation-relevant activities. In achieving its overarching goal of contributing to the reduction in absolute poverty in Ethiopia, UNDAF will pursue activities in six major areas, including the highly relevant areas of food security and sustainable agricultural development.

Annex 8: Technologies developed for dry areas in Ethiopia

To stabilize and increase crop yields in the marginal rainfall areas of Ethiopia, MoARD uses dry land packages recommended by EARO as well as those adopted by farmers over long periods. These include:

- Improved planting material - a number of high-yielding, early maturing, open and self-pollinating, drought resistant varieties of small grains, such as red sorghum, red teff, katumani maize and groundnuts.
- Soil fertility improvement - application of organic fertilizer in the form of compost. If there is a chance of high soil moisture, commercial fertilizers are recommended to boost cereal yields. Also recommended is the application of crop rotations and/or intercropping nitrogen-fixing legumes with other crops for improvement of soil fertility and enhanced crop production.
- Moisture conservation practices - a number of moisture conservation practices such as ridge, tied ridge, spate irrigation and furrow planting are used to increase crop yields.
- Water harvesting - a number of water harvesting technologies that include membrane plastic-blanketed, hemispherical and dome-shaped concrete covered structures have been used to collect water for irrigation during moisture stresses.
- Crop diversification - farmers may plant up to six different crops, mono- or intercropped. Intercropping with low densities of melon, pumpkins, and cowpeas is quite common.
- Use of traditional crop verities (land races) - farmers still plant early maturing and low-yielding local varieties of small grain cereals such as teff, sorghum, and groundnuts. These varieties guarantee farmers some yield as they are adapted to the low rainfall and poor soils.
- Use of organic fertilizers - compost usage is increasing to boost soil fertility, crop yields, and livelihoods of poor farmers where inorganic fertilizers are unsuitable for application.
- Cultivation of bottomland areas - farmers have traditionally produced cash crops including green maize in valleys or wetlands as a food security measure.
- Use of natural pesticides - farmers use plant species such as Euphorbia echinus, the mole plant neem, and others to control termites, aphids, cutworms and other insects.

PART III – RESPONSE TO REVIEWS

A - Convention Secretariat

(to be completed once reviews are received)

B - Other IAs and relevant ExAs

(to be completed once reviews are received)