Forest and Community Analysis

As part of the NABU project:

„Climate Protection and Preservation of Primary Forests –
A Management Model using the Wild Coffee Forests in Ethiopia as an Example“

Funded within the frame of the International Climate Initiative
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Acronyms and Abbreviations

BHD	Breast Height Diameter
BR	Biosphere Reserve
CIA	Coffee Investment Area
DoAD	Department of Agricultural Development
DTM	Digital Terrain Model
EMA	Ethiopian Mapping Authority
EWNHS	Ethiopian Wildlife and Natural History Society
GIS	Geographic Information System
HH	Households
IBC	Institute of Biodiversity Conservation
Kafa BR	Kafa Biosphere Reserve
KFCU	Kaffa Forest Coffee Farmers Cooperative Union
LU	Land Use
LUC	Land-use change
LULC	Land use / Land cover
LULUCF	Land-use, land-use change and forestry
MAB	”Man and Biosphere”
MTS	Multiple Tree Species
NABU	The Nature and Biodiversity Conservation Union
RFPA	Regional Forest Priority Area
NTFP	Non-Timber Forest Product
PRA	Participatory Rural Appraisal
RS	Remote Sensing
SUPAK	Sustainable Poverty Alleviation in Kaffa
TM	Topographic Map

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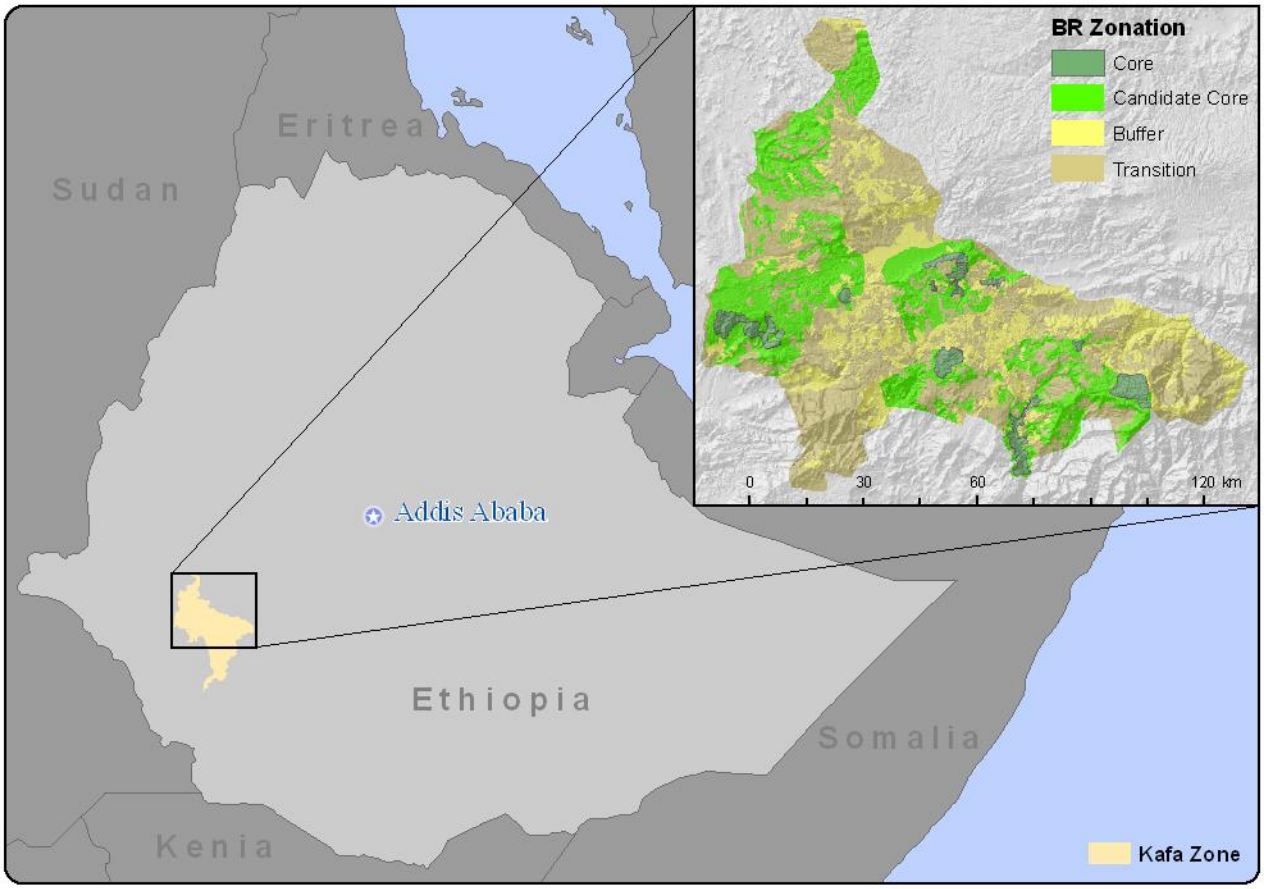
1. Executive Summary

The component “Forest and Community Analysis” was conducted within the framework of the International Climate Initiative project “„Climate Protection and Preservation of Primary Forests – A Management Model using the Wild Coffee Forests in Ethiopia as an Example „implemented by NABU – The Nature and Biodiversity Conservation Union, Germany’s biggest Nature Conservation Organisation. During a timeframe of six month, the task was concerned to select sites for reforestation, community plantation and agroforestry introduction within the Kafa Biosphere Reserve. Hence, this project component contributes to climate change mitigation and tries to bridge the gap between wood demand of rural communities and forest loss.

Calibrated GIS models could help to perform a rapid assessment of the study area to select potential sites for project components implementation (reforestation, community plantation and agroforestry). Different strategies combining satellite image interpretation and geoprosessing to understand the biophysical processes and discussions with forest stakeholders were developed. The participation of rural communities is considered to be crucial for a sustainable project implementation. Participatory Rural Appraisal was implemented to integrate the know-how and motivation of the people whose future is strongly related to the forest. In total 128 sites for the above mentioned different project components could be selected, while 49 sites are reforestation sites, 65 sites are assigned for community plantation, and at 13 sites agroforestry strategies will be introduced.

2. Introduction

The cloud forests in the Kafa Zone in southwest Ethiopia (division Southern Nations, Nationalities and People’s Region) have international importance due to their ecology, biodiversity and economic value (due to significant contribution on the world market of coffee). Furthermore, they contribute to climate protection as significant carbon storage. The preservation of these forests is a major policy concern. International recognition to the unique forest cover with different varieties of wild Coffea Arabica has been given by the acceptance as UNESCO MAB Biosphere Reserve in June 2010.



Map 1: Overview of Kafa Zone and Biosphere Reserve / Ethiopia

The future of the forests in the Kafa zone is strongly related to the future of people living in and from the forest resource. Successive resettlements and spontaneous migration have caused tremendous land use and land cover (LULC) changes. Agriculture expansion, wood collection for construction and cooking and forest grazing threaten the existence of the remaining primary forests.

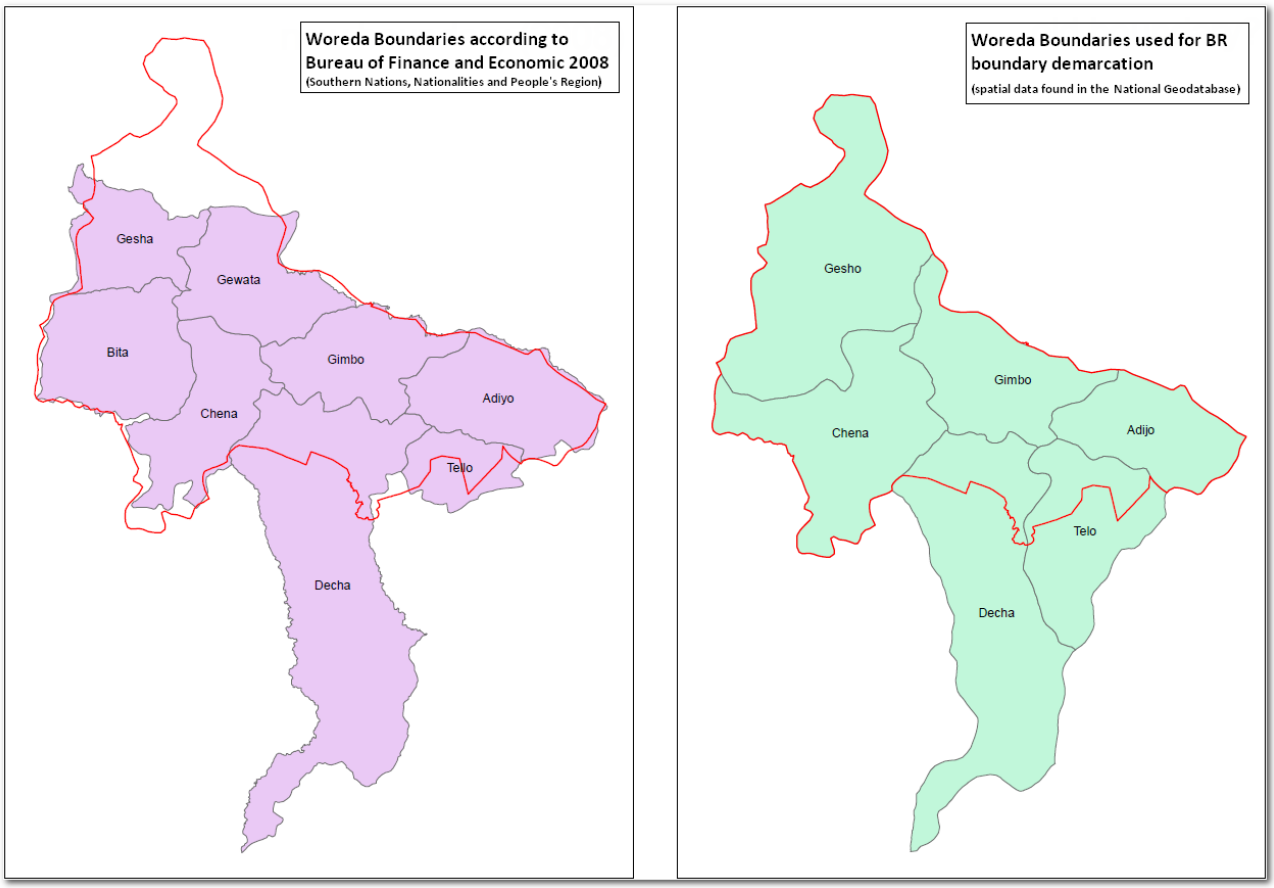
This project component "Forest and Community Analysis" is directly related to the international initiative REDD+ (Reducing Emissions from Deforestation and Forest Degradation) which aims are directed towards forest conservation, sustainable forest management and the enhancement of carbon stocks. In Kafa region there are different approaches concerning forest conservation such as protected areas (Regional Forest Priority Areas, UNESCO Biosphere Reserve) and concepts to implement sustainable forest management (Participatory Forest Management).

This project component is directed to the enhancement of carbon stocks within the Kafa Region. It takes the biophysical processes (forest conversion, LULC dynamics, erosion and soil degradation) and perceptions of forest stakeholders into concern, to propose land for sustainable land use conversion. Three active land use conversion strategies (reforestation, community plantation, implementation of agroforestry) are proposed and site selection criteria were elaborated on the analysis of spectrally classified satellite images (ASTER 2010 / SPOT5 2011), 'round-tables' with relevant forest stakeholders and introduced Participatory Rural Appraisal (PRA). The study area for the implementation and selection of sites for project action is the UNESCO Kafa Biosphere Reserve (Kafa BR). According to the analysis of recent satellite imagery, 47 percent or 351,641.22 ha of the Kafa BR are covered by forest in 2011.

The BR has an area of 744,919.18 ha of land and according to the census of 2002 (SUPAK data) a population of 718,526 (including whole Decha). Administratively, the BR is divided into ten woredas (Tello, Chetta, and Decha only partly) and 250 rural kebele administrations and 25 urban

towns (according to Bureau of Finance and Economic Development Southern Nations, Nationalities and People's Region, Ethiopia). Due to the minor contribution of Tello and Chetta on study area extent, they are not considered in the analysis. The highest population density can be found in Chena Woreda (1007 p/km2) and the lowest in Saylem woreda (6 p/km2). The average population density of the BR is 130,14 p/km².

According to the importance to consider all relevant stakeholders, the official woreda boundaries of the 'Bureau of Finance and Economic' are used for the analysis. According to the administrative infrastructure of official bodies, each Woreda has its' own DoAD and woreda representative.



Map 2: Woreda boundary discrepancies

There are 20 ethnic groups living in the zone and the ethnic composition shows that Keffecho, Amhara, Bench and Oromo accounts for 81.04%, 5.72%, 5.5% and 2.35% respectively (Central Statistical Agency, 2007 as cited from EWNHS, 2008).

According to a GIZ survey (2000) the minority group 'Menja' are categorized under the Keffecho ethnic group and constitute about 5% to 10% of the total population in the Biosphere Reserve (Kafa Biosphere Reserve Application, 2009).

The heterogeneity of driving factors for forest loss and socioeconomic differences, unsecure land tenure and the absence of an accessible land-register forced an individual selection of sites but a general model could be used to determine a pre-selection for stakeholder discussion and community selection.

3. Background

a. Description of the project in general and description of the specific task

The overall goal is the implementation of the project "Climate Protection and Preservation of Primary Forests – A Management Model using the Wild Coffee Forests in Ethiopia as an Example" funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). The aim of the project is the protection and sustainable use of the remaining primary forest in south-west Ethiopia. Reasons and incentives to protect these forests are various and it highlights the unique character of this project. The ecological value is one of them due to the genetic origin of *Coffea Arabica* in the mountainous cloud forests. Closely related are economical values for whole Ethiopia, which is the seventh largest coffee producer in the world. Coffee is Ethiopia's most important export crop.

Besides the invaluable biodiversity of Ethiopia's forests, the protection will make a contribution to mitigate climate change by avoiding greenhouse-gas emissions and it will secure carbon storage capacities. Carbon stabilization and sequestration will be increased through activities reducing deforestation/ degradation or active enhancement of storing capacity by reforestation and rehabilitation of fragmented forests and degraded areas. Due to the fact that the gap between wood demand and supply is continuously growing, community plantations with fast-growing species will be introduced and safeguard both, the needs of the local population and positive effects on biophysical processes.

The project component "Forest and Community Analysis" (contract number 11/2010_2) is time-phased at the beginning of the 4 years overall project activity and responsible for locating appropriate sites for different project components namely

- 500 ha Reforestation of degraded or fragmented forests,
- 1,500 ha Community plantations to create an additional wood supply for rural communities and the
- 200 ha Introduction of Agroforestry systems on pilot sites.

In general it includes an analysis of the status of the forest, which is based on the forest fragmentation and its' underlying causes, addressing the main habitats and the detection of species composition around and on selected sites.

Due to the different intentions of project components (reforestation, community plantation, Agroforestry), decisive biophysical and socioeconomic criteria for the allocation of sites were selected to guarantee a sustainable project result. While the allocation of 500 ha for reforestation depends on forest fragmentation and the support of the Biosphere Reserves' zone functions; the establishment of 1,500 ha Community plantations is a participatory process with rural communities to bridge the gap between wood demand and supply. The character of introducing Agroforestry systems to the Kafa BR should serve as a 'model of good practice' to evoke imitation by local people to combat farm land degradation. As different as the intentions of these three components are, as diverse the methods to solve them. Especially in developing countries, where detailed land information is often rare, Geographical Information Systems (GIS) in combination with Remote Sensing is a powerful tool. GIS models were developed to rapidly assess the potential sites for implementation of the project components. This pre-selection of sites was discussed with all relevant stakeholders and it was helpful to select rural communities to implement a Participatory Rural Appraisal (PRA). After harmonization of spatial and non-spatial information final sites could be selected.

Due to the time-phase at the beginning of the project "Climate Protection and Forest Preservation - A Management Model using the Wild Coffee Forests in Ethiopia as an Example", the lessons learned during the activity can contribute to the other sub-components and examined areas of conflict can help to adopt the project planning.

b. Kafa Biosphere Reserve

i. General information on Kafa Biosphere Reserve

The Kafa Biosphere Reserve was accepted by the UNSECO "Man and Biosphere" Program in June 2010. It is based on a comprehensive management plan and has celebrated the inauguration in March 2011 with a lot of medial interest and prominent guests. Due to good marketing, the Kafa Biosphere Reserve is well known among the urban population in Kafa. Anyhow, it is recommended to enlarge the PR campaign with different tools to rural places. The implemented PRA revealed an information gap at rural communities even when living in or adjacent to sensitive BR zones (such as Core or Candidate Core area). During in-depth-interviews, the awareness level of different forest protection measures was assessed (Participatory Forest Management, Regional Forest Priority Areas, and Kafa Biosphere Reserve). Due to the long tradition of PFM sites, this strategy was known by dwellers close to PFM sites as well as far from them. In the case of Kafa BR, especially the forest dwellers did not have sufficient information about the function, duties, and rights of a Biosphere Reserve.
As mitigating climate change is on the top of agendas of many initiatives it fits also very well to the concept for MAB Biosphere Reserves. Protected areas in general can contribute to reduce climate change impacts. In many cases protection is the only way of keeping carbon locked in an ecosystem. Consequently, the Kafa Biosphere Reserve is the project area for the project "Climate Protection and Forest Preservation - A Management Model using the Wild Coffee Forests in Ethiopia as an Example" funded by the International Climate Initiative. The analysis component "Forest and Community Analysis" takes a major part in improving the capability to store carbon and enhancing the incentives to contribute on the voluntary carbon market.

As the statistical data are dissolved to Kebele level, it is not possible to give precise numbers for population density. According to the census 2002 (SUPAK data) the mean population density within the Kafa BR is 130 p/km².

Population density according to the Woreda level looks as follows:

Woreda	Population density (p/km²)
Adiyo	121.7
Bita	63.6
Chena	236.7
Decha	96.2
Gewata	102.1
Gesha	117
Gimbo	156.4
Saylem	59.7
* can only show the tendency of population density due to data source publication date 2001 (SUPAK data)	

Table 1: Summary of Population Density in Kafa BR

The table indicates a very heterogeneous population distribution on Woreda level. This is one of the reasons for the necessity to adopt the criteria of the project activity toward the different Woredas, e.g. in Chena it was very challenging to detect sites for any project activity (except sites for Agroforestry) due to Woreda-wide LU for private farming activity.

ii. Habitat types within the Biosphere Reserve

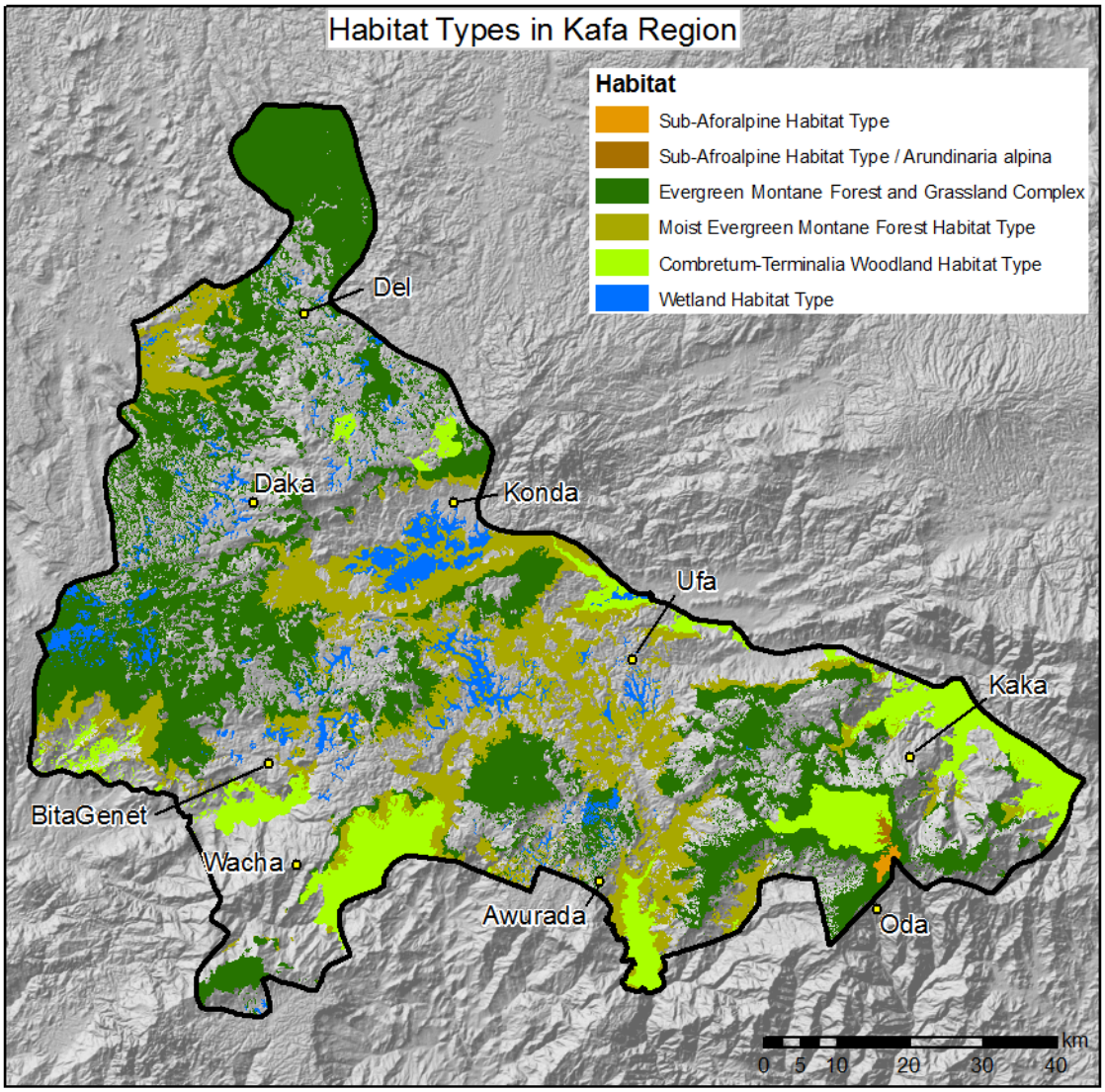
Different habitat types can be found in the Biosphere Reserve, according to the Institute of Biodiversity Conservation (Kafa Biosphere Reserve application, 2009), namely:

- Sub-Afroalpine Habitat Type (altitudinal range > 3,200 m.a.s.l.)
- Evergreen Montane Forest and Grassland Complex (altitudinal range 1900 – 3.300 m.a.s.l.)
- Moist Evergreen Montane Forest Habitat Type (altitudinal range 1500 - 1900 m.a.s.l.)
- Combretum-Terminalia Woodland Habitat Type (altitudinal range 900 - 1900 m.a.s.l.)
- Wetland Habitat Type (altitudinal range 900 - 2600 m.a.s.l.)

They are characterized by different plant societies and geographic criteria. There was an attempt to delineate the Kafa Biosphere Reserve according to the latter named vegetation types. This was done by intersecting the satellite image classification towards altitudinal range and a stepwise classification on spatial neighborhood. For intersection with altitudinal range, following LU classes were not considered: “Coffee investment area”, “Pine plantation”, “Tea plantation”, “Agriculture”.
Following data sources were used to delineate the habitats from each other:

- Digital Terrain Model (resolution 30 m)
- Satellite image classification (ASTER / SPOT5)
- SUPAK database

According to IBC the Moist Evergreen Montane Forest Habitat Type occurs between an altitudinal range of 1,500 – 2,600 m. In the classification, the focus was on the occurrence of *Coffea Arabica* due to its economic and ecologic importance. According to the Kafa Zone Agriculture and Rural Development Department, the upper altitudinal limit for coffee growth is 1,900 m.a.s.l., while Schmitt (2006) describes the most suitable range for coffee growth as being 1,500 – 1,800 m.a.s.l.. Hence, this habitat type is limited for classification purposes to an altitude of 1,900 m.a.s.l.. According to the ‘National Biodiversity Strategy and Action Plan’ (IBC, 2005) the habitat type “Combretum-Terminalia Woodland Habitat Type” includes Oxytenanthera abyssinica, which can mainly be found in the Woreda Adiyo.
It has to be pointed out, that the data have to be validated in field and criteria have to be improved.
The distribution of habitats in the Kafa BR looks as follows:



Map 3: Habitat Types in Kafa Biosphere Reserve

The spatial distribution of habitats show that the Sub-Afroalpine Habitat Type only occurs to a minor extent in the south-east (Woreda Tello / Kebeles Shosha, Migera; Woreda Adiyo / Kebele Mecha) while wetlands are more present in Woreda Bita, Gawata, and Gimbo.
The share of different habitat types in the Kafa Biosphere Reserve looks as follows:

Habitat Type	Area (ha)	Area (%)
Sub-Afroalpine Habitat Type	826.67	0.2
Sub-Afroalpine Habitat Type / Arundinaria alpina	492.67	0.1
Evergreen Montane Forest and Grassland Complex	214986.55	52.1
Moist Evergreen Montane Forest Habitat Type	107393.28	26.1
Combretum-Terminalia Woodland Habitat Type	61307.48	14.9
Wetland Habitat Type	26832.69	6.6

Table 2: Distribution of habitats in Kafa BR

iii. Zonation of Kafa Biosphere Reserve

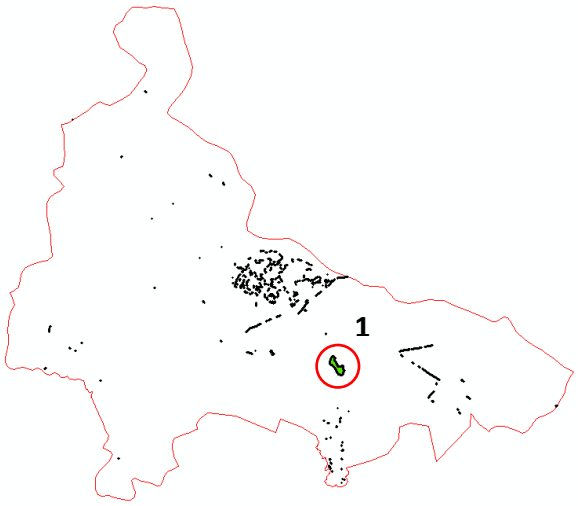
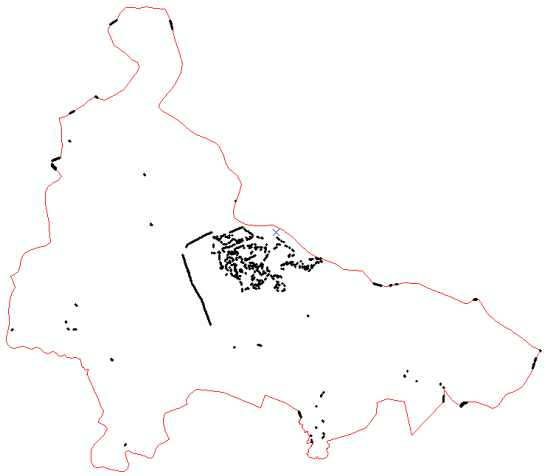
The Zonation concept is a centerpiece for any planning and management tasks concerning land use. According to the management plan (Dennis Moss Partnership), the key functions are:

- Core Zones, which should serve as refugee for various endemic and /or endangered

species, provide opportunities for long and short-term research and monitoring programs, as well as non-consumptive use.

- Candidate Core Zones, which constitute of highly endangered habitats. They are supposed to be included into the Core Zones are far as the feasibility is explored.
- Buffer Zones, which have a very important function as vitally important linkages between the statutory conservation areas, the rehabilitation of degraded river systems to create ecological corridors as part of the buffer. This Zone can therefore play an important role in connecting conservation areas that have been isolated by human activities. In general, the buffer zone should encourage the function of a symbiotic relationship between conservation and nature related economic activities; the aim is to invest a portion of benefits derived from the use of natural resources back into conservation.
- Transition Zones, which have the function of enhancement of the environmental integrity or rehabilitation of unutilized farmland and plantations, aim at restoration and preservation of sites and /or features of historical and cultural significance.

Accordingly, the Kafa Biosphere Reserve consists of 28,172.12 ha core area (4%), 219,320.39 ha candidate core (28 %), 161,351.85 buffer area (22 %), and 336,069.01 ha transition area (46 %). In total the BR area has a size of 744,919.35 ha.
Area size of the Kafa BR is varying between 745 518 ha - 760 000 ha in different publications. For this analysis, the boundary and zones of the geo-data were revised to clean overlapping areas and gaps but the general database "refers to the current boundaries of Kafa BR as shown in the map from June 2010" (TOR "Forest and Community Analysis").

Overlaps detected (geodatabase MOSS partnership)	Gaps detected (geodatabase MOSS partnership)
	
Size of overlapping areas: 1484,35 ha	Size of gaps: 144,36 ha

* 1 – location was identified as plantation, which was present two times in the geodataset

Figure 1: Errors in Biosphere Reserve Geodata

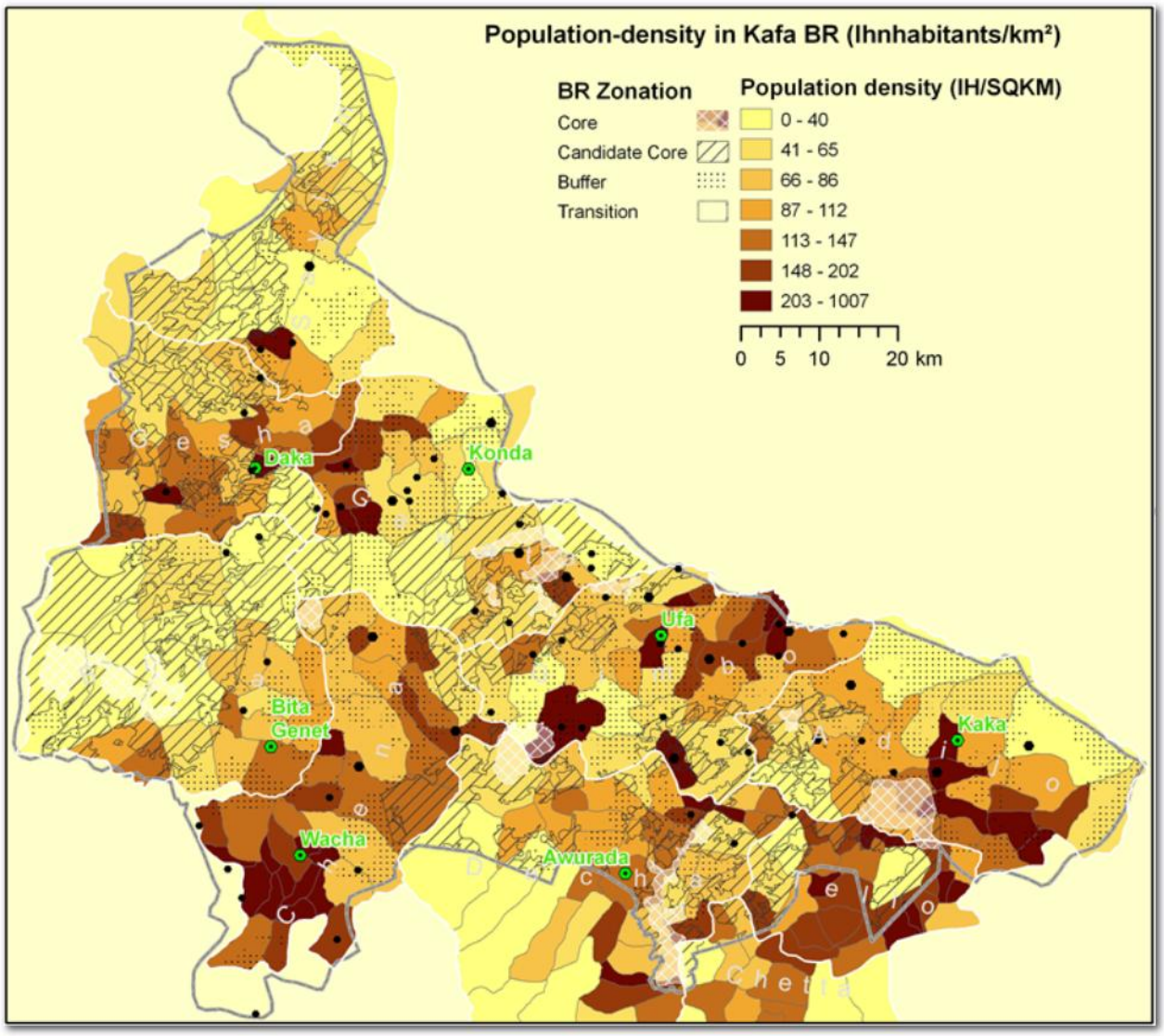
The inconsistency of BR geodata was discussed with NABU – HQ (Jena meeting, January 2011). The final elimination and correction of the data was proposed to be discussed also with local coordinators. Due to communication problems, there was no final approval of this issue. Anyhow, the data are corrected concerning gaps and overlaps and will be handed over in a final set of geodata on DVD.
Further irregularities in BR Zonation data could not be corrected without supervision. More details are given in the Chapter 9 (Recommendations).

iv. Share of forest and population density

According to very recent (2010/2011) satellite data, it was possible to update forest cover information within the Kafa BR. The forest cover (all non-managed and managed forests) has a spatial distribution of 351641.22 ha. It has to be stated, that forest cover has to be revised while incorporating the complete SPOT5 coverage for the Kafa BR. Due to late distribution of images (PlanetAction initiative) in the central of Kafa BR, the satellite imagery of SPOT5 could not be incorporated. This leads to a heterogeneous resolution of forest cover information. Though SPOT5 imagery were resampled to the spatial resolution of ASTER (15 m), a lot of mixels (pixels with mixed spectral information) led to a overestimated forest cover classification due to the incorporation of trees forming traditional live fencing. To overcome this problem, a mixture of spectral and object-oriented classification is recommended. The forest cover is distributed on different BR zones in the following:

- core zone with 28110,62 ha of forest
- candidate zone with 174482,02 ha of forest
- buffer zone with 87487,57 ha of forest
- transition zone with 61560,99 ha of forest

As core zones are assigned only for low impact uses, it seems to be very important to support populated areas close to core zones, with e.g. additional wood resource, or more efficient management practices such as agroforestry.
The map below should give an impression on population density (Kebele level) (Inhabitants / km²) and Biosphere Reserve zonation. The population density according to Kebele level can be found in the Appendix (f).



Map 4: Population density in Kafa BR

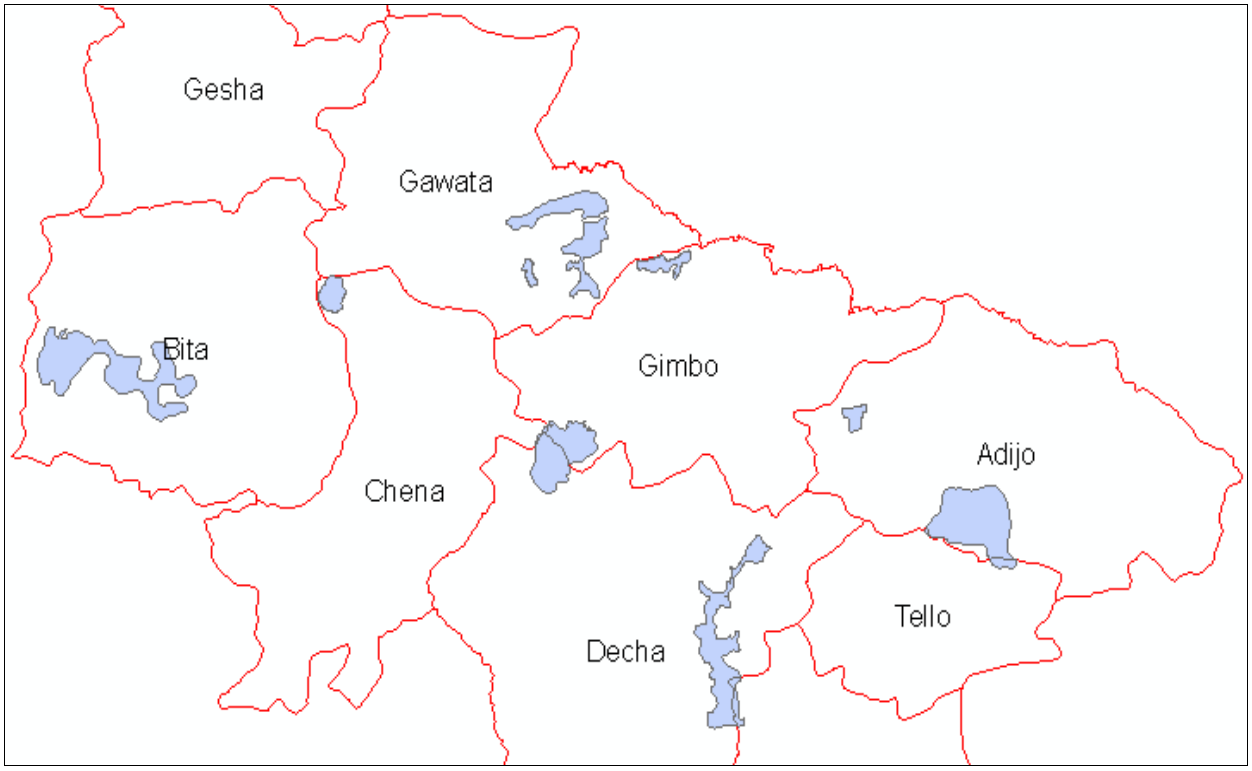
According to the objective, the distribution of selected sites is evenly spread. But priority is given to the site characteristics and the importance concerning the fulfilment of selected criteria (e.g. buffering the core zone has more weight than enhancing forest connectivity). The site selection is harmonized with the spatial distribution of the BR zonation. Especially for core zones the use rights are restricted except for research. Accordingly, it was calculated which Woreda has the most area share percentage of core zones to find out which Woreda has priority to compensate the 'locked' wood resource from primary forest. The distribution looks as follows:

Woreda Name	Woreda Size (ha)	Core Area (ha)	Percentage (%)
Adijo	102723.32	5947.07	5.78
Bita	109090.27	7270.35	6.65
Chena	90218.09	982.32	1.20
Chetta	77774.2	364.17	0.47
Decha	297542.55	6624.48	2.23
Gawata	93089.25	4161.13	4.46
Gimbo	87182.33	2518.62	2.89

Tello	42971.01	303.92	0.71

Table 3: Share of core zone area on administrative boundary (Woreda level)

According to the statistic, Bita, Adiyo and Gawata are prioritized Woredas for Community Plantations, which create an additional wood resource.
The spatial distribution of core zones looks as follows:



Map 5: Spatial distribution of core zones (blue) on Woreda level

According to the statistics, Woreda Bita has the biggest share of core zones. MAB core zones are strictly protected and should serve as example of natural ecosystems. This can raise a conflict, if population density is very high and the inhabitancy of the area depend on the forest to sustain their livelihood. According to the SUPAK data, Chena is the most populated Woreda which is sharing a core zone. The core zone area contributes with 1.09 % of the total Woreda size. Furthermore the forest cover in Chena (28.87%) is comparatively low (compared with the other woredas, Adijo 36%, Bita 57%, Chetta 46%, Decha 56%, Gawata 49%, Gimbo 43%, and Tello 62%). Accordingly, Chena was most focused to receive additional wood resources (community plantations).

WEREDA	Share of Core Zone (%)	EW / SQKM
Chena	1,09	150,33
Tello	0,71	141,79
Gimbo	2,89	125,41
Gesha	0	96,38
Adijo	5,79	89,13
Gawata	4,47	62,62
Bita	6,66	48,86
Saylem	0	43,02
Chetta	0,47	39,04
Decha	2,23	35,16

Table 4: Contribution of core zones on Woreda extent (%) compared with inhabitants (km²)

c. Existing Protected Areas and Management Models

A brief description of existing protected areas (RFPA) and existing management strategies within Kafa BR is given in this chapter. Spatial characteristics and coherences are evaluated to detect possible synergetic effects in the matter of BR management and implementation of reforestation sites. Reforestation sites should primarily take place on sites, which have high protection value. Furthermore, it is important to respect all forest protection initiatives. Hence the component "community plantation" should not be implemented within areas of protection status (personal communication Alexandros K. Makarigakis/ UNESCO Addis Ababa Office, Science Programme Specialist).

i. Regional Forest Priority Areas

It is relevant for the project components to consider if a selected site is currently under protection and if the proposed land conversion can support the function as protected area or is disqualified due to active silviculture.

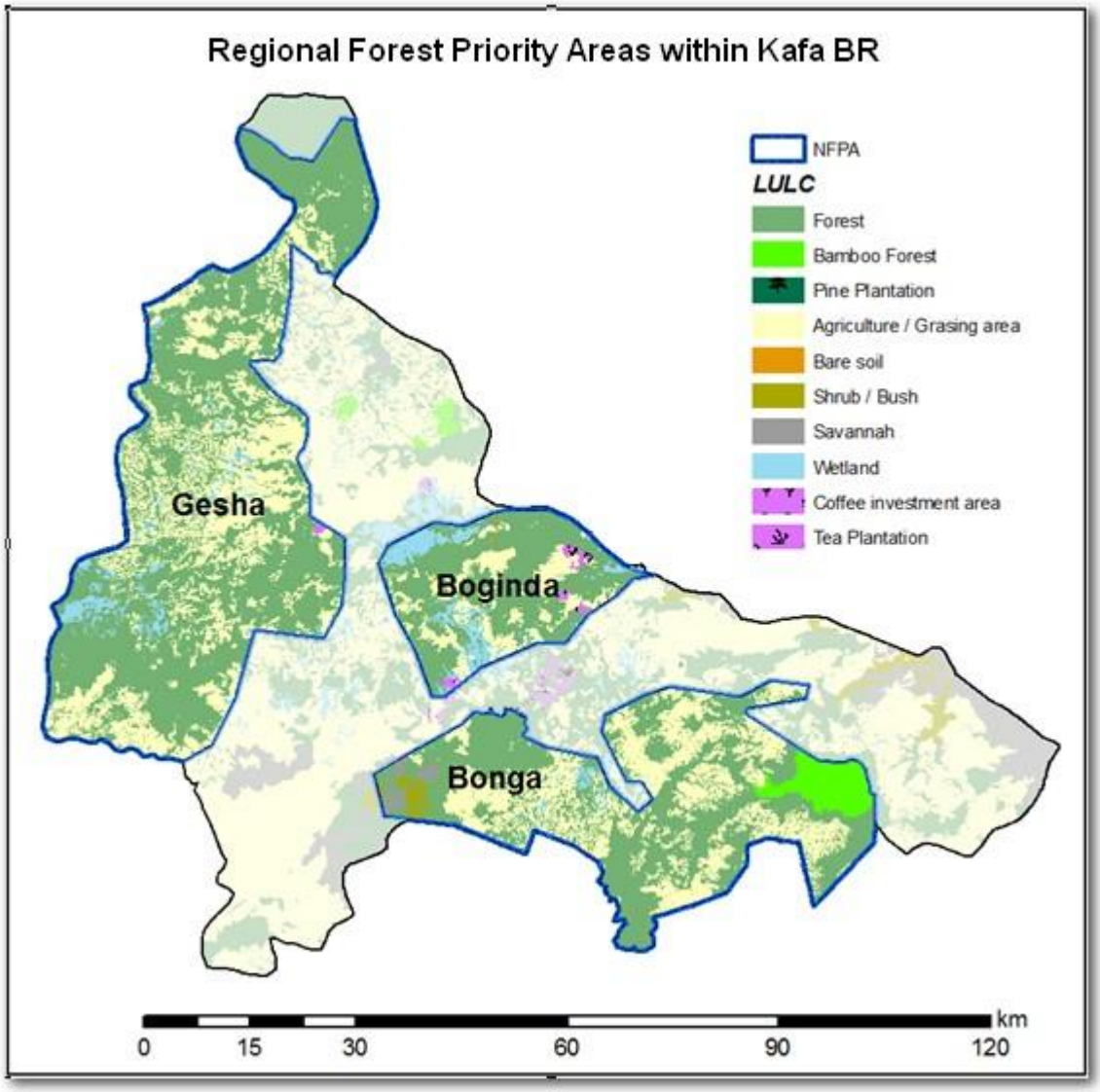
In 1980 the vast majority of the forest in the Kafa region was classified as National Forest Priority Area (NFPA) by the government to cope with the rapid forest decline. After the fall of the socialist regime all NFPAs were handed over to the regional states and became Regional Forest Priority Areas (RFPAs).

The RFPA include protected forests (according to Million and Leykun of 58 RFPAs in total, 37 had been listed as protected areas), but missing boundary demarcation led to a disregard of regulations. According to the National Geodatabase (2000), the RFPA 'Bonga' is the only demarked one in the Kafa region. PRA in the region and field visits could not prove solid demarcation.

Furthermore, the areas were only listed because of its specific significance in biodiversity aspects without clarifying how to integrate or compensate local communities that depend on the forest resources.

It was found that the extent of RFPA in Kafa region still rely on the forest extent of the 1980s and the existing spatial geodata for RFPA are produced for scales of > 1 : 200,000. Nevertheless, they cover an area of 400,783.64 ha within the Kafa BR and are covered with 250,442.83 ha forest (62.5 % forest cover).

According to group discussions with local communities and interviews with forest dwellers, the awareness level concerning RFPA is insignificant. Most of the key informants did not know about the classification and protection status, neither about where to find the boundary. Due to this reason, RFPA are not a preliminary concern for the selection of project action sites.



Map 6: Regional Forest Priority Areas in Kafa BR

ii. Participatory Forest Management

Participatory Forest Management (PFM) is a wide spread initiative in Africa and Asia for partnerships in forest management involving both the state forest departments and local communities. This concept gives credit to local communities and their role in improving forest management.

Different sources (PRA, key informants and remote sensing analysis) indicate that PFM initiatives are the most promising approaches to combat forest degradation and forest loss at that time. One factor for the success of implemented sites might be the clarification and strengthening of user rights. PFM membership avoids the 'open access' to the forest resource. Furthermore, the shift of responsibility towards the community for sustainable use of forest resources and well defined procedures to hand over the forest to the community seem to be the key to success.

There are four organizations, which are related or actively involved in PFM implementation in Kafa BR:

1. Kaffa Forest Coffee Farmers Cooperative Union (KFCU): The establishment of the union and the need for PFM emerged simultaneously with the establishment of long-term coffee

marketing relation with international buyers (Original Food GmbH / Kraft food GmbH). The request of the buyer to ensure both sustainable supply and forest management (within GIZ support, in the frame of Public-Private-Partnership) has supported the union to look for PFM as an alternative for the member cooperatives. The Union has sufficient infrastructure and well trained staff. An analysis of geoSYS for GEO Rainforest Conservation in 2009 could show the positive impact of PFM sites implemented by the KFCU. During the analysis, the General Manager (namely Frehiwet Getahun) participated actively in two open GIS workshops to improve work routines in GPS reading and map production.

2. FARM Africa / SOS Sahel Ethiopia: In 2002 the international NGO commenced the implementation of PFM sites in the Kafa Region. They achieved the establishment of 14 PFM sites and compiled valuable guidelines for the successful implementation of PFM sites (http://www.farmafrica.org.uk/resources/Key%20Steps%20in%20Establishing%20Participatory%20Forest%20Management.pdf).
3. The DoAD initiated PFM sites since 2005 with funds from the World Bank. They implemented 15 PFM sites in Bita, Gesha, and Gewata. These sites are neither well documented nor recorded by GPS. Hence, the PFM sites shown in the maps produced for this project component (Fragmentation Maps; 1 : 50,000) do not contain information about the PFM initiated by DoAD.
4. The EU funded PFM implementation of PFM in the Woredas Gesha and Gewata. Only imprecise information could be collected concerning their spatial location. They are not included in map production.
   It is recommended to keep up and follow the collection of missing information from the Woreda Administrative. This task could be realized best by persons, who are close to the woreda offices, e.g. the ranger team of Gesha and Gewata.

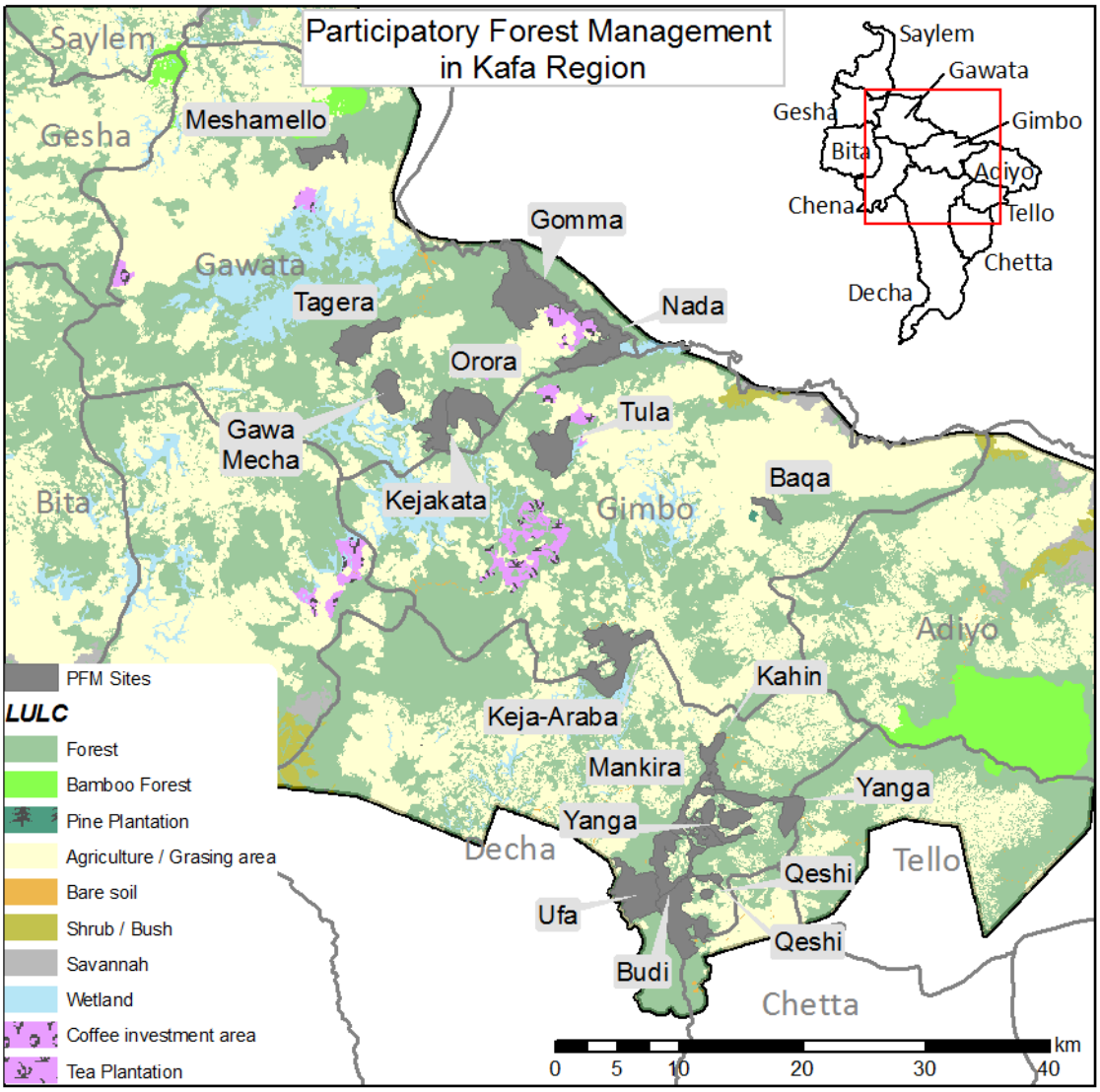
On behalf of the Kaffa Forest Coffee Farmers Cooperative Union, established and GPS recorded PFM sites could be used for the forest and community analysis. Additionally, a collaborative work of this analysis and KFCU incorporated very recent PFM sites to the geodatabase.
Following PFM sites are recorded and integrated to the geodatabase:

PFM Name	Area (ha)	Woreda	Kebele	TOTAL PFM Members	Male	Female	Date	PPP-Project Phase
Gawa Mecha	584,03	Gawata	Gawa Mecha	251	179	72	April 2006	1
Gomma	1998,21	Gawata	Wediyo	206	150	56	June 2006	1
Kahin	260,83	Decha	Gedam	104	73	31	July 2005	1
Kejakata	735,09	Gawata	Kasha	299	198	101	April 2007	1
Nada	1103,29	Gawata	Wediyo	192	145	47	June 2006	1
Orora	997,07	Gawata	Kasha	252	155	97	June 2006	1
Budi	844,15	Decha	Budi	332	167	165	December 2008	2
Keja-Araba	1474,20	Decha	Qeja Araba	629	490	139	June 2008	2
Mankira	900,53	Decha	Mankira	502	294	208	January 2008	2
Tagera	945,93	Gawata	Tagera	377	175	202	November 2008	2
Tula	1036,99	Gimbo	Tula	147	74	73	December 2009	2
Ufa	1208,03	Decha	Ufa	602	417	185	November 2007	2
Yanga	1533,06	Decha	Yanga	286	146	140	October 2008	2
Baqa	211,07	Gimbo	Baqa	323	158	165	September 2010	3
Meshamello	472,67	Gawata	Mesha Mello	2133	998	1135	Februar 2011	3
Qeshi	1548,40	Decha	Qeshi	5251	2520	2731	Februar 2011	3

Table 5: Considered PFM sites

It was decisive for the project component (Community Plantation) to estimate the wood demand of the communities for estimating bottleneck effects. It was assumed that, communities under PFM initiative have relatively good supply of wood for livelihood. Hence, communities without

PFM vicinity were prioritized for implementing PRA.
Anyhow, the community in Awurada is part of PFM (FAO implementation) and raised the question for a follow up of the initiative. In that case, the 'guided' implementation phase and the financial support were expired and structures such as a community hall and office were missing. Due to the intention of the superior project to implement PFM sites in Kafa region, it is recommended to ensure a vital PFM environment even after project completion.
(In Annex f you can find the percentage share of existent PFM sites on Kebeles)
The following map shows the distribution of all established PFM sites in the Kafa region implemented by KFCU and FARM Africa / SOS Sahel Ethiopia.



Map 7: Participatory Forest Management in Kafa BR

4. Objectives

The main object is to analyze the status of the forest and the interrelation of communities in the frame of climate protection. The approach to support climate protection was to select and recommend sites for the project components: Reforestation, Community Plantations and Agroforestry and produce maps for the implementation of these project components. The selection planning is based on a detailed assessment of the land use, drivers and processes for

forest loss and socioeconomic features. These aspects create a sound set of criteria for implementing the project components.

a. Drivers for forest loss

This chapter will give a comprehensive overview of all drivers and processes influencing the forest cover in the study region. In general, five main aspects are in focus, namely agriculture expansion, population pressure, resettlement, concessions (for coffee), and land property rights. Drivers of forest loss within the Kafa BR were addressed through various means, such as:

- Satellite Imagery interpretation and collected / existing geodata
- Personal communication with NABU Project Coordinators, who are practitioners with years of experience in the region
- Group discussions with rural communities, who are also stakeholders due to their dependence on wood resource, NTFP and forest services
- In-depth interviews with forest dwellers and non-forest dwellers adjacent to forest borders
- Literature review

i. Population Pressure

In general, population growth is an underlying reason for forest loss in many developing countries. According to the above mentioned information sources, it seems to be one of the main underlying causes for forest loss and fragmentation in the Kafa Region. While population pressure in Kafa Region is not directly affecting the forest area, many drivers as informal migration and resettlement, agricultural expansion and the unsustainable use of forest resources are interrelated with population pressure. Demographic change on the one hand creates the demand for more resources but might also foster the initiatives to combat the problem of natural resource degradation. This should be seen as a chance to motivate the introduction of efficient resource management practices as promoted by this analysis.
During in-depth interviews ‘population pressure’ was always named as reason for severe forest destruction. Actually it is one of the underlying reasons for agriculture expansion and migration which foster forest destruction and land conversion. One way to relieve the pressure on the forest is adopted (e.g. plant species which are more suitable for the site) and sustainable agriculture. This is a good reason to introduce Agroforestry systems.

ii. Agriculture Expansion

The conversion of forest land to agriculture is at first a way to increase the productivity. This can be mainly observed at forest borders, were farmers systematically clear the understorey (mostly initiated by forest grazing) and thereafter slash and burn the area. This could be observed in Woreda Gimbo (Michity, Tula, Kuti), Gewata (Saja, Kasha), Adiyo (Boqa, Medwutta), and Bita (Sheda, Gaweti). The harvested wood is used as an additional income (fire wood, or charcoal) or for the own consumption. This procedure is also described in literature (e.g. Denboba 2005). But field visits show as well, that more often trees with huge diameter (BHD > 60 cm) are only burned due to a lack of appropriate harvesting tools. The non-use of this wood destructs the area in multiple ways. After clearing the understorey and opening the canopy layer cultivation will start at the next farming period. The current agricultural practices are considered as not sustainable and efficient. Fallow periods are only ensured when soil is already heavily degraded and even land with

very steep slopes >35° is cultivated. For whole Kafa BR approximately 1,112.22 ha of agriculture is on very steep slopes. Associated with unfavorable site selection for agriculture, a high annual productivity loss can be estimated. These sites are of high importance for initiating project activity and are included in the model for pre-selection.

Farmers in Kafa Region practice subsistence farming on an average of 1 – 2.5 ha land per household (6 - 10 members). This is regarded as an absolute minimum to provide sufficient food for one HH (Berhanu et al. 2002).

The problem of agricultural expansion is well known as driver for forest loss in Kafa Region. The government started to tackle this problem in 1991, by development programs. One of those development programs is the 1990s extension package program that forced farmers to access credit to purchase fertilizer for more efficient cereal crop production. Until today, this program is running. In-depth interviews revealed that the application of purchased fertilizer is often omitted due to a lack of technical assistance and inexperience. Furthermore, in many cases the costs to by the fertilizer are exceeding the financial capacity of farmers. This seems to be the fact, when fertilizer is not used properly and the costs cannot be compensated by additional yield.

iii. Resettlement

According to a survey of EWNHS (2008), people from the northern part of Ethiopia were resettled during the previous Derg regime (1974 until 1991, according to Schmitt 2006) to the Decha and Gimbo woredas.

While the recent policy encourages resettlement within the SNNPRS "5000 households from Kembata, Timbaro, Sidama and Gurage Zones were resettled to Decha woreda" (EWNHS Survey 2008), all planning and management activities in forested areas should be worked out with governmental cooperation. This dynamic condition seems to be closely related to land cover change. During the PRA it was stressed out, that resettlements motivated by the government are seen as severe threat to the protection of forest area and undermine the communities' initiative to share resources in a sustainable way. It seems that resettlers are not well affiliated in the social structure of the 'territorial' communities. They are marginalized to the outer boundary of the community or situated within the forest. This leads to user right conflicts of all environmental resources supporting livelihood.

Furthermore, so called villagization processes are responsible for a dynamic land use change. This program was set up during the 1980 and forced forest dwellers to leaving the forest area. The abandoned land was recovering with secondary forest growth. Quite recently, it could be observed by satellite image interpretation, that the process is one main reason for perforation of forests. According to the study taken in 2008 (M.Sc. thesis, Elisabeth Dresen), the forest perforation with up to 40 ha can regenerate within 20 years.

An often stressed out problem for communities with continuity are the 'landless youth'. They receive land from the government to settle by informal migration, but do not hold their own area of cultivable land. They are cultivating land of their relatives by share the cropping or on a rental basis. Industry such as large scale investment areas (as Wushwush tea plantation) offer possibility for labor. This leads to a livelihood with strong dependence on natural wood resources due to the lack of own woodlots in home gardening.

The 'landless youth' often settle on the holding or close to their parents' home. If labor cannot support livelihood sufficiently, it results in a widespread illegal/uncontrolled use and conversion of forest land. It was observed, that dynamic forest perforation patches with unstable shape and size were settled by people without permission. This was encountered as most challenging factor to select sites for project activities. Furthermore it is seen as an important point for further research

to create incentives or develop mechanisms to avoid settlement within forested land. According to the local coordinator of this project (Bonga) taxation measures are on the way, to discourage people from forest settlement.

iv. Concessions (coffee)

Large scale coffee investment (coffee investment area) is supported by the government. In Kafa Region there are various different coffee investment areas which are a concern of all environmental initiatives and adjacent communities due to their impact on biodiversity and exclusive use right. Sites in governmental forest land are given to investors. Due to the site requirements of Coffee plants, the upper storey of forest is thinned while the understorey is systematically removed. This practice decreases the biodiversity of the forest tremendously. Furthermore, the capability to store carbon is minimized. Local communities are banned for all purposes of forest use. If there was previously a mutual management among community members to manage 'their' forest in a sustainable way, this is not credited. Consequently, incentives for forest dwellers and rural communities to manage the forest resource in a sustainable way are low. The governmental support of profitable coffee (additional benefit from selling removed timber) investment undermines established structures of self-organization and sustainable resource management of rural communities. Until now, they do not have sufficient opportunity to influence decision making, nor articulate illegal spreading of investor sites. If sites are assigned for coffee investment, there is no compensation for forest dependent communities up to the opportunity of short-term labor at coffee nurseries and on a coffee plantation.
It is very challenging to find reliable information on location, spatial extent and future sites. The collection in the geodatabase is probably inconsistent. There was no systematic detection of CIA. The recorded nine large scale CIAs have a size of 2,563.85 ha.
The insecure information policy concerning CIAs is threatening any environmental initiative (e.g. in Woreda Gewata / Medabo, a concession was given to an investor to be able to expand his CIA of 500 ha – 2 km from the BR core zone! Concerning the information of Mesfin Tekle, the conversion of land could be stopped. Anyhow, young coffee plants replacing the understorey could be detected along the forest border.).

v. Property Rights

According to the country's constitution, the ownership of land vests with the State and the people of Ethiopia. Private ownership and land markets are not allowed under the Ethiopian constitution. Instead, farmers are given use rights for land with paying yearly. The frequent redistribution of land as explained under point 3, have led to a high degree of insecurity among farmers concerning the tenure rights of their holdings and use rights over the forest. This advocated an 'open access' mentality and prevent forest dwellers from the support of sustainable forest management. Accordingly, agriculture is more attractive to invest to than forestry in terms of ease of securing land user rights.

vi. Unsustainable use of forest resource

Legal and illegal forest use is increasing since customary user rights have been replaced by state sanctioned rights (Worldbank, 2011). Missing technical assistance in sustainable silviculture and

missing resource use (of plantations) from governmental side lead to illegal and unmanaged use of wood resource. It was observed, that communities adjacent to governmental natural forests or plantations followed poor forest management practices. To elude fees raised by the government for using wood resource, logging is uncoordinated and selectively practiced on young trees. As a result, the forests regeneration is hampered and in combination without any investment in natural forest to replenish the stock this leads to severe degradation of the forest. This was observed two times during analysis field visits (Gimbo/Hamani and Michity) and need to be verified by more examples.
An increasing livestock and the practice of forest grazing (especially in Gesha & Saylem Woreda) is the major driving force of forest degradation. The practice is described under point 2 (agriculture).
In that case, the underlying cause seems to be the insufficient and unclear user rights for forests. The initiative of "participatory forest management" is a good example how the problem can be successfully managed.

b. Identification of suitable areas of project components

Different project components are proposed to address forest loss and forest degradation. These components namely reforestation, community plantation and Agroforestry will be implemented during a timeframe of four years.
In the frame of this project, a successful establishment and sustainable use of trees require a multi-criteria analysis. It should consider the biological tree species site requirement (or preferences), a sound understanding of land use structures, and willingness of communities to participate. This has to be brought in line with the overall intention of the project to preserve the forest cover in Kafa Region and enhance the carbon storage capacity.
The identification of suitable areas to implement the project components is based on different criteria which were calibrated upon the input of PRA, single informants and the incorporation of recommendations of the local coordinators (some sites were already assigned to be suitable for a component).
Another objective of this task is to recommend species for the different components, more detail about the selection can be found under Chapter 6c (Results/ Tree Selection).
Each criterion is adapted for the planned component (reforestation, community plantation, Agroforestry) to provide reliable predictions for potential sites.
In this section, the selected criteria are briefly discussed; it will give an overview on which spatial data are integrated and how to implement the suggested strategy on the sites.

i. Reforestation

Reforestation is a sensitive topic without combating the underlying cause of forest loss in a country with high deforestation rates. Currently, only 2.7% (Reusing, 1998) of the total land of Ethiopia is under forest cover though it was estimated to have been about 40% in the past (IUCN, 1990). The severe forest loss has main underlying causes as population pressure or poor land use right allocation and various drivers which directly foster the decline of forest cover (discussed in Chapter 5b). To challenge this development one needs to address the main causes for forest loss; it is even more difficult to counteract by reforestation.
Every land use change caused by humans is motivated by a reason. In Kafa region it can be observed, that natural forest is converted into agriculture land at severe rates. The new land use will be present until the land is not favorable anymore for the present land use (e.g. shifting

cultivation). The abandoned site might be of concern for reforestation activity, but without parallel education in sustainable resource management, reforestation might be ineffective.
It is important that local communities adjacent to proposed reforestation sites see their benefit in the project activity. Otherwise, regulations will be undergone as in previous time and the established resource will be rapidly depleted. This implicates to avoid reforestation on sites where the motivation is "simply" restoration of degraded forests.
There are various projects in Ethiopia which are engaged in reforestation, following different intentions for reforestation. The 'Humbo/Soddo Community based forest management project' (H/SCBFMP) focuses on carbon accounting (Humbo Woreda in the Wolayita zone in SNNPRS). The project is in restoration of indigenous tree species and uses an approved CDM methodology. In contrast, the foundation 'Green Ethiopia' is more focusing on reforestation to counteract erosion on bare hills.
The component of this analysis achieves different intentions such as protection, improvement or support issues. Protection of the BR core zone is one of the priorities to assign sites for reforestation. Recent migration or agriculture expansion entered BR core zones or they are assumed to enter in the very near future. Response to stop the encroachment of human activity will be a buffer of approx. 20 meter along the BR core zone with reforestation and enrichment planting of the degraded forest with a mixture of on-site occurring tree species.
A sound mechanism has to be worked out to sustain the reforested areas. Local communities always raised the importance of strong boundary demarcations by exotic tree species.
Further priority is given to areas which can contribute to prevent forest fragmentation or increase connectivity between forest patches. Main negative effects of fragmentation are perforations within intact natural forest. Perforations caused by illegal migration will be reforested with local tree species found at the forest border (indicated in the matrix sheets). To increase connectivity between forest patches, disturbed riparian forests or 'unprotected' rivers will be reforested with a 40 – 50 meter buffer of local trees. This strategy is very promising due to the minor use for agriculture (raising/ dropping water level, steep slopes). This strategy is also applied for the project component 'community plantation' but with different focus towards population density (wood demand) and recent forest loss.
Lastly, degraded forest areas which were seriously affected by unfavorable environmental conditions are considered for reforestation. In Gesha, Saylem and Gewata Woreda huge parts of bamboo forest dried out in 2010.
For reforestation a stepwise reforestation (2011 / 2012) is planned. Underlying cause is of administration reason (nurseries so far do not have the capacity for complete seedling supply) and furthermore this strategy creates more natural like stands with distributed age classes.
Tree species selection depends very much on the site for implementing the component, but some general suggestions can be given with the selected trees which can be found in Chapter 6c (Results/ Tree species).
The criteria integrated into the site selection for reforestation are mainly derived from satellite imagery interpretation, and geoprocessing functions of existent spatial:

- Population density (derived from number of households / Kebele level)
- Small Perforation / huge perforation (derived from ASTER/SPOT LULC → fragmentation)
- Erosion vulnerability (derived from DEM and LULC)
- Core protection (derived from BR zonation intersected by LULC)
- Forest patches (derived from ASTER/SPOT LULC → fragmentation)
- Capital vicinity (derived from digitized settlements → SPOT data; DEM for spatial distance)
- Lack of riparian forest (digitized rivers → SPOT data and others)
- Road distance (GPS data of road network, TM of EMA)
- Forest loss (Change detection of 2008 – 2010/2011)

ii. Community plantation

Decisions about land use and the potential of land for specific purposes seem to be rather important in areas, where growing populations require more land for food production and where urban areas are spreading. Plantations are in competition to food securing systems which also have clear land use policy. So far, incentives for community based plantations are missing. Except for an example in Chena Woreda (Kebele Shayicha Meka, < 2 ha of community organized woodlot on private land) no structures of community leveled plantation could be found. This is different for community based forest management of natural forests (PFM).

The initial phase for this project component could be realized by food for work or other payment schemes from project funds to establish the plantation. It seems to be important that communities intended to manage the plantation in future are involved into the establishment as well to strengthen the individual responsibility. However, the use rights of planted trees and management concepts should be discussed before the component will be implemented. This will ensure that the community always keeps up their protection activities. If the resource belongs to the community, they feel responsible for it.

The most common species for plantations in Ethiopia are Eucalyptus, Cupressus lustanica and Pine spec. largely managed by the government. As exotic species, these tree species are often criticized by environmental organizations due to their possible impact on water regime, self-spreading and competition with native species. Due to the low site requirements of Eucalyptus and rapid economic return, Eucalyptus spread over whole Ethiopia. Farmers integrate eucalyptus on site along boundaries and in small woodlots. Eucalyptus plantations are well studied and the growth yield is known for different sites.

A study from Jagger and Pender from 2003 estimated the economic value of Eucalyptus as follows "*With an average planting density of 4,500 trees/ha and a survival rate of 64%, a woodlot of average-sized eucalyptus trees would be worth more than 80,000 Ethiopian Birr/ha, or $ 10,000, and much more in places where trees are scarce. With more than 70 ha of woodlots per tabia, this represents a substantial contribution to the wealth of communities in Tigray".*

Other researchers claim that more and more exotic species are introduced to Ethiopia, while indigenous species like bamboo are being destroyed. Research of bamboo is done by the Swedish University of Agricultural Science (Uppsala). They highlight the underutilized multipurpose characteristics of bamboo in Ethiopia. In Woredas with high natural occurrence of bamboo (e.g. Adiyo) it is utilized in many different ways, such as fencing, house construction and other services (such as bee hive construction). Traditional knowledge, using bamboo for soil conservation was addressed by an in-depth interview of the minority group the "Menjas". Literature review could not verify a systematic use of bamboo from the minority group to combat erosion. Due to the pragmatic approach of this study there was no further research done.

'Lessons learned' from international reforestation projects indicate the importance to use traditional knowledge or systems which were successfully introduced. Hence, an ideological motivated ban of Eucalyptus should be avoided. Furthermore, there should be done research concerning the real impact of Eucalyptus plantations in Kafa Region.

The selected species are proposed for plantations with a mean size of 40 ha. The criteria integrated into the site selection for 'Community Plantations' are mainly derived from satellite imagery interpretation, geoprocessing functions of existent spatial data and the introduced Participatory Rural Appraisal at selected sites.

- Population density (derived from number of households / Kebele level)
- Small Perforation (derived from ASTER/SPOT classification)

- Erosion vulnerability (derived from DEM and LULC)
- Town vicinity (digitized settlements from SPOT; DEM for considering distance)
- Road distance (GPS data of road network, TM50)
- Forest loss (Change detection of 2008 – 2010/2011)

iii. Agroforestry

The potential of agroforestry systems to combine environmental objectives, combat erosion problems and taking the pressure off the natural forest is remarkably. Apart, the benefit of Agroforestry is well recognized and the system is already practiced in Kafa Region. Practices of intercropping (only with cereal crops), the use of trees for coffee shade in home garden and hanging bee hives are widespread. The acceptance among local communities seems to be a very promising factor for successful promotion and implementation of pilot sites. Willingness to participate as pilot site is very high across all Woredas. The expected benefits by farmers are the increase of crop productivity, a diversification of products for subsistence and income, and positive effects to combat erosion and soil degradation. The latter named factor outlines one major problem on farm sites in the Kafa Region.
Considering different international Agroforestry projects (e.g. http://www.eco-index.org/search/results.cfm?ProjectID=384) it is always recommended to establish agroforestry systems based on one commercial main tree species, such as coffee. The local Project Coordinator (Bonga) favors the use of fruit tree species such as mango and avocado due to traditional knowledge concerning these species. They are used as shade tree of rural communities.
It is advised to improve existing Agroforestry systems by promoting good proveniences of tree seedlings. They should be robust, have good yields and likely to adopt under unfavorable soil conditions. Experiments should be carried out to identify good seed proveniences.
To give a positive impact to many farmers, plant material able to be propagated vegetative should be favored. In this matter Erythrina brucei seems to be very promising.
The criteria integrated into the site selection are mainly derived from satellite imagery interpretation, geoprocessing functions of existent spatial data and the willingness of pilot farmers to participate in the study.
First step was a pre-selection of potential sites of criteria, which are deeply discussed in the section "6.c.1 – Methods". To give a short overview of integrated material, please refer to the following:

- Population density (Kebele level)
- Capital vicinity (Thiessen Polygons – please refer to the first interim progress report, where this method is explained)
- Road distance (incorporated GPS tracks to digitized road network of TM50, EMA)
- LULC (derived from ASTER / SPOT)
- DEM (derived from Huchinsons Topo to Raster interpolation method, base material for interpolation were digitized height points of the TM50, corrected GDEM http://asterweb.jpl.nasa.gov/gdem.asp, GPS recording with barometric altitude measurements) to estimate erosion

5. Methods

The whole analysis was divided into information technology analysis and 'in-situ' data and information collection. The IT related work was realized by a team from Germany. Work related to pre-processing, analysis and classification of satellite images was the duty of Mrs. Hannemann (attached to GeoSYS), who is a geographer (Diploma) with several years of work

experience in the matter of Remote Sensing. Mr. Gemeinholzer was assigned to evaluate all PRA data and to assist during the field work. He has a B.Sc. in landscape planning and is currently working for geoSYS. All work related to GIS and geoprocessing was collaboratively done by Mr. Weiss and Mrs. Dresen who hold a degree in forestry (Diploma) and a M.Sc. in Information Technology. Due to insecure power and internet supply in Ethiopia (Bonga) most of the IT tasks were realized in Germany (Berlin).
The baseline data and data for gap filling could be collected during two field trips in February/March and April/May. The team in Ethiopia consisted of Mr. Mekuria and daily paid field guides. Mr. Mekuria had good recommendations of the NABU Project Coordinator (Bonga) and is based in Bonga. Due to its' origin, the analysis could profit of his very good communication skills and local knowledge. Mr. Mekuria was under contract for the whole time period of the analysis to assist in the field and as back stopper in Bonga, when the German team returned to Berlin.

a. Work Flow

The final result of site selection is a whole procedure of spatial/spectral analysis, 'round tables' with stakeholders and Participatory Rural Appraisal methods. To gain an overview of the integration and importance of all aspects, a graphic is representing the whole workflow.

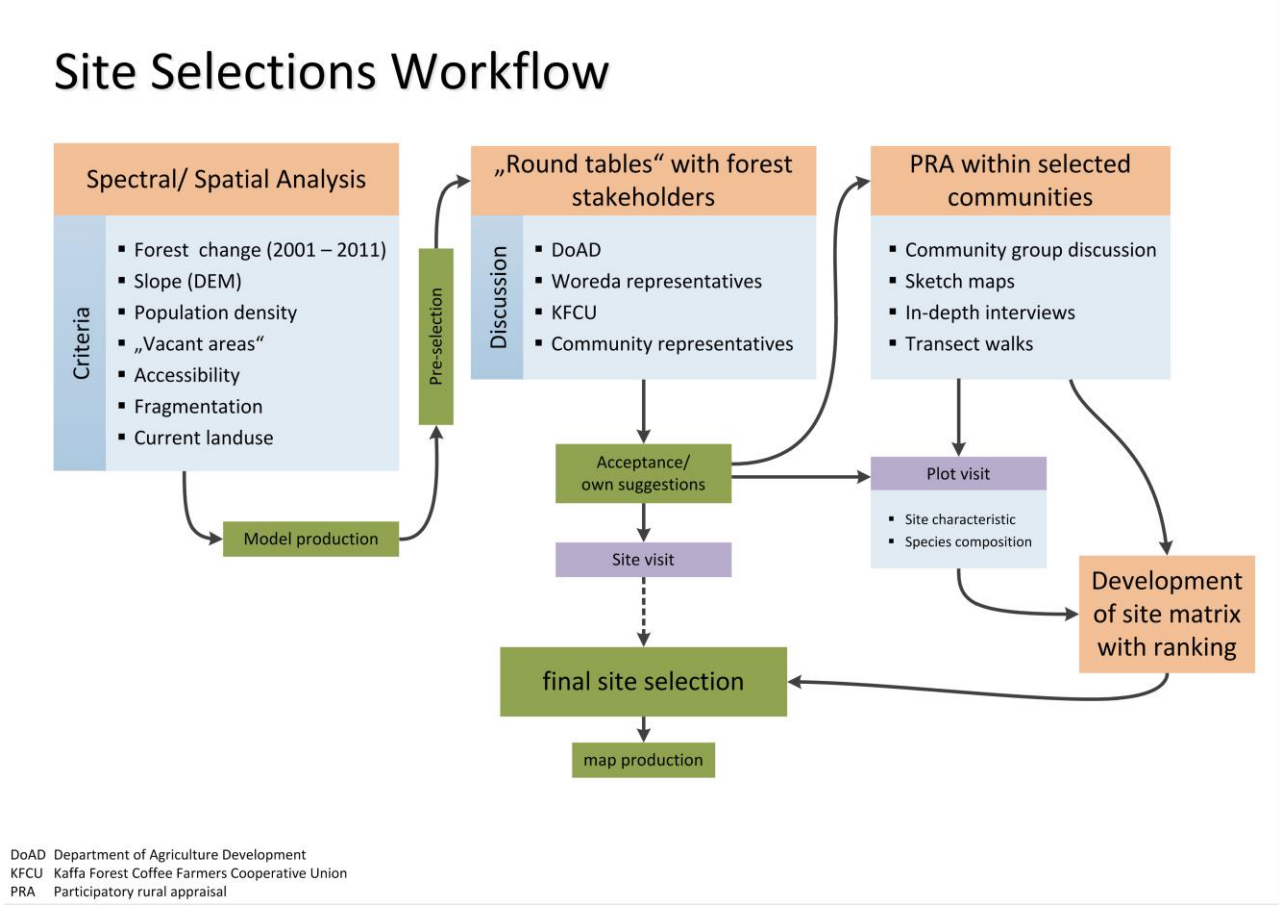


Figure 2: Site selection Workflow

The task was focused on the site selection of different project components. At the beginning of the task the focus was to collect, sort and process all relevant data as literature and geodata. To be able to perform the analysis of spectral (satellite imagery) and spatial (geodata, DEM) data,

preprocessing was the most time consuming part. Relevant criteria were selected according to literature review, personal communication with NABU coordinators and own experience. The finally incorporated criteria for the site selection are forest change, altitude and its derivative slope, population density, visually detected "vacant areas"[1], road network accessibility, forest fragmentation, and current land use. These criteria were assigned to a GIS model, produced in GIS software (ArcGIS 9.3.1). The advantage of a model is the possibility to easily update or incorporate additional information. The models were calibrated during the field visits and outputs were printed on maps to discuss with forest stakeholders of the Kafa Biosphere Reserve. The discussions were held with the Department of Agriculture Development (except of Woreda Saylem), Woreda representatives and foresters, the Kaffa Forest Coffee Farmers cooperative Union and sometimes community representatives were present as well. After acceptance of proposed sites, the site was visited. In some cases the participation of community was not necessary due to absence of in direct vicinity of the selected site (mainly for reforestation). In that case, the site was automatically qualified for final site selection (e.g. Gesha, Saylem woreda, assigned reforestation sites at dried bamboo areas). Normal procedure after conducting "round tables" the site and adjacent communities (also stakeholders) were visited and a Participatory Rural Appraisal was implemented. Due to the number of selected sites, it was not possible to fully implement PRA on every proposed site for "Community Plantation". Instead unsystematic in-depth interviews were conducted. The advantage of in-depth interviews is the possibility that introduced persons can lead an interview. Visiting the selected site (Plot), site characteristics (slope class, altitude, ownership, land form, accessibility, erosion, grazing impact, forest disturbance, and wood collection) and species composition (crown cover, dominant tree species, description of natural vegetation) had been recorded. Remote areas were visited and invested by rangers. Information was gathered by Mr. Muluken Mekuria, the local expert contracted for this task, and send for analysis. The gathered information was incorporated to the geodatabase and released into a standardized matrix sheet, which describes all important characteristics of the site and its function. Finally, the selected sites were displayed on thematic maps in 1 : 50,000.

b. Remote Sensing,

Different remote sensing, geoprocessing and geostatistic methods were used to create an up-to-date baseline of geodata for the study area. The following description should show how existing data were integrated and which accuracy can be expected from derived geodata.

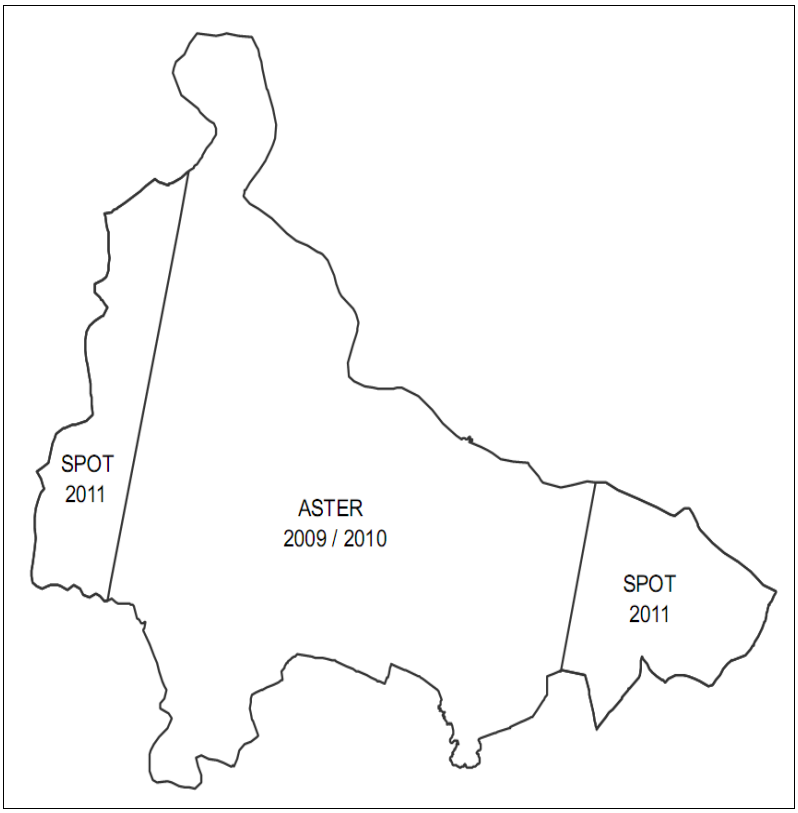
i. <u>Classification of Remote sensing data</u>

Satellite images can be used for LULC classification and monitoring. The basic principle contains the reflection characteristics of the electro-magnetic spectrum for different surfaces.
5 scenes of the ASTER satellite are available for the BR. Although the images were not taken in the rainy season, edge parts of the ASTER images have a thick cloud cover. For these areas SPOT images have been used.
Topographic maps were only used for referencing or comparing issues because of the age of the maps. Details of the used data are given in the following table and map 3.

[1] "Vacant areas" refer to areas without agriculture, forest, wetland or visually detectable anthropogenic use. Visual detected was done on SPOT5 images. Characteristic of "vacant areas" is a LULC with scattered trees and grass or shrub layer.

Data	Acquisition date	Resolution / Scale
Satellite imagery		
ASTER	16.01.2010 (3 Scenes) 10.01.2009 (2 Scenes)	15 m 15 m
SPOT	05.02.2011 (3 Scenes) 06.02.2011 (2 Scenes)	2.5 m 2.5 m
Topographic Maps	1985 (14 Maps) 1977 (1 Map)	1:50,000 1:200,000

Table 6: Basic data for LULC classification



Map 8: Spatial distribution of basic data

All satellite images were georeferenced and transformed into the UTM37N coordinate system. The ASTER satellite images partly show positional deviations from topographic maps and existing GPS tracks. Therefore, a correction was done by using well-identifiable objects like streets.
Channels of the visible and near-infrared were used for LULC classification.

The following classes could be separated:

- Forest
- Bamboo Forest
- Coffee plantation
- Tea plantation
- Bare soil
- Shrub / Bush

- Wetland
- Agriculture / Grazing area
- Pine plantation

The unsupervised and supervised classifications were used for the identification of the LULC classes. The unsupervised classification was done with a cluster analysis by combining pixels of similar spectral properties. The supervised classification required the definition of training areas for assigning pixels to classes.
Because of very similar spectral signatures (especially Wetland, Forest, Agriculture / Grazing area) different misclassifications occurred, that had to be adjusted during post-processing. Single outlier pixels have been eliminated and misclassifications were rearranged and newly digitized.
The forest class mostly could be identified. However, there was no difference between vital thick and degraded forest, as transitions were not clear enough to be identified.
Bare soil could be classified very easily because of its clear signature. This is also true for huge parts of Agriculture / Grazing area. Many problems were caused by single trees or smaller groups of trees.
Wetlands could be identified because of its characteristic structure, but the signature is very similar to that of forest or agriculture / grazing area.
Tea and Pine plantations could be identified visually and have been digitized. They cover only very small areas.
The towns were digitized on the basis of the satellite images.

Confusion matrix

	Reference data							
Classified data	A	B	F	S	W	Total	Producers accuracy	Users accuracy
A	**70**	2	6	6	9	93	0,82	0,75
B	6	**52**	0	0	0	58	0,96	0,90
F	5	0	**64**	0	24	93	0,70	0,69
S	4	0	1	**54**	0	59	0,90	0,92
W	0	0	20	0	**34**	54	0,51	0,63
Total	85	54	91	60	67	**357**		

Table 7: Cofusion matrix for remote sensing classification

Overall accuracy = 0,77 Kappa coefficient = 0,71

A = Agriculture / Grazing area
B = Bare soil
F = Forest
S = Savannah
W = Wetland

The classification was accomplished for the 5 LULC-Classes Agriculture / Grazing area, Bare soil, Forest, Savannah and Wetland. The classification accuracy for the individual classes show significant differences. The mean classification accuracy is 72.55%. According to the favourable recording time of the satellite images, agriculture was not that leafy and could be easily separated from the forest class.
Bare soil contains all sights without vegetation as well as all build-over sights like buildings or paved roads. As these sights have a special spectral characteristic they could simply be separated.

The wetland class with its vital vegetation has a forest-like spectral signature; therefore a lot of incorrect classifications occurred between the 2 classes. As a follow-up, wetland could be manually separated from forest due to its special structure.
The pixel values of savannah were sometimes merged with agriculture, but – like all other classes - they could be validated and corrected after the classification.
On the basis of SPOT satellite images, topographic maps, SUPAK-data and GPS ground control points (GCP) and the classification results additional classes could identified and digitized, including Bamboo Forest, Coffee investment area, Pine plantation, Shrub / Bush and Tea plantation.

ii. DEM production and assessment of erosion

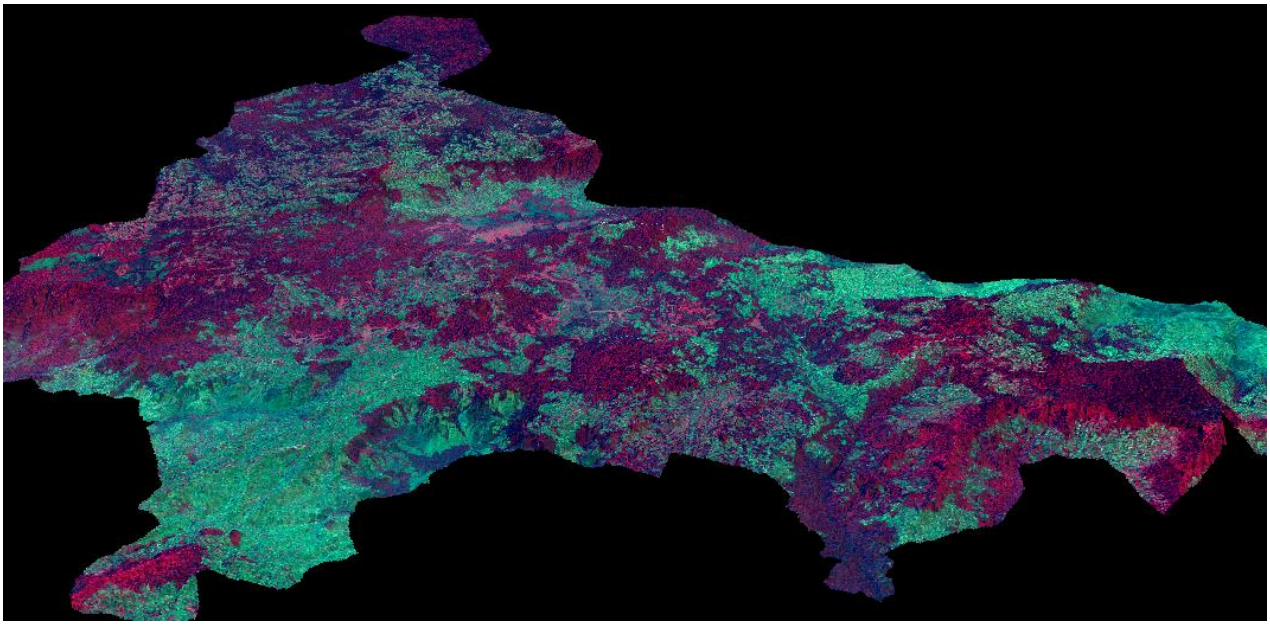
Most relevant factors for landslides and soil degradation are dependent on spatial criteria which were analyzed in this study. The project region Kafa is vulnerable towards landslides and soil degradation due to the distinct topography and human intervention such as road construction or land use. Different studies conducted in the Ethiopian highlands, highlighted especially deforestation, overgrazing, and cultivation on steep slopes are main drivers of soil degradation. Climatic factors and seasonal rainfall variability should be considered as well as important, but due to data shortage they could not be integrated in the analysis.
To estimate areas with high susceptibility towards erosion, a Digital Terrain Model (DTM) was interpolated. Information of different sources were homogenized and contributed to the final DTM product.
Incorporated sources:

- Height points of all Topographical Maps (EMA)
- In situ measurements of field survey in 2008 (MSc. Elisabeth Dresen)
- In situ measures of field survey in 2009 (Diploma thesis Jan Schormann)
- GDEM of NASA (http://asterweb.jpl.nasa.gov/gdem.asp)
- Rivers and perennial streams (different sources)
- In situ measurements of both field visits (February / May)

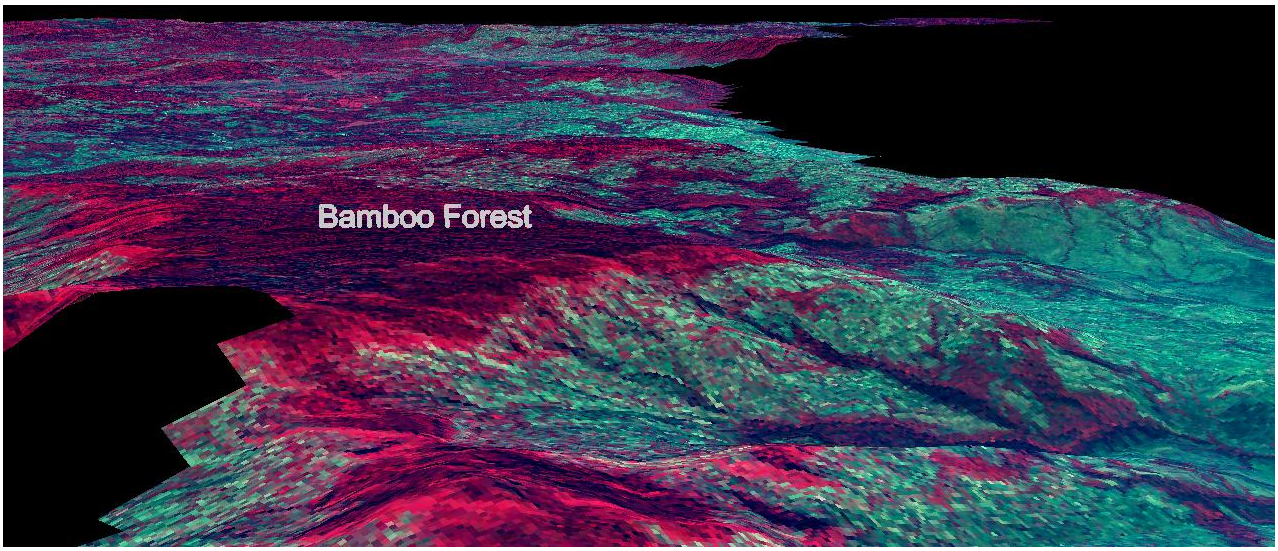
A weighted suitability was derived by testing reference height points (accuracy ~ 15m) with data sources. After calibration, a continuous DTM was interpolated by using standard GIS methods (Topo to raster, by Hutchinson 1988).
DTM characteristics:

- 30 m resolution
- hydrological corrected
- derived of Satellite Imagery (ASTER) and ground measurement
- Extent as BR

Problems that occurred:
The height values of northern region (Woreda Saylem) are biased due to a permanent cloud cover in ASTER data and missing TM.
Close to rivers, the incline is overestimated. This is caused by the interpolation method chosen. This was calibrated by using a variability map and masking areas with outliers.
Small, local artifacts might occur (espec. in flat terrain)



3D view of BR with draped Satellite Image (areas in red indicate forest)



Intact forest cover on steep slopes and mountain tops

Map 9: 3D view on Kafa Biosphere Reserve

The visualization in 3D is helpful to comprehend the complex terrain, to be able to classify satellite images in different land cover classes. It becomes clear that Land Cover is highly correlated to slope classes. Steep slopes and mountain ridges are predominantly covered by forest while flat areas are either converted to agriculture or influenced by water, thus classified as wetland.

Slope Classes for Forest (ha)

CLASSES	SUM_AREA_HA
Undulating	85807,87
Easy Rolling	81409,54
Rolling	53108,07
Flat	46034,31
Strongly Rolling	37405,95
Moderately Steep	19968,31
Steep	16974,35
Very Steep	6594,23

Slope Classes for other land cover/Matrix (ha)

CLASSES	SUM_AREA_HA
Undulating	117096,81
Easy Rolling	104590,66
Rolling	60032,15
Flat	50976,06
Strongly Rolling	34965,34
Moderately Steep	15242,02
Steep	10356,43
Very Steep	4175,19

Table 8: Slope classes concerning forested areas and other land cover

Furthermore, derivatives of the DTM serve as indicator for potential reforestation sites. While the intact forest cover is not relevant for the analysis, the matrix (such as agriculture or wetland) is of major concern for tree planting.

Slope Class	Inclination
0 - 3°	Flat to gently undulating
4 - 7°	undulating
8 - 11°	Easy rolling
12 - 15°	rolling
16 - 20°	Strongly rolling
21 - 25°	Moderately steep
26 - 35°	steep
> 35°	Very steep

Table 9: Slope classification

The BR is distributed as follows, on the different slope classes:

Slope Classes	Area ha
Flat	99123,21
Undulating	201050,82
Easy Rolling	185170,5
Rolling	113562,81
Strongly Rolling	72349,11
Moderately Steep	35521,74
Steep	27343,35
Very Steep	10791,36
	744912,9

The selection of sites concerning erosion susceptibility for tree planting is based on different spatial factors.

- slope > 20° (moderately steep – very steep)
- land cover (absence of forest cover)
- distance to road network (road construction is often a risk aggravating factor)

c. GIS

i. Model production

Efficiency reasons (time, resource) required a rapid assessment of potential areas for the project activity. Due to a sound geodatabase, GIS-models could be developed.
A big advantage of models is the possibility of calibration towards new findings. The incorporation of new information is easy and different scenarios can be tested. But the selection of sites is only representing criteria which are recorded in the geodatabank and can only serve as a pre-selection of potential sites for project action. This was the intention of the model design.
To consider the various requirements of different project action, it was necessary to provide

models which are adopted towards the project component.
Each component (Agroforestry, Community plantation, Reforestation) of the analysis is based on different criteria, thus three different models were developed to select appropriate sites. This is a necessary step to adapt the model to the real condition.
The spatial models are created by using ESRI software (ArcGIS 9.3.1) and they are one of the deliverables at the end of the contract. If used in ESRI environment, they can be adapted easily and weights of the different parameter can be changed. If maintained on occasion, the models could serve for site selection even in the future.

1. *Agroforestry*

The criteria of project component "Agroforestry" were recommended by the National Project Coordinator of NABU in Addis Ababa.
One important criterion is the accessibility (distance to road network) of the site. First, it will facilitate the monitoring and success/failure control, second the plant material transport is easier and third, the pilot farmers should be located in exposed sites in such a way to raise the awareness level concerning good farming practices.
Furthermore, it is important to be able to show the potential of Agroforestry systems. As Agroforestry is an integrated approach of using the interactive benefits from combining trees and shrubs with crops and/or livestock, it is suitable for degraded farm land. Hence, the second criterion is the degradation of farm land. Degradation of agricultural sites can be roughly estimated by combining derivatives of the DEM with LULC.
Additionally, factors concerning population density were integrated. Farm sites in populated areas are more likely to be visited and seen by other farmers then remote places.
Final integrated criteria and its underlying data, to determine proposal sites for agroforestry are namely:

- Population density (derived from number of households / Kebele level)
- Capital vicinity (derived from digitized settlements → SPOT data; DEM for spatial distance)
- Road distance (GPS data of road network, TM of EMA)
- LULC around institution (derived from ASTER/SPOT)
- Degradation on-site (DEM and LULC)

2. *Reforestation*

Reforestation preliminary depends on spatial criteria, e.g. the distance to BR core zones, or the forest fragmentation.
The decision to select sites for reforestation purposes is mainly based on the aim to improve forest structure through defragmentation. The model could be calibrated towards the forest connectivity, between forest patches. From the ecological point of view, it is important to assure gene flow between all forest patches. Due to a high pressure on the land resource for agriculture, grazing areas or new settlements, it seems to be a promising strategy to create corridors (to improve forest connectivity) along perennial rivers. This strategy combines the positive effects of riparian forests (improve the water quality, avoid sedimentation and shade the rivers) and apart, the reforestation will not cause any conflict in land use rights, due to less intense use for agriculture practices close to rivers.
Another objective is to combat the fragmentation of core forests which is congruent to core zones of the BR in most cases, into small forested areas (forest patches). According to the in-depth

interviews this thread can only be alleviated by an obvious forest boundary demarcation with non-native species (e.g. Eucalyptus spec.).

Perforation of the forest is an increasing thread in Kafa region. Multitemporal satellite image interpretation revealed that cultivated patches in core forest have the tendency to increase rapidly. Accordingly, the perforations are a concern for reforestation and patches in core forests have high suitability to be assigned as potential reforestation site.

Another focus lies in increasing the area of medium and large core forests. Due to steady agricultural expansion and pressure on forest borders the protection of BR core zones is very important.

For the reforestation component mainly sites with degraded forest (e.g. along rivers) or the protection of BR core zones, which are close to other land-use (e.g. agriculture, grazing areas) were given priority.

The integrated final criteria and its underlying data, to determine proposal sites for reforestation are namely:

- Population density (derived from number of households / Kebele level)
- Small Perforation / huge perforation (derived from ASTER/SPOT LULC → fragmentation)
- Erosion vulnerability (derived from DEM and LULC)
- Core protection (derived from BR zonation intersected by LULC)
- Forest patches (derived from ASTER/SPOT LULC → fragmentation)
- Capital vicinity (derived from digitized settlements → SPOT data; DEM for spatial distance)
- Lack of riparian forest (digitized rivers → SPOT data and others)
- Road distance (GPS data of road network, TM of EMA)
- Forest loss (Change detection of 2008 – 2010/2011)

The spatial model below shows all integrated spatial tools, input data, interim products and additional integrated parameters.

This model can be adjusted and modified at every time. The component “reforestation” depends more than the other components on spatial criteria. Thus the model could be developed easily.

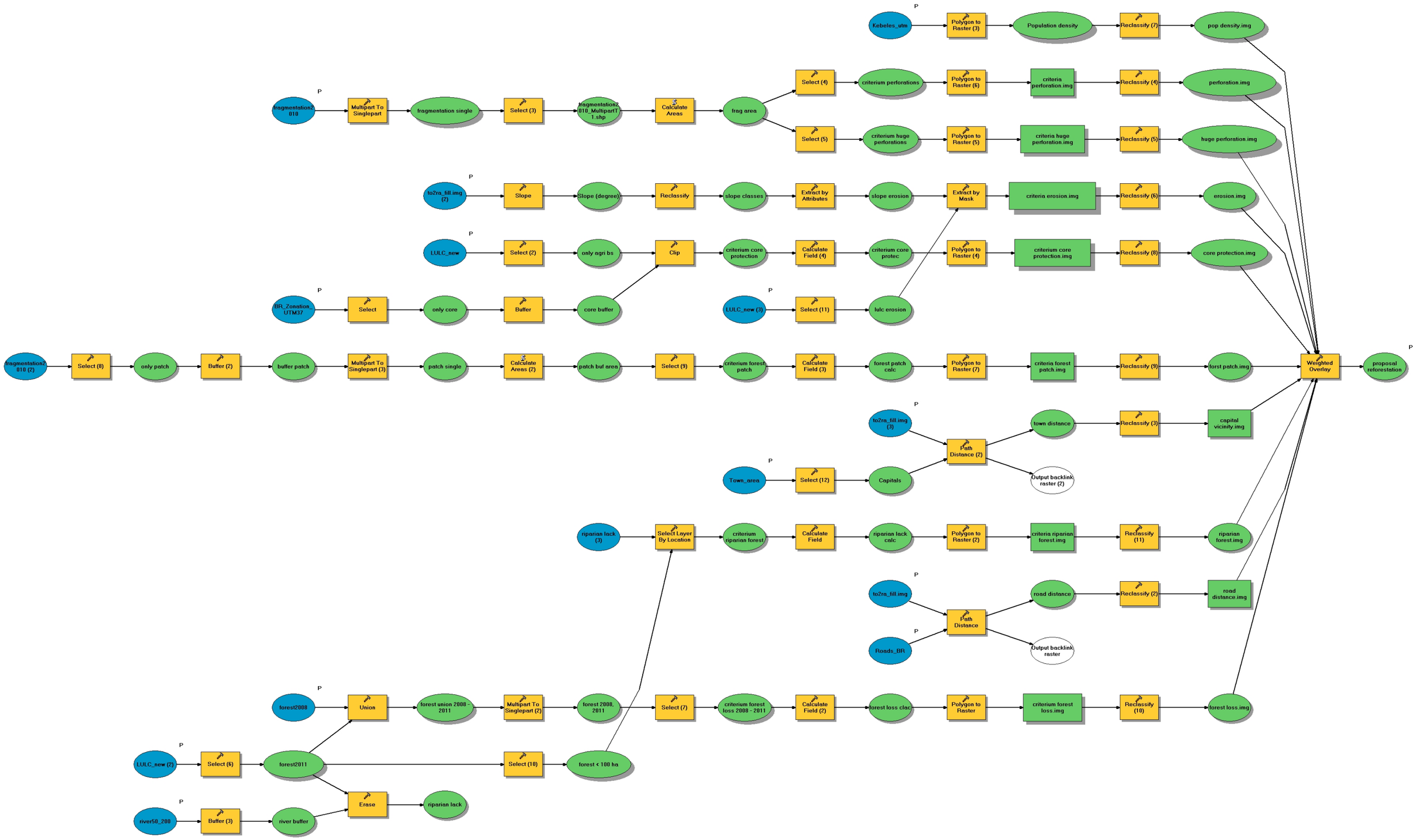


Figure 3: Spatial Model (ArcGIS) for component "reforestation

3. *Community Plantation*

The main criteria for establishing community plantations are land use rights. This criterion is the most challenging to capture due to the absence of a consistent land register with spatial information and the unsecure land rights in general.
The whole community should benefit from community plantations, either in forest products or by selling timber. Churches often harbour small wood lots in their surrounding and benefit from the NTFP or the profit by selling the timber. Thus, benefit sharing of community goods has already some tradition and can also be observed in the PFM initiative.
To guarantee a fair benefit sharing among the community members, the optimal site should be assigned as communal land. Unfortunately, there is no comprehensive register of real estate, where the communal land is accounted.
Some areas are resettled illegally (e.g. in Saja / Boginda forest). If information flow with the governmental body, concerning legal "land right" relocation could be established, it would be possible to detect "illegal" settlements by remote sensing techniques (change detection). The illegal settlements are a big threat within intact forests. The change detection of a previous work (Master thesis Elisabeth Dresen) show the tendency of once established "holes" in the forest cover grow year by year. This perforation of an intact forest will encourage more settlers to clear the forest. To hamper the illegal settlement within the forest, a specific taxation is in progress (communication with Mesfin Tekle). This will detract more settlements and on a long term, settlers might search for other opportunities. If adjacent to legal settlements, the abandoned areas could serve for "community plantations" (e.g. Boginda forest, refer to the detailed site description). The wood demand (fire wood, construction wood) of communities are considered as important source for being able to estimate the acuteness and prioritise areas with a high wood demand. A correlation of number of people and wood demand is assumed, while the facilities to process the wood could not be taken into account. It can be assumed, that if energy saving stoves are used, the wood demand will decrease. In all visited sites, the farmers were cooking on open fire.
Apart of land rights, some spatial criteria foster a successful implementation of community plantations.
Final integrated criteria and its underlying data, to determine proposal sites for community plantations are namely:

- Population density (derived from number of households / Kebele level)
- Small Perforation (derived from ASTER/SPOT LULC → fragmentation)
- Erosion vulnerability (derived from DEM and LULC)
- Capital vicinity (derived from digitized settlements → SPOT data; DEM for spatial distance)
- Road distance (GPS data of road network, TM of EMA)
- Forest loss (Change detection of 2008 – 2010/2011)

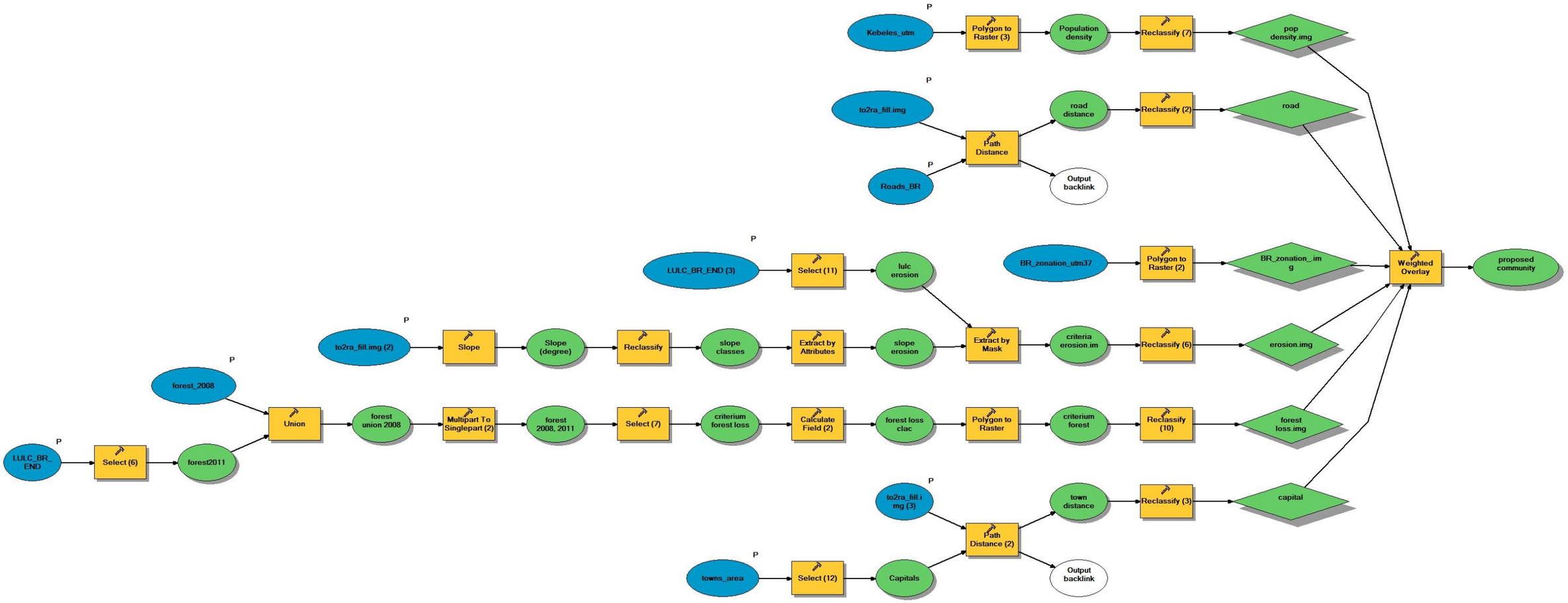


Figure 4: Spatial Model (ArcGIS) for component "community plantation"

d. PRA

During two field visits, participatory rural appraisal facilitated the sharing of knowledge and information on land resources, wood demand and land owner or land use rights between the project staff and the communities in order to select appropriate sites for the "Community Plantations" with regard to sustainable resource management. Due to the number of sites, it was not realistic to incorporate a full PRA at every potential "community plantation" site but feasible to conduct unsystematic in-depth interviews on site. The analysis design was calibrated and remote areas could be assessed by the rangers. The used PRA methodologies were namely,

- focus group discussions, (on community level)

This method was selected to determine the different levels of access and control of resources in the community to sustain their livelihood. It was a helpful tool to identify the main problems concerning land management within the community and a good entrance point for further information gathering.
In total 14 group-discussions were conducted, in which representatives of the local communities participated. Elders, females, young landless farmers and children were present of different share and contribution. Male community members were dominant in presence and discussion participation. The group-discussions took place in Adiyo, Gawata, Decha, Gimbo, Gesha, and Saylem and were partly conducted by the NABU rangers or DoAD staff.

- in-depth interviews, (on household level)

In-depth-interviews were held to be able to estimate the wood demand, to figure out past experiences with development projects and to gather additional information about problems occurring on community land. The interviews revealed opinions that would not have been discussed in public among the community members. Interviews were conducted in privacy, most of the time in the main tukul of the household. The aim of the interviews was also, to balance the gender of informants for gathered information. For all selected sites in-depth interviews were conducted, except for 17 sites namely

- Bita (Meligawi, amesha Mecheta, Shota, Tuga, Oda, Gaweti) → the rangers were not participating in conducting interviews
- Chena (Chomecha, Kuta Shoraye, Shishinda, Boba Bala, Wote Wora) → the rangers were not participating in conducting interviews
- Gimbo (Shocha)

It is recommended to draw socioeconomic data from these sites as well.

- producing sketch maps (community level)

Sketch map techniques were applied to get a detailed insight of the spatial distribution of resources and land use rights. These are geographical and environmental models of the community done by the community members themselves. The maps identify community boundaries, local resources and environmental resources. Furthermore, the aspect of soil degradation and field productivity or hazards (like landslides) could be included. It was possible to delineate areas which were left due to different reasons.

- transect walks (Kebele level)

Generally, the PRA team was guided by 2 – 4 community members to verify the information that was gathered with map drawings. In this regard the project team was able to get familiar with the diversity of land use patterns, erosion and slope processes, drainage patterns and the spatial extent of the community.

The production of multitemporal print out scenarios with and without project implementation turned out to be a coherent instrument for awareness creation. Different printouts were produced of the LULC within the community at present state, the planned procedure, two years later (with/ and without component) and four-five years later (with/and without component).
The scenarios are based on change detection of multitemporal Landsat imagery. The forest loss of the last ten years with a mean of 8% was extrapolated until year 2015. This procedure was recommended by the local Project coordinator (Bonga) and turned out to be a very important communication tool for the woreda administrative as well as for community group discussions. The different scenarios can be found in the appendix.

e. Capacity Building

"Without more and better higher education, developing countries will find it increasingly difficult to benefit from the global knowledge-based economy" (World Bank & UNESCO 2000)
The project could contribute to a small part in Capacity Building. Due to the importance of GPS and GIS it is important to support and increase the decision-making and responsibility. In this matter three workshops could be realized namely:

- GPS & GIS workshop I (two full days)
- GPS & GIS workshop II (two full days)
- GPS & map reading Rangers' workshop (one day)

The workshops were accomplished with Open Source software, which has the advantage that it can be copied, distributed and remain with the participants.
The workshops were a win-win situation for the participants and for the task which benefited of smooth data transfer from the project site to the international consultant after leaving the project region. Especially the ranger workshop resulted to be very important for the task. Only with the multiplicator of NABU rangers, almost all selected sites could be visited, without the help of the rangers this would not have been feasible.
Furthermore, communication with KFCU was facilitated which was important for data exchange concerning recently established PFM sites and harmonization of existent geodata.
Mr. Muluken Mekuria was employed during the whole timeframe (until 16.06) of the analysis as local backup based in the project region. During the timeframe of the analysis he could gain sufficient knowledge in operating GPS devices, so that he was able to support the rangers' work. In general, it seems to be important to bind resources to the project. This will bring additional benefit for the project and the staff.

f. Wood measurement

According to in-depth interviews and group discussions with rural communities it was found out that the major source of energy in Kafa region is based on wood. In the Woreda capitals

unsystematic interviews were conducted with restaurant and hotel owners or staff. Only two of seven were using kerosene (namely Coffee land hotel/Bonga and Mankira hotel/Bonga). Rural communities are very depending on the wood resource. “Forest means life to us! No wood, no food”, was once stated of an informant. Using charcoal is widespread in towns. To a very small amount crop residues are used instead of fuel wood, but only in the absence of dry wood.
It is reported from the northern part of Ethiopia that cattle dung is also commonly used instead of firewood, this could not be found in the Kafa region.
In-depth interviews in combination with wood measurement could reveal a systematic underestimation of the own wood consumption of the community members. The participants were asked to estimate the daily wood consumption in kg. The most frequent answer (whatever size of household!) was around 20 kg.
The wood measurements recorded (with balance) can be found below. Unfortunately, the numbers do not allow any statistical sound conclusion. Measuring wood frightened the people. They assumed to get punished because most of the firewood is gathered in governmentally owned forests.

Wood amount (kg) per day	people in HH	Kebele
11	2	Ufudo
28	3	Wushwush
30	4	Wushwush
32	4	Wushwush
32	3	Bonga
35	5	Michity
37	5	Kutti
38	4	Wushwush

Table 10: Wood measurement

It could be interesting to follow this approach to gain more reliable data. Perhaps, a correlation between fuel wood consumption and forest habitat can be found or reveal the differences of wood consumption and catchment area (urban, rural).
It is assumed that kebeles with higher population density have higher demand on fire wood. But probably, due to a bottleneck effect the inhabitants are forced to spend this resource more efficiently.
The in-depth interviews show, that preliminary women and children are responsible for the fire wood supply. This should not imply that only dry wood is collected. Many times even women could be seen, working with the ax. Other common practice is to slash the tree and leave it in the forest for drying. Step by step the tree is utilized as fire wood.

6. Results

a) Current status of the forest and its fragmentation

Fragmentation is one of the main criteria with different significance for the three components reforestation, community plantation and the introduction of agroforestry. This chapter addresses the landscape change and the forest habitat fragmentation in the Kafa Biosphere

Reserve while causes, concepts and recommendations should highlight the importance of action.

i. General Causes for Fragmentation

Forest fragmentation is defined as the „breaking apart“of continuous forest into distinct pieces. When it occurs three interrelated processes take place: habitat loss, subdivision into remnants or fragments, and introduction to other forms of land-use that replaced forest. There are various reasons for fragmentation. Conversion of agricultural land leads to fragmentation and isolation of forest habitats. Legal and illegal logging and extensive collection of woody material for firewood lead to forest degradation. In addition, natural habitat disturbance, increasing rates of fire, overgrazing of sensitive habitats are threats that may cause habitat loss. Overlaying reasons such as increasing population, and uncertain property and use rights of forested areas may be the triggering factors for increasing fragmentation and forest habitat loss.

ii. Concepts

1. Landscape Fragmentation Tool

In the fragmentation analysis morphological image processing for classifying spatial patterns at the pixel level on binary land-cover maps of the Kafa Biosphere Reserve was used. In morphological image processing an algorithm to classify forest patterns is defined by a sequence of logical operations such as union, intersection, complementation and translation using geometric objects called ‘structuring elements’ (SE) of pre-defined shape and size.

The „Landscape Fragmentation Tool“(LFT), presented by Vogt (2006) was used to perform the analysis. The LFT was jointly developed through a partnership between the Centre for Land Use Education and Research (CLEAR) at the University of Conneticut and Placeways LLC. The tool provides a morphological image processing method to quantify landscape fragmentation. It was designed to be used in ESRI's ArcGIS 9.2 geographic information system (GIS) software and allows users to analyse fragmentation using their own raster land cover information.

Preliminary reasons for using the LFT-approach in the analysis of forest fragmentation of the Kafa BR are
(i) to avoid drawbacks of alternative methods and
(ii) to exploit the advantages of morphological image processing.

The objectives can be summarized as follows:
1. Higher spatial precision and thematic accuracy of LFT compared to previous approaches based on image convolution (moving window) or patch-based approaches. Patch-based approaches are difficult to implement in large-area assessments due to the large number of patches and the large extent of the map.

2. Fragmentation indicators or indices at landscape level provide only a single value and are difficult to interpret independently of composition (Neel et al. 2004). In addition, landscapes

with substantially different arrangements of forest can have the same landscape-level index value.

3. Pixel-level classification such as LFT permits mapping and monitoring of spatial patterns at the pixel level. This provides a greater sensitivity to pattern changes over time.

4. Possibility to retain the capability to label fragmentation related features at the pixel level for any scale of observation.

5. Because of the higher accuracy of pixel-level mapping, summary statistics and trend analyses at landscape level is also more accurate.

6. Straightforwardness: clear distinction between different land-cover patterns based on pre-defined structuring elements.

2. *Land-cover patterns*

The LFT analyses the types of fragmentation present in the forest land cover type. Using LFT forest cover is classified as „perforated"' „edge"' „patch" and „core". **Core** forest is relatively far from the forest–no forest boundary. The entire area of the core is forested. The core category is further subdivided into large, medium, and small cores based on scientific literature suggesting thresholds for minimum viable forest patch sizes.
Small Core = smaller than 250 acres (101.17 ha)
Medium Core = between 250 and 500 acres (101.17 – 202.34 ha)
Large Core = larger than 500 acres (202.34 ha)

Patch forest comprises coherent forest regions that are too small to contain core forest. The forest is surrounded by non-forest land cover such as would occur with a small woodlot in an urbanized or agricultural area.

Perforated forest defines the boundaries between core forest and relatively small perforations such as would occur around a small clearing.

Edge forest includes interior boundaries with relatively large perforations as well as the exterior boundaries of core forest regions such as would occur along a large agricultural field or settlement area.

The width of edge and perforated forest was set to 100 meters. The edge width parameter determines the width of the edge and perforated forest zones as well as the thickness of patches. Edge widths reported in the ecology literature range from 50 meters to several hundred meters - depending on the issue of interest. An edge width of 100 meters is often used for general purposes analysis.

3. Thematic Sources

The fragmentation analysis is based on the classification of ASTER satellite imagery recorded in 2010. Furthermore, the fragmentation was estimated on Landsat imagery of year 2002. It is therefore possible to detect forest cover and fragmentation class changes for the investigated

period. To compare the different sensors with each other, the ASTER data were resampled to a spatial resolution of 30m. Forest represents only unmanaged, but not further stratified forest.

iii. Relevance of Fragmentation for Kafa Biosphere Reserve and Planning of Reforestation

In 2002 forested land covered approximately 80 Percent of the total land cover in the Kafa Biosphere Reserve (BR). Within the observed time period the BR experienced a total net loss of 9,178 ha of forested land resulting in 75 Percent of total land cover in 2010.

The fragmentation analysis classified 57 Percent of the forest as forest edge for the year 2002. Core forest (small, medium and large) at that time was about 30 Percent of the total forest area of which 22 Percent was covered by large core forest. 73 Percent of core forest was larger than 200 ha. The proportion of forest patches (isolated forests surrounded by non-forest land cover) in the total forest in 2002 was 3 Percent.

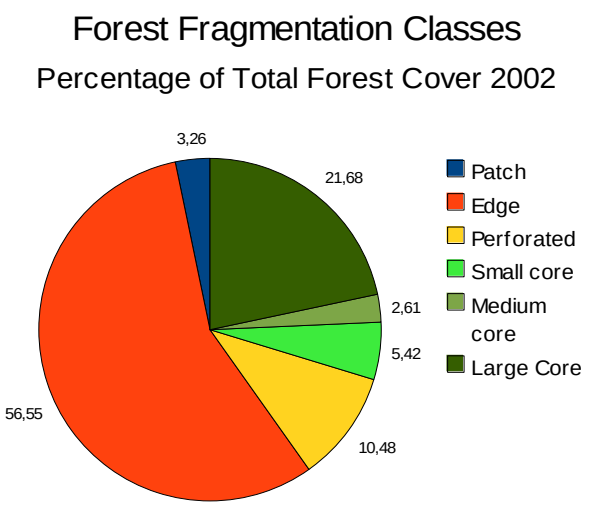
Overall, it can be stated that in consideration of the general forest loss for the period between 2002 and 2010, the relative proportions of the different fragmentation classes have only moderately changed. Still one can interpret the area shift as an indication for changing fragmentation processes. The most pronounced changes were found for the forest patch category with an increase of 56 Percent. Perforated forest recorded a loss of 36 Percent.

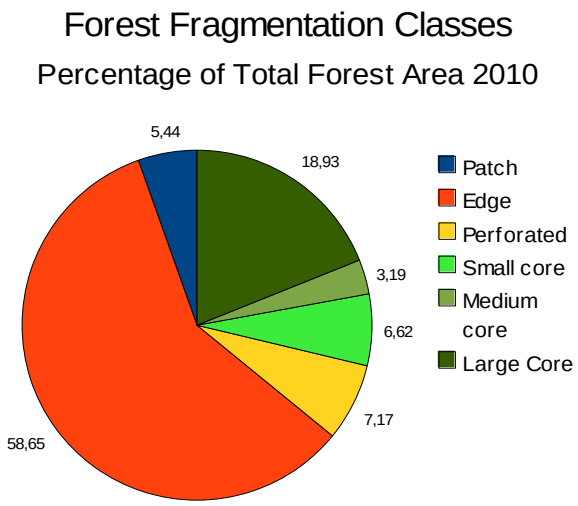
Overall, core forests in 2010 account for 29 Percent of the total forest land. This corresponds to a net loss of approximately 4,000 ha since 2002. While its share on total core forest was 73 Percent in 2002 it decreased to 66 Percent in 2010. The largest share of the loss of core forests comes from large core forest. It declined by 18 Percent or 5,500 ha, while small and medium core forest gained approximately 1,500 ha or about 14 Percent over the same period.

In addition to the pure loss of forest area the BR experiences a growing fragmentation of the forest which is illustrated most clearly by the growth of isolated forest areas (patches) and the decline of large core which is fragmented into small and medium-sized core zones.

Below are the tabular results of applying the forest fragmentation model to land cover in the Kafa BR in 2002 and 2010.

Forest Fragmentation Class	Cover (ha)			
	2002	2010	Change	Change (%)
Patch	4.489	6.993	2503,53	55,77
Edge	77.819	75.335	-2483,82	-3,19
Perforated	14.427	9.204	-5223,22	-36,2
Small core	7.455	8.497	1042,09	13,98
Medium core	3.597	4.093	495,47	13,77
Large Core	29.831	24.320	-5511,58	-18,48
Total Core	40.883	36.909	-3974,02	-9,72
Total Forest Area	137.619	128.442		-6,67
Net change	-9.178			





Planning of reforestation has to consider the structural situation of the forested land in the BR and take into account the on-going process of deforestation and fragmentation. The decision upon reforestation areas is based on the aim to improve forest structure through defragmentation. The main objective concerning analysis of fragmentation is to combat the fragmentation of core forests into small forested areas (forest patches). This aspect is well represented by connecting forest patches through intact riparian forest, which serves as corridor. Another focus should lie in increasing the area of medium and large core forests.

The fragmentation analysis is a helpful tool to find areas that are especially suitable for re- and afforestation from a structural point of view. In areas that are dominated by forest patches, afforestation and reforestation would reduce the negative effects of fragmentation. Both strategies would, in addition to the plain effect of forest area increase, create forest corridors which have a positive effect on the landscape structure by turning forest patches into forest cores.

1. *Outlook and Recommendations*

Destruction and fragmentation of habitats are major factors in the global decline of populations

and species, the modification of native plant animal communities and the alteration of ecosystem processes. In view of the commitment of the biosphere reserve to protect and use wild coffee as a special ecological and economic resource in a sustainable way, the protection of forests contributes to the conservation of biological diversity. The forest management within the biosphere reserve should prevent further fragmentation of the forest primarily by avoiding further deforestation. Loss of forest inevitably leads to an increase in forest fragmentation. Regardless of the particular management zone, especially those forests should be preserved and enlarged that today are classified as forest patches because of their small size. Possible core forests should be protected at their edges through cutting bans and strong boundary demarcation. The positive influence of core forests on the biodiversity could be enhanced by reducing the proportion of perforated forests within core forests.

b) People and Forest

In general forest management and protection has its focus on efficient and sustainable management of trees. The project component incorporates land use planning which implies the relevance of human activity. The negative impact of people living in and adjacent to forests is outlined in many studies regardless of their strong relation on this resource and their tradition to live with the forest. Demographic changes are forcing the people to deplete the resource they depend on. In the Kafa region this contradictory development can be observed very well. Anyhow, people living in and adjacent to forests have their experience to use forest resources and their future is strongly related to the future of the forest. Different actors such as private investors, unsecure land use rights and the enforcement of changing settlement policy are negative synergies which intensify the situation.
The challenge of today is to incorporate the traditional knowledge of rural people into management concepts and give these people a voice whose livelihood is depending on that resource we want to protect.

iv. PRA

Different PRA techniques were applied to get an overview of problems, needs and expectations of rural communities.
The project component “Community Plantation” can give the rural community the possibility to shape their future and contribute with traditional know-how in the field of silviculture.
Group discussion and in-depth interviews are summarized to Woreda level to be able to give a broad overview on aspects which influence the analysis activity. Direct site related information is incorporated into the geodata and influenced the site selection.
PRA summary on Woreda level:
Adiyo:

- Family size is smaller than in other Woredas (mainly 1 – 5)
- Many re-settler and migrants
- Diversified livelihood income due to spices and MPT (mainly mango) on farm
- Lack of land for agricultural activities but enough for grazing
- Production of charcoal
- Wood demand is covered by woodlots from homegarden
- Forest grazing is practiced
- Awareness concerning forest loss (decrease in size and density)

- Erosion is not a severe problem or is sufficiently tackled (FAO initiative)
- PFM is well known and participated

Chena:

- Lack of land for agriculture
- Lack of land for grazing
- Agroforestry is known and practiced
- Awareness concerning forest loss (decrease in size and density) → recommendation to combat by strong boundary demarcation
- Erosion is a severe problem (Wara Bamba, Agaro, Dosha, donga)
    - High demand for technical assistance
- No effective erosion measures
- Population pressure is highlighted
- Fire wood mainly from woodlots (Eucalyptus)

Decha

- Relatively big HH (11 – 15)
- Agroforestry is well known and practiced
- Forest loss is not recognised by all informants
- Erosion is a severe problem but frequent training is offered but not efficient
    - Lack of seedlings → high demand from different interviews and group discussions
    - Lack of technical assistance
- PFM is well known and practiced
    - PFM could stabilize deforestation
    - Forest is increasing in density

Gawata

- small land holdings (0.25 – 1 ha)
- Diversified livelihood due to different species on site (intercropping is practiced)
- Lack of land for agricultural activities
- Communal grazing is widespread
- Agroforestry is known and practiced
- Charcoal production
- Additional income is honey
- Erosion is not a severe problem, training was offered
- Wood supply of forest and PFM
- Good suggestions to replace artificial fertilizer DAP and URIA by biological measures
- Awareness concerning forest loss (minor decrease in size and minor decrease in density) → recommendation to combat by strong boundary demarcation

Gesha

- No coffee for livelihood support
- Main livelihood support is livestock
    - mainly single grazing
- Agroforestry is well known and practiced
    - Honey is important NTFP
- Lack of fire wood
- Erosion is a very severe problem
    - Demand for technical assistance
    - Demand for training
        - Very good options for agroforestry

- Awareness concerning forest loss (decrease in size and density)
    - Underlying reason: illegal settlement and population pressure
- PFM is known, partially fears to participate
- Problems with fresh water supply

Gimbo

- Main livelihood support crop (less livestock) and labour
- Many re-settlers and Migrants
- Agroforestry not known
- Diversified livelihood income due
- Erosion is a problem, training offered
    - Demand for follow-up
- Biosphere Reserve Concept by the majority not known
- Severe problems in sharing forest resource (landless youth are mainly named as reason)
    - Area for resettlement in 2005
- Lack of land for grazing activities
- PFM is well known and participated
- Awareness concerning forest loss (decrease in size and density)

Saylem

- Small land holdings (0.25 – 1 ha)
- Main livelihood support is livestock
    - mainly single grazing
- Minor important crop maize
- Agroforestry only partly known
- Very high estimated wood demand
- Lack of fire wood
- Erosion is a severe problem
    - Lack of manpower
    - Lack of training

c) Tree selection

The recommendation of particular species for the implementation of the different components is not adapted to the specific site conditions of every selected site (plot). The selection is based on own observation, discussions with local communities and a literature review and can only support the final species selection which has to be based on first-hand experience of species' performance under any given set of site conditions. Whiles the duration and sophistication on such experiments might vary, its importance cannot be overemphasized. Trials in tropical reforestation programs show that even the good performance of a specific species in a tree nursery is not a guarantee for an optimal result. Due to various growth rates, the ability to adapt and fertile top soil from the nursery (if not planted bare rooted) direct decisions about the capacity of a species growth performance under existing site conditions is hampered.
The choice of proposed species is influenced by the objective of the component. The capacity of a given species to meet the objectives depends on a series of different characteristics, such as growth rate, tolerance to withstand heavy sun or degraded soils, the availability of seeds and ease of propagation, and the acceptance of the local people. According to respect the different objectives of the components, the species selection is divided into "species for reforestation purposes", "species for community plantation", and the introduction of "Agroforestry". Species

characteristics are presented in the form of data sheets for each selected species. These include brief information on the species'' natural occurrence (Habitat/Ecology) within Ethiopia, species characteristics (habitus), climatic and edaphic preferences (growing area), silvicultural characteristics (management), and additional remarks (such as production potential or traditional usage).

Reforestation of degraded natural forest with native pioneer-tree species

Albizia spec. (probably A. **gummifera**: engl. peacock flower or A. s**chimperiana**) / possible also for agroforestry

Habitat / Ecology	Habitus	Problems / Concerns	Growing area	Mixt.	Plant ass.	Management	Remarks	Information / Sources
common in lowland and upland rain-forest, riverine forest and in open habitats near forests. It occasionally appears as a pioneer species in forests and in thickets.	large deciduous tree 4.5-30 m, branches ascending to a flat top. Crown flat; bark smooth and grey. Leaves bipinnate in 5-7 pairs, leaflets dark green roughly similar in size but top pinnae in 9-16 pairs,	*Albizia schimperiana* is widespread and locally common, and not threatened by genetic erosion. However, locally populations are under great pressure because of deforestation and poor regeneration, e.g. in Ethiopia A. gummifera. Young trees are often damaged by strong wind, from which they should be protected. Further tests are needed to confirm its promise as an auxiliary tree in agroforestry systems. Once adequate vegetative propagation techniques have been developed, *A. gumm.* deserves to be promoted for planting.	Altitude: 600 - 2300m		Moist evergreen forest: this vegetation-type is characterized by tall and medium-sized emergents, and understorey shrubs. Emergents include *Aningeria adolfi-friedericii*, *Albizia gummifera*, *A. grandeabracteata*, *Macaranga capensis* and *Ocotea kenyensis.* Typical understorey shrubs include *Chionanthus mildbraedii* and *Psychotria orophila.*	***Propagation methods*** Use of seedlings, direct sowing at site and wildings are popular modes of propagation. ***Tree Management*** Lopping and coppicing while young to improve form -erosion control: The root system of A. gummifera holds soil and prevents gulley erosion. Shade or shelter: Is a useful shade provider in homes and pastureland. Nitrogen fixing: Known to fix Nitrogen. Soil improver: Known as a good mulch tree Planting in pure stands is not recommended because of the greater risk of pest problems. Planted trees can be managed by coppicing. The addition of NPK fertilizer is recommended for seedlings. In planting experiments in Ethiopia, *Albizia gummifera* showed a survival rate of 94%. Young planted trees can be managed by coppicing and lopping. **Handling after harvest** Freshly harvested logs float in water and can be transported by river. Treatment of the logs with preservatives is necessary if they are to be left in the forest for some time, to avoid damage by fungi or insects. Prospects: *A. gummifera* is a multipurpose species. It seems to have good prospects as a commercial timber tree in sustainably managed forests and in afforestation projects.	**Apiculture**: Bees visit the nectariferous flowers. **Fuel**: The tree provides good fuelwood. **Timber**: Bears pale brown heartwood of medium strength. Used as timber but not very durable. timber is highly susceptible to wood borer attack.	http://www.worldagroforestry.org/sea/Products/AFDbases/af/asp/SpeciesInfo.asp?SpID=1757 http://database.prota.org/dbtw-wpd/exec/dbtwpub.dll

Table 11: Reforestation of degraded natural forest with native pioneer-tree species - Albizia spec.

Reforestation of degraded natural forest with native pioneer-tree species (also agroforestry)

Cordia africana (East African cordia, large-leafed cordia, Sudan teak); Amharic: wanza

Habitat / Ecology	Habitus	Problems / Concerns	Growing area	Management	Remarks	Information / Sources
Altitude: 550-2 600 m, Mean annual rainfall: 700-2 000 mm Soil : Large leafed cordia thrives in forest soil. occurs at medium to low alt., in woodland, savannah and bush, in warm and moist areas, often along riverbanks-frost tender. grows in drier conditions but thrives in good rainfall areas riverine forest and secondary bushland, transgressing into humid types of woodland. clearings in montane forest, and wooded grassland at 500–2200(–2700) m altitude. The annual rainfall in its area of distribution is 900–2000 mm, with a dry period of 3–4 months and an estimated mean annual temperature of 16–22°C. prefers deep, moist but well-drained soils, but can also be found on rocky slopes.	Up to 25m heavily branched with a spreading, umbrella-shaped or rounded crown. Bole typically curved or crooked. Bark greyish-brown to dark brown, smooth in young trees, but soon becoming rough and longitudinally fissured with age	- Young trees can be attacked by nematodes - Locally, especially in Ethiopia and Kenya, the exploitation of *Cordia africana* has been severe and led to depletion of natural stands. However, it seems unlikely that this species is under serious threat because it is widespread in different types of habitat, appears to have fair rates of regeneration and is commonly planted. - As a result of heavy exploitation of selected trees such as *Cordia africana, Pouteria adolfi-friederici* and *Prunus africana*, these species are reported as endangered by some studies (Ensermu Kelbessa and Teshome Soromessa 2004, Girma Balcha et al, 2002, Schmitt C. B., 2006) Deforestation coupled with the extensive exploitation of the species for timber production has led to its depletion, and the Ethiopian government has banned its cutting from natural forests though the problem remains unabated	afro-montane rainforest and undifferentiated afro-montane forest (mixed Podocarpus forest), usually along margins and in clearings. In southern Ethiopia it is considered one of the most important indigenous tree species, and the demand for seed is still increasing. Research in selectively logged rainforest in south-western Ethiopia demonstrated that *Cordia africana* has adequate regeneration and seems to have good prospects for sustainable management of timber production forest.	can be managed by coppicing, pollarding and pruning, Regular pollarding is recommended when *Cordia a.* is used as shade tree for crops to reduce shading. As a timber tree, *Cordia a.* can be grown in rotations of 40–50 years. Close spacing and regular pruning are recommended because the boles have a tendency to develop a poor form and numerous branches. Natural regeneration of *Cordia a.* in more closed forest is restricted to gaps early colonizer in forest regrowth. It is often left when forests are cleared for cultivation, as the tree is an excellent shade tree for crops ***Tree Management*** The species grows fairly fast, reaching 7-8 m in 7 years; management practices include pollarding, lopping and coppicing. ***Germplasm Management*** After extraction, seeds are dried in the sun to 6-8% mc; can be stored for at least 1 year in hermetic storage at 3 deg. C with no loss in viability. There are about 18 000 seeds/kg. ***Services*** Shade or shelter: C. africana is planted as a shade tree in coffee plantations; it is usually left in the fields, as it provides excellent shade for crops. Soil improver: Leaf fall in the dry season is heavy, and the leaves make good mulch. Ornamental: Trees are planted in amenity areas.	***Products*** Food: Mature fruits have a sweet, mucilaginous, edible pulp Fodder: Leaves provide fodder for the dry season. Apiculture: C. africana provides good bee forage, as the flowers yield plenty of nectar. Beehives are often placed in the trees. Fuel: Trees are a good source of firewood. Timber: The heartwood is pinkish-brown, reasonably durable, relatively termite resistant; it works easily and polishes well but is often twisted and difficult to saw. It is used for high-quality furniture, doors, windows, cabinet making, drums, beehives, joinery, interior construction, mortars, paneling and veneering. Medicine: The fresh, juicy bark is used to tie a broken bone; this splint is changed occasionally with a fresh one until the bone is healed.	http://www.worldagroforestrycentre.org/sea/Products/AFDbases/af/asp/SpeciesInfo.asp?SpID=588

Table 12: Reforestation of degraded forest with native pioneer-tree species - Cordia africana

Reforestation of degraded natural forest with native pioneer-tree species

Celtis africana (White stinkwood, Camdeboo stinkwood)

Habitat / Ecology	Habitus	Problems / Concerns	Growing area	Mixt.	Plant ass.	Management	Remarks	Information / Sources
It is **fairly drought resistant** and can withstand frost. It does best in good, rich, deep soil with plenty of water in summer. 1200-2200m over 1400 mm rainfall	Up to 25 m in forests; short with spreading crown in the open easy to distinguish by its smooth, pale grey to white bark. It may be loosely peeling in old trees and sometimes has horizontal ridges	In Uganda it has been recorded that *Celtis africana* **does not regenerate under the canopy**. In gaps regeneration was prolific. Seeds collected from the ground are mostly infested by insects, and it is recommended to harvest fruits directly from the trees when they turn from yellowish to brownish, and to dry them in the sun before extracting stones. These should be cleaned from fruit flesh before sowing.	in a **wide range of habitats** from the coast up to 2 100 m, from the Cape Peninsula northwards through South Africa to Ethiopia, where it grows in dense forest, on rocky outcrops, in bushveld, in open grassland, on mountain slopes, on coastal dunes, and along river banks and in kloofs.	by. *O. europaea africana*, *Allophylus abyssinica*, *Celtis africana*, *Croton machrostachys*, *Dombeya spp.*, *Ekebergia capensis*, *Olea hochstetteri* and *Prunus africana*	- Aningeria adolfi-friedericii, upland rainforest - Podocarpus forersts (coniferous), 2000 -2500m with Celtis in the lower(second stratum) layer - Mixed Juniper-Podocarpus Upland Evergreen Forest These forests are found as dispersed patches of forest in Oromiya, SPNN and Amhara Regional States. They are found between 1,500 to 2,700 where annual rainfall is between 700 and 1,100 mm. Mean annual temperature ranges between 14° and 20° C. The main canopy species are J.procera and P. gracilor between 20 and 30 meters high, with a well-developed strata of small to medium trees, chiefly O. europaea africana, Allophylus abyssinica, Celtis africana, Croton machrostachys, Dombeya spp., Ekebergia capensis, Olea hochstetteri and Prunus africana	grows fast, 1–2 m per year. First fruits may appear when trees are 4 years old. In Uganda it has been recorded that *Celtis africana* does not regenerate under the canopy. In gaps regeneration was prolific. *Celtis africana* is propagated by seed and wildlings. (iii) - It is a major co-dominant tree species - clustered seedling distribution at the base of overstorey trees. Vegetative regeneration by coppicing or sprouting also seems to be an important mode of regeneration	The timber has no commercial value. But it is a good general timber suitable for making planks, shelving, yokes, tent-bows and furniture.	http://www.plantzafrica.com/plantcd/celtisafrican.htm http://books.google.de/books?id=WKj_YqTU4AC&pg=PA86&lpg=PA86&dq=celtis+africana+ethiopia&source=bl&ots=tTORE_TvpU&sig=7S_mdPAmKZjofpCkWFbjZLDxIkY&hl=de&ei=wNI5Te3LA8OYOvHBpJ0L&sa=X&oi=book_result&ct=result&resnum=4&ved=0CDYQ6AEwAzgK#v=onepage&q=celtis%20africana%20ethiopia&f=false

Table 13: Reforestation of degraded forest with native pioneer-tree species - Celtis africana

Reforestation of degraded natural forest with native pioneer-tree species

Hagenia abyssinica (African Redwood), Amharic: kosso / Reforestation, but also possible for agroforestry!

Habitat / Ecology	Habitus	Problems / Concerns	Growing area	mixture	Plant ass.	Management	Remarks	Information / Sources
from 2000-3000 m elevation, in areas receiving 1000-1500 mm of rainfall - in the Bale mountains: In the upper zone between 3,000-3,400 m	20-30m short trunk, thick branches, and thick, peeling bark. The leaves are up to 40 cm long, compound with 7-13 leaflets, each leaflet about 10cm long with a finely serrated margin, green above, silvery-haired below. The flowers are white to orange-buff or pinkish-red, produced in panicles 30-60cm long.	The dry Afromontane forests in Ethiopia are composed of a number of indigenous tree species that are declining at an alarming rate in this ecosystem. The few reforestation programs, which have so far been undertaken, employ exotic tree species. This is mainly due to lack of knowledge on the environmental requirements of indigenous trees. soil fertility loss in the highlands: using dung and crop residues as household fuels and animal feeds, declining fallow periods, soil and organic matter burning (guie), low use of chemical fertilizers. Though the farming system in most part is mixed crop-livestock, nutrient flows between the two are predominantly one sided, with feeding of crop residues to livestock but little or no dung being returned to the soil. - unable to regenerate in areas suffering from a high level of grazing. Young trees have poor competitive ability	- Formerly one of the commonest high-altitude rain forest trees in Ethiopia. Now only scattered trees remain in Moist and Wet Weyna Dega and Dega agroclimatic zones upper limit of 3,000 to 3,400 the forest first changes to *Hagenia abyssinica* forest with scattered clumps of *Arundinaria alpina* (bamboo), then with increasing altitude to *Erica arborea*. - high-elevation Afromontane regions of central and eastern Africa. It also has a disjunct distribution in the high mountains of East Africa from Sudan and Ethiopia in the north. - often dominant in the woodland zone just above the mountain bamboo. *H. abyssinica, Hypericum lanceolatum* and *Erica arborea* dominate the forest formation, mostly mixed with *Juniperus excelsa*. *Erica arborea* occurs as a shrub at its uppermost distribution range. *Hagenia* can descent to an altitude of 2600 malong deep valleys and topographic depressions.	in mixed afromontane forest with Podocarpus, Afrocarpus, and other trees, and in drier afromontane forests and woodlands where *Hagenia* is dominant, or in mixed stands of *Hagenia* and Juniperus procera	- often associated with Schefflera abyssinica, S. volkensii, Galiniera saxifraga, Rapanea melanophloës and with the mountain bamboo, Arundinaria alpina; at lower altitudes often at forest margins. - clear example of an afro-montane endemic In Ethiopia, *H. ab.* is a dominant tree in subhumid montane woodland (rainfall up to 1250 mm per year). In humid montane woodland (rainfall up to 1600 mm per year), it occurs with the dominant tree bamboo *Sinarundinaria alpina*, together with *Schefflera volkensii*, *Hypericum* spp., *Ilex mitis* and *Nuxia congesta*	- Agroforestry - In Tanzania, planted or wildings are allowed to grow, interspersed throughout a field at a density of about **10 trees/ha.** To reduce light competition with crop and foster marketable bole development, the trees are pruned once each year in November, about two months before planting crops at the onset of the rainy season. Typically, annual prunings of mature trees remove 40-50% of the canopy height. Pollarding is suitable . - great amount of litter production -fast decomposition rates which makes it an effective nutrient pump. beneficial role in enhancing soil fertility status which in turn results in higher productivity. -regeneration cycle associated with heavy forest fires. Crucial by clearing the area of competitive plants and heating the prospective seedbed. - tolerant of fire, and heavy fires create ideal germination conditions for the small wind-dispersed seeds.	Remedy against tapeworm Agroforestry. Hagenia is one of the species that contribute tremendously valuable biological attributes in fertile soil formation and conservation. Moreover, it has a wide range of products and environmental functions such as medicine, timber, firewood, fodder, and mulch.	http://www.worldagroforestry.org/Sea/Products/AFDbases/AF/asp/SpeciesInfo.asp?SpID=949 Measuring Soil Fertility under Hagenia abyssinica (Bruce) J. F. Gmel by the Biotest Method. (International Journal of Agronomy Volume 2010 (2010), Article ID 845087, 5 pages doi:10.1155/2010/845087)

Table 14: Reforestation of degraded forest with native pioneer-tree species - Hagenia abyssinica

Reforestation of degraded natural forest with native pioneer-tree species

Macaranga spp. (probably M. capensis), engl. Spiny macaranga, Wild poplar

Habitat / Ecology	Habitus	Problems / Concerns	Growing area	Mixt.	Plant ass.	Management	Remarks	Information / Sources
In evergreen forest and along stream banks.	Medium to large tree (10-30m). Bark pale grey, smooth with whitish horizontal markings; trunk often buttressed in large specimens; *branches often armed with short spines*. Leaves spirally arranged, broadly ovate, up to 20 × 25 cm, more or less deeply cordate and often peltate at the base, 5-11-veined from the base, *densely golden-gland dotted below*; margin glandular-dentate to almost entire. Flowers in branched racemose inflorescences, greenish to creamy-yellow, unisexual, on different trees. Fruit subspherical, rarely 2-lobed, up to 6 × 10 mm, covered in yellowish-green glands when young, smooth, hairless and green when ripe.	Not found	Up to 1400 m From S Ethiopia south to S Africa In Kafa region among most common tree/shrub species recorded	Not found	*Croton macrostachyus, Phonix reclinata, Vepris dainelli, Sapium ellepticum, Pouteria adolfifriedericii, Chionanthus mildbraedii, Draceaena steudneri, Schefflera volkensii, Milletia ferruginea, Chionanthus mildbraedii,* ***Macaranga capensis,*** and *Psychotria orophila.*	Not found	hollow stems that can serve as nesting space and occasionally provide nectar. The trees benefit because the ants attack herbivorous insects and either drive them away or feed on them	http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=134990

Table 15: Reforestation of degraded forest with native pioneer-tree species - Macaranga spp.

Species for Community plantation for wood supply

Eucalyptus spec. (particularly, E. globulus, E. citriodor, E. camaldulensis, E. saligna, E. grandis)

Habitat / Ecology	Habitus	Problems/ Concerns	Growing area	Mixt.	Management	Remarks	Information / Sources
Eucalyptus species are tolerant to severe periodic moisture stress, low soil fertility and fire and insect attack		Replaced the slow-growing native Juniperus procera strong tendency of the local people towards planting Eucalyptus plantation. The local people are replacing all the available fields including arable lands and farm yards with monoculture of eucalyptus plantation. Eucalyptus is planted along river courses, near wetlands, even on farm yards. Due to its economic feasibility, the attitude of the local people changing rapidly in favour of this species. The consequences of the above pressure are not limited on degradation of the land. It has also a direct effect in the water balance of the area that could result in drying up of the perennial rivers and loss of biodiversity. Adverse reactions against eucalyptus planting are based on some ecological, technical and socio- economic arguments.	From 600 different varieties 10 eucalyptus species are widely planted virtually in all sites and ecological zones of Ethiopia except the most arid. In most parts of the country, e. g., Hossahena and Wollayta , eucalyptus became the main stay of the community for additional income generation.	planting of E. globulus is justified until the current fuelwood shortage is eliminated. In the long run, parts of Ethiopian Eucalyptus plantations may naturally alter in composition into stands of indigenous highland species, e.g. Juniperus procera, Podocarpus gracilior and Olea africana.	Yield: Up to 45 m³ /ha/ a Fast growing, requires little attention, grows up from the roots when cut. Should be managed selectively, no clear-cut can be harvested every ten years. E. globulus, for instance, has a strong tap root and good lateral root system that makes it very reputable species for **catchment protection**. The soil nutrient levels under eucalyptus forest could also be improved by adjusting spacing and introducing leguminous planting. Mixing eucalyptus with acacia species (e. g A. nilotica which produces high amount of litter, 8000kg/ha/yr) increase the litter fall and thereby improve the soil nutrient bank. → eucalyptus roots deeper than wheat and protects the soil from eroding. This is why it makes sense to plant eucalyptus between crops, plants and bushes, if not planted too close. Wheat and other crops will also grow in soil formerly planted with eucalyptus.	the presence of mycorrhizas is an advantage to most eucalyptus species which facilitates accumulation of nutrients even in poor soils	http://www.etff.org/Articles/Eucalyptus.html https://zidaps.boku.ac.at/abstracts/oe_list.php?paID=3&paSID=3536&paSF=-1&paCF=0&paLIST=0&language_id=DE

Table 16: Species for Community plantation for wood supply - Eucalyptus spec.

Species for Community plantation for wood supply

Arundinaria alpine, now Yushania alpina (African alpine bamboo)

The local name of this species in Affan Oromo is Lemen, while in Amharic, it is known as Kerkeha

Habitat / Ecology	Habitus	Problems / Concerns	Growing area	Plant ass.	Management	Remarks	Information / Sources
Mountain woodlands and highland forests 2200 – 3200m (3500) minimum: 1500 mm/yr mean: 1700 – 2200mm /yr Need moderately fertile soils	Y. alpina is a tufted, sympodial bamboo with erect green culms ranging from 2 to 19.5 meters in height. The diameter of the culm ranges from 5 to 12.5 cm.	Susceptible to termites and borers. Currently, there are very few plantations of Y. alpina in Ethiopia. Most of the highland bamboos in the country grow naturally in forests. The uncontrolled exploitation of this resource, however, has resulted in reduced yields and deterioration in quality. Considering the economic importance of Y. alpina, the continuity of bamboo supplies for local and urban uses will depend on the establishment of plantations and on the effective management of existing forests. The woody stems have many local uses: roofing poles, fences, walls, local furniture, local spinning tools, containers for grain, basketry. The stem is split into strips of different sizes. Shoots, leaves and young stems can be used for fodder and are eaten by wild animals. Bamboo fencing has been used in soil-conservation structures.	Mountain gorges and tops, usually in Moist and Wet Dega agroclimatic zones, up to 3,000 m. The grass grows in dense stands with a leafy canopy and stems so close that one can only pass through with difficulty. A valuable forest crop which should not be overexploited. Over the last 10 years, the resource base has been significantly reduced because large areas of indigenous bamboo forests have been cleared for conversion to agriculture. This is the case in the highland areas of the country.	*Open canopy of 5-12 m high trees. Poor specimen of Juniperus procera, with Hageina and Erica*	Total Area in Ethiopia: 148,000ha, 130,000ha are in good condition B. farming can be a lucrative business. The current price of bamboo poles of Y. alpina ranges from 7-12 Birr per piece. Given the growth of the industrial bamboo sector in the country, farmers who take up the challenge of bamboo cultivation can virtually be assured of an extra source of income. Current use of highland bamboo is for furniture (traditional processors and modern workshops), house construction, fencing, water storage/ water pipes, baskets, agricultural tools, beehives, household utensils and various artifacts. Its potential industrial uses could be for bamboo panels, bamboo curtain, gas generator etc. Effective management involves systematic but selective cutting of mature culms. Selective harvesting of the crop ensures a sustainable supply of valuable and useful raw material. The removal of mature culms also maintains the vigour of the plant and allows for the continuous generation of new shoots.	One of only two endigenous species of bamboo	ftp://ftp.fao.org/docrep/fao/010/ah776e/ah776e00.pdf http://www.unido.org/fileadmin/user_media/Publications/Pub_free/Guidelines_for_cultivating_Ethiopian_highland_bamboo.pdf

Table 17: Species for Community plantation for wood supply - Arundinaria alpine

Species for Community plantation for wood supply

Casuarina cunninghamiana (Australian beefwood, Australian pine, beefwood, casuarina, coast beefwood, creek oak, fire oak, river oak, river she-oak)

Habitat / Ecology	Habitus	Problems / Concerns	Growing area	Management	Remarks	Information / Sources
It is moderately drought resistant but is unable to tolerate semi-arid conditions unless some additional groundwater is available to supplement rainfall. It is relatively fire sensitive especially when young. When planted outside its natural habitat, it adapts itself to comparatively dry sites. Biophysical limits Altitude: **0-2 200 m ??**, MAT: 13-29 deg. C, MA rainfall: 500-1 500 mm Soil: mainly sands or sandy loams, but include clayey loams and gravel terraces of old river courses and infrequently clays. Grows in light textured sands, and gravel including poor soils and eroded sites. Has been successfully planted in acidic, neutral, alkaline and saline soils.	Casuarina cunninghamiana is a medium to large tree 12-35 m in height, 30-150 cm in diameter. Bark finely fissured and scaly brown. Leaves on new shoots erect. Deciduous branchlets thin and soft and droop in various specimens. Leaves like teeth, less than 0.5 mm long, 6-8 in a ring at joints or nodes about 5 mm apart	For very arid sites, *A. tortilis*, *A. nilotica*, *C. cunninghamiana* and *L. leucocephala* might be suitable, but not *C. africana* and *E. Globulus* Has an enormous potential as biomass producer. The establishment of profitable forest stands of such an important species is determined by the right choice of provenance, because a high level of genetic diversity exists within the species.	Grows in Dry and Moist Weyna Dega and Dega agroclimatic zones, probably in all regions of Ethiopia, 1,5~2,800 m. The most commonly grown of all Casuarina.	Good for erosion control with its network of fine subsurface roots, also to stabilize riverbanks a long-lived, relatively fast-growing tree with average height increments of 1-2 m/year. Seedlings require protection from browsing stock and fire in initial stages of growth. airly good coppicing ability when young, and older trees are capable of producing root suckers. When introduced to exotic localities, inoculation of the seedlings with pure culture of effective strains of Frankia rhizobia is recommended to enable the species to fix atmospheric nitrogen.	Fairly fast growing. In Australia, branchlets are used as fodder when nothing else is available (hence the name "beefwood"). The wood is very hard and thus difficult to saw and season, though it is susceptible to termite attack. The special root association with a fungus enables Casuarina to fix nitrogen.	http://www.worldagroforestry.org/sea/Products/AFDbases/af/asp/SpeciesInfo.asp?SpID=476 http://diss-epsilon.slu.se:8080/archive/00000934/01/mehari.pdf

Table 18: Species for Community plantation for wood supply - Casuarina cunninghamiana

Species for Community plantation for wood supply

Casuarina equisetifolia (Whistling Pine)

Habitat / Ecology	Habitus	Problems / Concerns	Growing area	Management	Remarks	Information / Sources
in Dry, Moist, and Wet Kolla agroclimatic zones, 0-1,400m. The extensive root system enables the tree to grow in poor soils.	A tree to 20 m with "weeping" foliage. BARK: Grey-black cracked with age. LEAYES: Minute scale leaves just visible on the green branchlets, branchlets to 30 em hang down in crowded tufts.	The species is said to exhaust moisture and lower the watertable. Tolerant to salt water. The tree suppresses undergrowth, and the dry branchlets on the ground may become a fire hazard. The charcoal produces an intense heat with little smoke or ash.	Cultivated and naturalized in Ethiopia, especially in western Eritrea and Shewa regions,	Firewood, charcoal, poles, timber (construction), fodder (young leaves), mulch, soil conservation, soil improvement, nitrogen fixation, ornamental, shade, windbreak, dye, tannin (bark). Fast growing. Side pruning to get a dear bole. A planting density of 2 500 stems/ha is commonly used but some farmers plant up to 8 000-10 000 stems/ha when fuelwood and small poles are the required product. C. equisetifolia is a poor self-pruner. Pruning is necessary up to 2 m to make plantations accessible for maintenance Not fire resistant. It coppices only to a limited extent and best results are obtained when cut young. Timely thinning is essential (high light-demand). For timber production, an intermediate thinning. Young trees are susceptible to competition from weeds, especially grasses. They are susceptible to drought until their roots reach the groundwater table, which may take up to 2-3 years after life span of 40-50 years and displays fast early growth. On favourable sites, it can yield an annual increment of 15 cubic m/ha of wood in 10 years	It has been called 'the **best firewood in the world'** **Erosion** control: Since it is salt tolerant and grows in sand, C. equisetifolia is used to control erosion along coastlines, estuaries, riverbanks and waterways.	http://www.worldagroforestrycentre.org/sea/Products/AFDbases/af/asp/SpeciesInfo.asp?SpID=477

Table 19: Species for Community plantation for wood supply - Casuarina equisetifolia

Species for Community plantation for wood supply

Pinus radiata (Monterey Pine, Radiata Pine)

Habitat / Ecology	Habitus	Problems / Concerns	Growing area	Management
1500-300 m 600-1600 mm It does well on neutral to acid well-drained soils. Tolerates sand, wind, frost, and drought.	An evergreen timber tree that grows to 50 m with a straight trunk and upcurved branches, developing an open, irregular crown as it matures. BARK: Thick, dark brown, deeply grooved with age. LEAYES: Bright blue-green needles, soft, sharply tipped, 10-15 em long, in bundles of 3, forming dense tufts. CONES: Mature female cones very large, shiny grey up to 15 em long, with an oblique base, in whorls of 3-6, remaining on the tree for many years.	Trees are attacked by woolly aphid and the fungus *Diplodea pinea.* Seedlings are also susceptible to damping-off fungus. The soft white wood is light and straight grained but it has a low resistance to decay and termite attack. This pine is planted worldwide for paper pulp. susceptible to *Armillaria* root rot, common in Ethiopia	Now widely introduced in Ethiopia in Moist and Wet Weyna Dega and Dega agroclimatic zones of Shewa, Kefa, and Arsi regions.	Firewood, poles, posts, timber (heavy and light construction), ornamental, windbreak, long-fibre pulp. Can grow extremely fast. Thinning, pruning.

Table 20: Species for Community plantation for wood supply - Pinus radiata

Agroforestry with native multi use tree species

Erythrina brucei (Lucky bean tree)

Habitat / Ecology	Habitus	Problems / Concerns	Growing area	Plant ass.	Management	Remarks	Information / Sources
moist montane forest 1700-2700 m montane grassland 1500-3000m The environmental factors determining the variation in vegetation types in the montane grassland ecosystem are moisture, topography and human activity.	A small deciduous tree, usually 5-10 m, with a single trunk but thick spreading branches to a rounded crown. BARK: Thick and corky, branches prickly. LEAVES: Compound, with 3 oval leaflets, not hairy, the middle one stalked and largest to 23 x 16 em, nerves below and leaf stalks prickly. FLOWERS: In big heads on the bare tree, orange-red, occasionally pale yellow,	Since this ecosystem (grassland) is densely occupied by humans and, therefore, highly disturbed. Agricultural practices are expanding at the expenses of the destruction of the natural vegetation and the deterioration of the natural environments in general. Crop cultivation is practiced even at slopes more than 45 %, irrespective of the low yields to be expected at this type of ecosystem.	endemic to Ethiopia It is widespread in open woodland, upland forest edges or grasslands of the Moist and Wet Kolla and Weyna Dega agroclimatic zones, 500-2,000 m.	*Bale mountains: the vegetation belt between 1700 and 2100 m is characterized by tree species like **Syzygium** guineense, **Polyscias** fulva, **Allophylus** abyssinicus, **Erythrina brucei**, **Croton** macrostachyus and **Canthium** oligocarpum. Important timber trees like **Ocotea kenyensis and Podocarpus falcatus** are also found in this belt. The vegetation belt between **2100 and 2700** m is characterized by trees such as **Hagenia** abyssinica, **Schefflera** volkensii, **Erythrina brucei**, **Galiniera** saxifraga, **Allophylus** abyssinicus, **Dombeya** torrida, **Ficus** ovata, **Prunus** africana, **Croton** macrostachyus, **Maytenus** addat (endemic to Ethiopia) and **Canthium** oligocarpum*	important advantage in that they can be easily propagated vegetatively. is known to possess useful agroforestry attributes, but these attributes have not been quantified. grows fast, is desirable for intercropping, and has relatively high leaf-nutrient concentration. Firewood, carving (bee-hives, mortars, drums), medicine (bark, roots), fodder (leaves), bee forage, mulch, nitrogen fixation, soil conservation, ornamental, necklaces and curios (seeds), ceremonial.	The tree is grown easily from large cuttings 5-10 em in diameter. It is traditionally used for live fences. It stands heavy pollarding and leaves are fed to cattle, though the leaf crop is not heavy. Along river courses the tree may not lose its leaves. recommended for live fencing, stream-bank and boundary planting and for soil conservation. It is moderately fire and termite resistant.	http://etflora.net/biodiversity/ecosystems-of-ethiopia/monatane-grassland-ecosytem

Table 21: Agroforestry with native multi use tree species - Erythrina brucei

Agroforestry with native multi use tree species

Millettia feruginia (Birbira)

There are two sub-species known to occur in Ethiopia. These are: *M. ferruginea* which is confined to the northern part of the country and *M. darasana* which occurs in southern provinces, particularly Sidamo region. Trees from central and western Ethiopia show mixture of the two species.

Habitat / Ecology	Habitus	Growing area	Mixt.	Management	Remarks	Information / Sources
performs well in moist lowland as well as dry, moist and wet semi-highland agro climatic zones of 1000-2500 m above sea level.	large shady tree which grows up to length of 35 m high.	It is endemic to Ethiopia and widely distributed in the country A tree confined to Ethiopia (endemic), found in upland forests, rain forests and forest remnants in Shewa, Tigray, Kefa, Sidamo, Ilubabor, Gojam, Wolega, Bale,Harerge and Gonder regions. It performs well in Moist and Wet Kolla as well as Dry, Moist	the tree is extensively used as shade for coffee (*Coffea arabica)* in Hararge region, Eastern Ethiopia	tree is used for fish poisoning where mature pod and seed are ground to fine powder and is spread over the surface of water. Socioeconomic studies indicated that *Millettia* trees have good standing in the region both because of their desirable biological characteristics and because of their economic benefits. Maize plants grown on soils collected from underneath *Millettia* trees resulted in significantly better growth responses and higher dry matter yield as compared to the control	Firewood, timber (local construction), tool handles, household utensils, shade, fish poison (ground-up seeds).	http://www.etff.org/Acheber/ETFF_Acheber_Report.html http://www.springerlink.com/content/l211568171r67222/ http://www.napreca.net/publications/11symposium/pdf/J-88-96-Bekele.pdf

Table 22: Agroforestry with native multi use tree species - Millettia ferunginia

Agroforestry with native multi use tree species

Prunus africana (red stinkwood, mueri, bitter almond)

Habitat / Ecology	Habitus	Problems / Concerns	Growing area	Mixt.	Management	Remarks	Information / Sources
BIOPHYSICAL LIMITS Altitude: 900-3 400 m Mean annual rainfall: 890-2 600 mm Mean annual temperature: 18-26 deg.C not shade-tolerant a highland forest tree, grows in the humid and semi-humid highlands and humid midlands. It occurs in sub-Saharan Africa	evergreen tree, 10-24 (36 max.) m in height, with a stem diameter of 1 m; bark blackish-brown and rugged; branchlets dotted with breathing spots, brown and corky; twigs knobbly	Pests and diseases: Fungi and insects infect fruits on the ground. A lepidopteran caterpillar feeds on leaves, and **at low altitudes aphids attack developing leaf buds**, leading to defoliation. **Moist conditions encourage infestation of powdery mildew** and a stem borer whose presence is indicated by resin exudation through small bore holes. This has been recorded in Cameroon. Commercial exploitation, habitat loss and unsustainable harvesting have led to a decline in *Prunus africana*, threatening conservation of its genetic diversity. The species is listed as vulnerable in the world list of threatened trees, owing to its rapid population decline and international trade. Wild-collection is no longer sustainable (and probably never was) where harvest seriously affects morbidity and mortality rates of harvested populations.	Distribution appears to be related to mean annual temperature and rainfall and/or cloud cover. A useful timber tree widespread in montane and riverine forests of Harerge (especially Dindin Forest), Ilubabor, Kefa, Arsi, Wolega, Sidamo, Gonder, Gojam and Shewa regions. Usually it occurs in high-rainfall areas in Moist and Wet Weyna Dega agroclimatic zones, 1,500-2,300m.	Found in association with species such as Albizia gummifera, Anigera adolfi-friederici, Cassipourea malosana, Celtis africana, Podocarpus falcatus and Polyscias kikuyuensis	high light requirement and grows best in forest gaps. **Erosion** control: Trees can be grown along contour ridges and terraces. **Shade or shelter:** P. africana provides useful shade and acts as a windbreak. **Soil improver**: Leaves can be used as mulch and green manure.	produces high-quality firewood Timber: The wood is heavy, hard, durable, close and straight grained, strong **medicinal**: harvesting of the bark to treat benign prostatic hypertrophy It has the rare ability to regenerate its bark, as long as the vascular cambium is not destroyed.	http://www.worldagroforestry.org/treedb2/AFTPDFS/Prunus_africana.pdf http://www.cites.org/common/prog/african-cherry/11-CUNNINGHAM.pdf http://phipps.conservatory.org/_pdfs/botany-in-action/KristineStewart2.pdf

Table 23: Agroforestry with native multi use tree species - Prunus africana

d) Site selection

The different project components are motivated by different criteria which are summarized in the table below. To estimate the relevance of a criterion for site selection, different methods have been applied. The relevance is showing the importance according to an international context. Each plot is evaluated concerning the criteria of the table below. This method allows a ranking of the sites concerning prioritized implementation.

Component	Criteria	Method	Relevance
Reforestation (500 ha)	Erosion Prior Land use Fragmentation BR Zonation Infrastructure Population density Forest loss	DEM, Land cover, Field trip Change Detection GIS analysis Core zone distance GIS analysis GIS analysis, PRA Change detection	Security, Soil conservation CDM - Kyoto Biodiversity UNESCO requirements Soil conservation, Forest restoration Forest protection, demarcation Historical land cover
Community Plantations (1500 ha)	Acceptance of the communities Communal land BR Zonation Wood demand Population density Road Network Forest loss PFM Settlements Surface Derivatives	PRA Woreda Agriculture & Rural Development Office Core zone distance PRA, Literature review GIS analysis GIS analysis Change detection GIS analysis GIS analysis DEM / Surface analysis	Community Participation Use rights/ responsibility sharing Conflict potential Wood demand Accessibility, Logistic Carbon sequestration Support other management activities Wood demand Feasibility
Agroforestry (200 ha)	Pilot sites Susceptibility towards erosion Degradation of soil	PRA GIS analysis, DEM / Surface analysis Fiel visit (Relevé Sheet)	Education

Table 24: Adopted main criteria for site selection

The final site selection consists of final sites which are stipulated with all relevant stakeholders and of sites which are assigned as candidate sites. In many cases the candidate sites are very promising and should be followed up. For detailed information of the site, please refer to the matrix sheets. The status “candidate” has different reasons:

- Land use right is unclear among all stakeholders
- Land use “fallowing”(indicates that farmers will claim this land), but no cultivation for years, land use right unknown
- The governmental stakeholder could not assure capacity for implementation due to the remote location
- The forest dwellers were previously punished from governmental side due to illegal settlement status and were expected to leave the side. But field visit revealed, they are still there

- Site was not accessible
- Necessary agreement with local communities could not be made
    - due to bad road condition (the site could not be visited)
    - not enough participants in PRA
    - PRA material was not comprehensive (if introduced by rangers)

In total there are 85 sites stipulated by all stakeholders with a share of
- Reforestation: 622.71 ha (mean size 20.75 ha)
- Community Plantation: 1,688.62 ha (mean size 28.32 ha)
- Agroforesty: 736.58 ha (whole area, not only farm sites)

In total there 43 are candidate sites with a share of
- Reforestation: 728.41 ha (with a mean size of 36.41 ha)
- Community Plantation: 862.7 ha (mean size of 45.3 ha)
- Agroforesty: 249.23 ha (whole area, not only farm sites)
- PFM: 137.12

The following Matrix Sheets are describing in detail each selected site with socioeconomic data revealed from PRA, land use and existing land cover data based on relevé sheets. The sites are grouped towards the Woreda boundary. To enable an easy print out, one plot is shown per sheet.

i. Woreda Adiyo

Site Assessment – Reforestation				**Plot NO: 1**
Woreda: Adiyo	Kebele: Kalisha	Elevation (m.a.s.l.): 2591,32		
Location (Lat/Lon): 36,39190481 / 7,32187237		Estimated Area (ha): 2,6		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	4	Activity within BR core
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	Perforation in Core Zone
	Biodiversity Increase (Enrichment Planting, different native tree species)			
Improvement	Erosion Control (Soil Improvement)	Hazard	3	Undulating -
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	LUC
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: Communal (illegal settlement 2 HH)			
Site Characteristics: wood collection – medium, disturbance-medium, grazing – high				
Current Land Use / Land Cover: disturbed forest, species composition: Bambus spec., Millitia ferrunginea, Sapium ellipticum				
Closest (gravel) road: 2,8 km				
Closest town: Boka in 4,3 km				
Priority Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 2**
Woreda: Adiyo		Kebele: Medwutta	Elevation (m.a.s.l.):2425,59	
Location (Lat/Lon): 36,41116884 / 7,30056982			Estimated Area (ha): 19,3	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Forest loss in river valley
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Fertility of surrounding agriculture		4	Improvement of rainwater infiltration
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Adjacent to Boqa
	Amelioration of livelihood – sale of NTFP (commercial)		3	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		4	shade
	Medicines		2	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: governmental			
Site Characteristics: high disturbance caused by grazing and wood collection				
Current Land Use / Land Cover: Upper Crown cover moderate, lower crown cover open (Millittia ferruginea, Sapium ellipticum, Bambus spec.)				
Closest (gravel) road: 1,5 km				
Closest town: Boka in 1 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation (candidate)				**Plot NO: 3**
Woreda: Adiyo	Kebele: Alarigata	Elevation (m.a.s.l.):2455,33		
Location (Lat/Lon): 36,39923189 / 7,2801952195		Estimated Area (ha): 18,2		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Undulating - steep
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Fertility of surrounding agriculture		3	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Adjacent to Boka
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		3	
	Medicines		2	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: communal			
Site Characteristics: medium disturbance caused by high grazing and medium wood collection				
Current Land Use / Land Cover: Upper crown cover medium, lower crown cover open (Millittia ferruginea, Ficus spec., Erythrina spec., Bambus				
Closest (gravel) road: 0,3 km				
Closest town: Boka in 1,3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation (candidate)				**Plot NO: 4**
Woreda: Adiyo	Kebele: Bekiyo Gindecha	Elevation (m.a.s.l.):2556,99		
Location (Lat/Lon): 36,55956741 / 7,26508216		Estimated Area (ha): 22,3		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Very steep (>35°)
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		4	Water supply for Kaka
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Resource for Kaka
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		2	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: governmental			
Site Characteristics: minor disturbance due to low wood collection and minor grazing				
Current Land Use / Land Cover: Upper crown cover medium, Lower crown cover open (Millittia ferruginea, Albizia gummifera, Schefllera abyssinica)				
Closest (gravel) road: 2,3 km				
Closest town: Angiyo Kolla in 1,7 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot 5**
Woreda: Adiyo	Kebele: Qochiyo	Elevation (m.a.s.l.):2282,42		
Location (Lat/Lon): 36,555290 / 7,273810		Estimated Area (ha): 21,2		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Enhancement of corridor
	Biodiversity Increase (Enrichment Planting, different native tree species)		2	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Forest loss in river valley
	Flood / Runoff Control (Water holding capacity)		4	PRA – water stress
	Water Pollution Control		3	
	Rehabilitation of degraded forests		1	
Support	Riparian Forest Enhancement		4	
	Wetland Conservation	CDM	4	Adjacent to wetland
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: disturbed riparian forest, no regeneration				
Current Land Use / Land Cover: UCC open, LCC open (Millittia ferruginea, Albizia gummifera, Schefllera abyssinica)				
Closest (gravel) road: 1,5 km				
Closest town: Kaka in 2,1 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 6**
Woreda: Adiyo		Kebele: Keje Kata	Elevation (m.a.s.l.):2246,29	
Location (Lat/Lon): 36,67787056 / 7,19387671			Estimated Area (ha): 12,3	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Corridor between forest patches
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Very steep (> 35°)
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Rehabilitation of degraded forests		4	Forest boundary degraded
Support	Riparian Forest Enhancement		4	
	Wetland Conservation	CDM	2	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: very steep slopes, very important to integrate erosion measurements				
Current Land Use / Land Cover: Riparian forest (Millittia ferruginea, Albizia gummifera, Schefllera abyssinica)				
Closest (gravel) road: 1 km				
Closest town: Adiya Kaka in 9,5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation (already demarked)				**Plot NO: 8**
Woreda: Adiyo	Kebele: Boqa	Elevation (m.a.s.l.):2640,84		
Location (Lat/Lon): 36,44199783 / 7,2434289		Estimated Area (ha): 24,8		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area: Qolla, Chare GutaBoga, Bosha
	Amelioration of livelihood – sale of NTFP (commercial)		3	
	Amelioration of livelihood – sale of timber products (commercial)		2	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		2	
other	Ownership: governmental			
Site Characteristics: very disturbed forest cover due to grazing and wood collection, DoAD proposal				
Current Land Use / Land Cover: UCC medium, LCC open (Erythrina spec., Hagenia abyssinica, bamboo))				
Closest (gravel) road: adjacent				
Closest town: Shaka, Boka in approx. 5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation					**Plot NO: 9**
Woreda: Adiyo		Kebele: Qochiyo		Elevation (m.a.s.l.):2640,11	
Location (Lat/Lon): 36,55422022 / 7,28107178			Estimated Area (ha): 58,7		
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)		BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	4	Connect forest patches
Improvement	Erosion Control (Soil Improvement)		Hazard	4	Partly very steep
	Flood / Runoff Control (Water holding capacity)			3	
	Water Pollution Control			4	Water supply for Kaka
	Fertility of surrounding agriculture			1	
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			2	
	Amelioration of livelihood – sale of NTFP (commercial)			1	
	Amelioration of livelihood – sale of timber products (commercial)			1	
	Increase of livestock fodder			3	
	Medicines			2	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: governmental				
Site Characteristics: very steep slopes, water protection, water supply for Kaka town, riparian forest, avoidance of forest fragmentation, propose of DoAD (avoid Eucalyptus spec.)					
Current Land Use / Land Cover: Riparian forest, UCC medium, LCC open (Millittia ferruginea, Albizia gummifera, Schefllera abyssinica)					
Closest (gravel) road: adjacent					
Closest town: Angiyo Kolla in 1,2 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

Site Assessment – Community Plantation				**Plot NO: 10**
Woreda: Adiyo		Kebele: Angiyo Yecha	Elevation (m.a.s.l.):1998,2	
Location (Lat/Lon): 36,52626542 / 7,2975261			Estimated Area (ha): 8,7	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	1	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		3	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Adjacent to pop. Area Qochiyo
	Amelioration of livelihood – sale of NTFP (commercial)		4	Good access to market
	Amelioration of livelihood – sale of timber products (commercial)		4	Good road access
	Increase of livestock fodder		2	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: governmental			
Site Characteristics: river protection, additional wood resource for Kaka town, propose of DoAD				
Current Land Use / Land Cover: degraded forest (Olea welwitschii, Grevillea robusta, Euphorbia spec., Albizia gummifera, Ficus spec.)				
Closest (gravel) road: 1 km				
Closest town: Kaka in 4,3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation					**Plot NO: 11**
Woreda: Adiyo		Kebele: Angiyo Yecha		Elevation (m.a.s.l.):2012,66	
Location (Lat/Lon): 36,53140331 / 7,29581177			Estimated Area (ha): 15,4		
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)		BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	4	Buffer of primary forest
Improvement	Erosion Control (Soil Improvement)		Hazard	3	
	Flood / Runoff Control (Water holding capacity)			1	
	Water Pollution Control			1	
	Fertility of surrounding agriculture			2	
	Animal / Plant habitats			3	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			4	Adjacent to pop. Area Qochiyo
	Amelioration of livelihood – sale of NTFP (commercial)			4	Good access to market
	Amelioration of livelihood – sale of timber products (commercial)			3	Good road access
	Increase of livestock fodder			3	
	Medicines			1	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownerships: governmental (2 HH recently left the area – enforcement by government)				
Site Characteristics: river protection, additional wood resource for Kaka town, grazing medium, wood collection high, propose of DoAD, used for bee hive hanging, forest grazing, strong boundary demarcation is needed					
Current Land Use / Land Cover: degraded forest, UCC medium, LCC open (Grevillea robusta, Croton macrostachyus, Millittia ferruginea, Olea spec.)					
Closest (gravel) road: 0,8 km					
Closest town: Kaka in 4,3 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					
Site Assessment – Community Plantation (candidate/next year)					**Plot NO: 12**
Woreda: Adiyo		Kebele: Boqa		Elevation (m.a.s.l.):2632,21	

Location (Lat/Lon): 36,43749032 / 7,24121217		Estimated Area (ha): 4,2		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	
	Amelioration of livelihood – sale of NTFP (commercial)		3	
	Amelioration of livelihood – sale of timber products (commercial)		2	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		2	
other	Ownership: governmental			
Site Characteristics: scattered trees, in Boqa Kebele, possible extension of Plot 8 (year 2012), very high forest disturbance, grazing very high, wood collection very high, recent forest loss (due to agricultural expansion)				
Current Land Use / Land Cover: disturbed forest, UCC open, LCC open (Hagenia abyssinica, bamboo)				
Closest (gravel) road: 0,3 km				
Closest town: Shaka in 5,5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 13**
Woreda: Adiyo		Kebele: Alarigata	Elevation (m.a.s.l.):2428,24	
Location (Lat/Lon): 36,38447304 / 7,29302003			Estimated Area (ha): 38,0	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Moderately steep(16° - 25°)
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	High wood demand
	Amelioration of livelihood – sale of NTFP (commercial)		4	Good access to market
	Amelioration of livelihood – sale of timber products (commercial)		4	Good access to road
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: communal			
Site Characteristics: compensation of wood resource for close located core zone, scattered trees, recent deforestation, propose of DoAD				
Current Land Use / Land Cover: UCC medium, LCC medium (Bambus spec., Millittia ferruginea, Sapium ellipticum)				
Closest (gravel) road: adjacent to main road				
Closest town: Boka in 2,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

ii. Woreda Bita

Site Assessment – Reforestation		(not visited)		**Plot NO: 1**
Woreda: Bita		Kebele: Amesha Mecheta	Elevation (m.a.s.l.):2093,38	
Location (Lat/Lon): 35,65965090 / 7,33863907			Estimated Area (ha): 44,9	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	4	LUC within BR core
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	Perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	LUC to agriculture
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Very steep (>35°)
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Rehabilitation of degraded forests		4	degradation of forest border
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental (illegal agricultural expansion)			
Site Characteristics: : human activity within BR core zone, very steep area, grazing and farming activity				
Current Land Use / Land Cover: degraded forest				
Closest (gravel) road: 6 km to trail				
Closest town: Jawra in 10 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation (not visited)				**Plot NO: 2**
Woreda: Bita	Kebele: Meligawi	Elevation (m.a.s.l.):2072,26		
Location (Lat/Lon): 35,80964182 / 7,42419988		Estimated Area (ha): 42,3		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	4	LUC within BR core
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	degradation of forest border
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		3	
	Secret Meeting Sites		1	
other	Ownership: governmental (status of settlers unclear) approx. 6-12 HH			
Site Characteristics: very steep slope, accessibility difficult, adjacent to BR core zone in Woreda Chena				
Current Land Use / Land Cover: cultivation and grazing				
Closest (gravel) road: 6 km to gravel road				
Closest town: Andirache in 5,3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation (not visited)				**Plot NO: 3**
Woreda: Bita	Kebele: Shota	Elevation (m.a.s.l.):1848,91		
Location (Lat/Lon): 35,59642371 / 7,33389138		Estimated Area (ha): 45,1		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	4	Settlement within BR core
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Very steep (>35°)
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	degradation of forest border
Support	Riparian Forest Enhancement		2	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental (status of settlers within BR core zone unclear) approx. 12 – 18 HH			
Site Characteristics: very steep slope, degraded forest, preliminary used for grazing, accessibility difficult, settlers within BR core zone				
Current Land Use / Land Cover: degraded forest, used for cultivation and grazing				
Closest (gravel) road: 11 km to trail				
Closest town: Jawra in 16 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation (not visited)				**Plot NO: 4**
Woreda: Bita	Kebele: Shota	Elevation (m.a.s.l.):1921,7		
Location (Lat/Lon): 35,60091656 / 7,32733789		Estimated Area (ha): 18,2		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	4	Settlement within BR core
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
	Biodiversity Increase (Enrichment Planting, different native tree species)		1	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	Steep (>26°)
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	degradation of forest border
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental / private (unclear property rights; possibly assigned as resettlement area)			
Site Characteristics: steep slopes, activity (agriculture expansion, grazing)				
Current Land Use / Land Cover: cultivation, degraded forest				
Closest (gravel) road: 11 km to gravel road				
Closest town: Jawra in 16 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation and Agroforestry				**Plot NO: 5**
Woreda: Bita	Kebele: Yeda	Elevation (m.a.s.l.):1815,16		
Location (Lat/Lon): 35,79345647 / 7,28774765		Estimated Area (ha): 35,5		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Steep (>26°)
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Bita Genet
	Amelioration of livelihood – sale of NTFP and timber products (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: private (status of permission unclear, probably assigned for resettlement)			
Site Characteristics: recent forest loss, conversion to farm land, very steep slope, susceptible towards landslide, no erosion measures taken so far, Recommendation: if legal status of settlement strategy adjustment → Agroforestry; and along river Chercheri enrichment planting (function as community plantation)				
Current Land Use / Land Cover: cultivation 90% (maize, enset, cotton), MPT 10% (Millittia ferruginea, Acokanthera schimperi, Cordia Africana)				
Closest (gravel) road: 0,8 km to gravel road				
Closest town: Bita Genet in 1,5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation					**Plot NO: 6**
Woreda: Bita		Kebele: Sheda		Elevation (m.a.s.l.):1898,1	
Location (Lat/Lon): 35,81910749 / 7,30456103			Estimated Area (ha): 19,7		
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)		BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)		Hazard	3	
	Flood / Runoff Control (Water holding capacity)			2	
	Water Pollution Control			1	
	Fertility of surrounding agriculture			2	
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			4	Pop. Area Sheda
	Amelioration of livelihood – sale of NTFP and timber products (commercial)			1	
	Amelioration of livelihood – sale of timber products (commercial)			2	
	Increase of livestock fodder			2	
	Medicines			1	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: governmental (illegal agriculture expansion, illegal forest grazing)				
Site Characteristics: adjacent to farmland, agricultural expansion, remnants of forest					
Current Land Use / Land Cover: cultivation 40% (maize, enset), MPT 30%, shrub 10%, grass 20%					
Closest (gravel) road: adjacent to trail					
Closest town: Bita Genet in 5 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

Site Assessment – Community Plantation				**Plot NO: 7**
Woreda: Bita	Kebele: Ogadakity	Elevation (m.a.s.l.):2128,33		
Location (Lat/Lon): 35,69576349 / 7,51719241		Estimated Area (ha): 28,2		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Corridor
Improvement	Erosion Control (Soil Improvement)	Hazard	2	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Yeshito Yeri
	Amelioration of livelihood – sale of NTFP and timber products (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		2	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: communal			
Site Characteristics: degraded riparian forest, important corridor to connect forest patches, rolling topography, high wood collection, agricultural expansion, strong boundary demarcation is needed				
Current Land Use / Land Cover: degraded riparian forest, UCC medium, LCC open				
Closest (gravel) road: 1,4 km to trail				
Closest town: Geya in 4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation (candidate/not visited)				**Plot NO: 8**
Woreda: Bita	Kebele: Gaweti	Elevation (m.a.s.l.):1548,78		
Location (Lat/Lon): 35,75832913 / 7,24978726		Estimated Area (ha): 68,7		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Slopes > 35°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Gaweti
	Amelioration of livelihood – sale of NTFP and timber products (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		2	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: unclear			
Site Characteristics: woodlot stable since 2001, indicator for sustainable forest management, importance for forest cover due to very steep slopes , vulnerable towards landslide, high deforestation in the surrounding, high pressure on forest resource (charcoal, wood collection)				
Current Land Use / Land Cover: degraded forest				
Closest (gravel) road: 1 km to all weather road				
Closest town: Bita Genet in 3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 9**
Woreda: Bita	Kebele: Amesha Mecheta	Elevation (m.a.s.l.):1898,82		
Location (Lat/Lon): 35,70843550 / 7,30670844		Estimated Area (ha): 76,4		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Affected by landslide
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		2	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Dacha Difa
	Amelioration of livelihood – sale of NTFP and timber products (commercial)		3	
	Amelioration of livelihood – sale of timber products (commercial)		3	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: communal			
Site Characteristics: rolling topography, vulnerable for landslide, recent forest loss, recommended by DoAD				
Current Land Use / Land Cover: MPT 5%, shrub 40%, grass 55% (Millittia ferruginea, Syzygium guineese, (Delonix regia)				
Closest (gravel) road: 2,2 km to trail				
Closest town: Jawra in 4,3 kmm				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation (not visited)					**Plot NO: 10**
Woreda: Bita		Kebele: Gaweti		Elevation (m.a.s.l.):1881,61	
Location (Lat/Lon): 35,81010069 / 7,26042660			Estimated Area (ha): 97,6		
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)		BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)		Hazard	3	
	Flood / Runoff Control (Water holding capacity)			3	
	Water Pollution Control			1	
	Fertility of surrounding agriculture			2	
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			4	Pop. Area Gaweti
	Amelioration of livelihood – sale of NTFP and timber products (commercial)			1	
	Amelioration of livelihood – sale of timber products (commercial)			2	
	Increase of livestock fodder			2	
	Medicines			1	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: governmental				
Site Characteristics: propose by DoAD, buffer of primary forest, degraded forest boarder					
Current Land Use / Land Cover: degraded forest					
Closest (gravel) road: adjacent to main road					
Closest town: Bita Genet in 1,7 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

* boundary of primary forest will be enriched by fast growing species (non-native) to distinguish between primary forest (minor use) and silivicultural forest (community plantation)

Site Assessment – Community Plantation				**Plot NO: 11**
Woreda: Bita	Kebele: Sheda	Elevation (m.a.s.l.):1840,54		
Location (Lat/Lon): 35,82175077 / 7,28195585		Estimated Area (ha): 38,3		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Sheda
	Amelioration of livelihood – sale of NTFP and timber products (commercial)		1	
	Amelioration of livelihood – sale of timber products (commercial)		2	
	Increase of livestock fodder		2	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other				
Site Characteristics: buffering primary forest (PFM candidate), high grazing, high wood collection, propose by DoAD				
Current Land Use / Land Cover: degraded forest				
Closest (gravel) road: adjacent to main road				
Closest town: Bita Genet in 3,7 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

* boundary of primary forest will be enriched by fat growing species (non-native) to distinguish between primary forest (minor use) and silivicultural forest (community plantation)

Site Assessment – Community Plantation (not visited)				**Plot NO: 13**
Woreda: Bita	Kebele: Tuga	Elevation (m.a.s.l.):1458,1		
Location (Lat/Lon): 35,68542300 / 7,23183534		Estimated Area (ha): 91,4		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Affected by landslide
	Flood / Runoff Control (Water holding capacity)		4	
	Water Pollution Control		3	
	Fertility of surrounding agriculture		4	Very compacted soil, debris
	Animal / Plant habitats		4	Eroded soil
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	
	Amelioration of livelihood – sale of NTFP and timber products (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		2	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: governmental			
Site Characteristics: very steep slopes, vulnerable towards landslide, vacant grass land, no settlements, propose of DoAD				
Current Land Use / Land Cover: grass land 100%				
Closest (gravel) road: adjacent to main road				
Closest town: Dichi in 5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation	(not visited)			**Plot NO: 14**
Woreda: Bita	Kebele: Oda	Elevation (m.a.s.l.):1526,11		
Location (Lat/Lon): 35,65123302 / 7,24252242		Estimated Area (ha): 62,5		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Very steep (> 35°)
	Flood / Runoff Control (Water holding capacity)		4	Improvement of infiltration
	Water Pollution Control		2	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Good road access, pop. Area Oda
	Amelioration of livelihood – sale of NTFP and timber products (commercial)		1	
	Amelioration of livelihood – sale of timber products (commercial)		3	
	Increase of livestock fodder		2	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: governmental			
Site Characteristics: forest loss (< 10 yr), very steep area, susceptible towards landslide, buffering of primary forest, propose of DoAD				
Current Land Use / Land Cover: degraded forest				
Closest (gravel) road: 1 km to main road				
Closest town: Dichi in 5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 22**
Woreda: Bita		Kebele: Amesha Mecheta		Elevation (m.a.s.l.): 2339,78
Location (Lat/Lon): 35,67992938 / 7,32744890			Estimated Area (ha): 40,8	
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)		BR Maintenance	4	BR core zone protection
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	4	Perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)			1	
Improvement	Erosion Control (Soil Improvement)		Hazard	2	
	Flood / Runoff Control (Water holding capacity)			1	
	Water Pollution Control			1	
	Rehabilitation of degraded forests			4	Curtail agricultural expansion
Support	Riparian Forest Enhancement			1	
	Wetland Conservation		CDM	1	
	Support of Watershed Management / interdisciplinary			1	
	Enhancement of Agricultural Productivity			1	
	Secret Meeting Sites			1	
other	Ownership: governmental (illegal activity)				
Site Characteristics: rolling topography, low grazing, medium wood collection					
Current Land Use / Land Cover: primary forest, UCC closed, LCC moderate (Pouteria adolfi-friederici, Croton macrostachyus, Schefllera abyssinica, Syzygium guineese)					
Closest (gravel) road: 4,5 km to trail					
Closest town: Jawra in 7,3 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

iii. Woreda Chena

Site Assessment – Reforestation (not visited)				**Plot NO: 1**
Woreda: Chena	Kebele: Chomecha	Elevation (m.a.s.l.):2056,87		
Location (Lat/Lon): 35,81434621 / 7,42399119		Estimated Area (ha): 12,2		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is within core zone)	BR Maintenance	4	Cultivation, settlement within BR core
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
	Biodiversity Increase (Enrichment Planting, different native tree species)		2	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		2	
	Rehabilitation of degraded forests		4	
Support	Riparian Forest Enhancement		3	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental (illegal settlement) approx. 3 – 6 HH			
Site Characteristics: recent forest perforation within core zone, used for cultivation and grazing, rolling topography, accessibility very difficult (2 day horse trip)				
Current Land Use / Land Cover: cultivation 30% (probably maize), MPT (remnants of primary forest) 40%, shrub/grass land 30%				
Closest (gravel) road: 6 km to trail				
Closest town: Andiracha in 7 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – PFM	(candidate, not visited)			**Plot NO: 3**
Woreda: Chena	Kebele: Chomecha	Elevation (m.a.s.l.):1907,43		
Location (Lat/Lon): 35,84808700 / 7,43872694		Estimated Area (ha): 137,1		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance		
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation		
Improvement	Erosion Control (Soil Improvement)	Hazard		
	Flood / Runoff Control (Water holding capacity)			
	Water Pollution Control			
	Fertility of surrounding agriculture			
	Animal / Plant habitats			
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			
	Amelioration of livelihood – sale of NTFP (commercial)			
	Amelioration of livelihood – sale of timber products (commercial)			
	Increase of livestock fodder			
	Medicines			
	Resin (subsistence / commercial)			
	Secret meeting sites			
other	Ownership: governmental			
Site Characteristics: disturbed primary forest, adjacent to BR core zone, could compensate high wood demand if properly managed				
Current Land Use / Land Cover: degraded forest				
Closest (gravel) road: 9 km to trail (probably better access)				
Closest town: Bitahora in 6 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation (alternatively Agroforestry)				**Plot NO: 4**
Woreda: Chena	Kebele: Iramo	Elevation (m.a.s.l.):1907,79		
Location (Lat/Lon): 35,88915214 / 7,40232406		Estimated Area (ha): 48,4		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		3	
	Fertility of surrounding agriculture		4	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Bita Hora
	Amelioration of livelihood – sale of NTFP (commercial)		1	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		4	Release pressure from adjacent wetland
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: unclear			
Site Characteristics: forest loss on site and in surrounding, conversion to farm land, adjacent to wetland, scattered trees, multifunctional site: compensate high wood demand, enhance river protection by enrichment of riparian forest, protection of adjacent wetland (cattle is grazed within wetland, need of additional livestock fodder)				
Current Land Use / Land Cover: cultivation 90%, MPT 5%, shrub/grass land 5%,				
Closest (gravel) road: 2 km to gravel road				
Closest town: adjacent to Bitahora				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 5**
Woreda: Chena	Kebele: Agaro		Elevation (m.a.s.l.):1884,2	
Location (Lat/Lon): 35,92428059 / 7,28501574		Estimated Area (ha): 92,4		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Stepping stone between forest patches
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Agaro
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		4	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: unclear (around 15-20 HH) → probably assigned as resettlement area 3 years ago			
Site Characteristics: very recent deforestation, scattered trees, intense grazing, good road access, according to DoAD vacant area, site visit detected around 15 – 20 HH				
Current Land Use / Land Cover: cultivation 70%, MPT 20% (remnants of forest), shrub/grass land 10%				
Closest (gravel) road: adjacent to main road				
Closest town: Shishinda in 4,8 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 6**
Woreda: Chena	Kebele: Shayicha Meka		Elevation (m.a.s.l.):1496,17	
Location (Lat/Lon): 35,73406041 / 7,14988470		Estimated Area (ha): 98,3		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Steep > 21°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		4	
	Fertility of surrounding agriculture		3	
	Animal / Plant habitats		4	Vicinity intense agriculture
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Sayicha Meka
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		2	
	Increase of livestock fodder		3	
	Medicines		2	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: private (but recent landslide cleared LC)			
Site Characteristics: open ground, beginning of recultivation, river disturbance by landslide (river is supplying downstream villages with fresh water), site access difficult, possible place for tree nursery site along Acho river				
Current Land Use / Land Cover: bare soil, gravel				
Closest (gravel) road: 3,5 km to gravel road				
Closest town: Marai in 1,3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation	**(not visited)**	**Plot NO: 7**
Woreda: Chena	Kebele: Kuta Shoraye	Elevation (m.a.s.l.):1805,75
Location (Lat/Lon): 35,95650598 / 7,26219462	Estimated Area (ha): 17,6	

Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Slope > 21°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		3	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Wana Bola
	Amelioration of livelihood – sale of NTFP (commercial)		3	
	Amelioration of livelihood – sale of timber products (commercial)		2	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: unclear (no HH on site)			

Site Characteristics: very steep area, recent deforestation, degradation in adjacent primary forest, probably assigned as resettlement area
Current Land Use / Land Cover: cultivation 60%, MPT 5%, shrub 10%, grass 25%
Closest (gravel) road: 2km to main road
Closest town: Dimbra in 5 km
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information

Site Assessment – Community Plantation	**(not visited)**			**Plot NO: 8**
Woreda: Chena	Kebele: Kuta Shoraye	Elevation (m.a.s.l.):1769,2		
Location (Lat/Lon): 35,96191831 / 7,25857729		Estimated Area (ha): 8,5		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Slope > 21°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		3	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Wana Bola
	Amelioration of livelihood – sale of NTFP (commercial)		3	
	Amelioration of livelihood – sale of timber products (commercial)		2	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: unclear (no HH on site)			
Site Characteristics: very steep area, recent deforestation, degradation in adjacent primary forest, probably assigned as resettlement area				
Current Land Use / Land Cover: cultivation 60%, MPT 5%, shrub 10%, grass 25%				
Closest (gravel) road: 2,3 km to main road				
Closest town: Dimbra in 5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation	(no visited)			**Plot NO: 9**
Woreda: Chena	Kebele: Boba Bala	Elevation (m.a.s.l.):1272,21		
Location (Lat/Lon): 35,88631870 / 7,14350223		Estimated Area (ha): 2,8		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Important to close / sustain corridor
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		1	
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: unclear			
Site Characteristics: grass land, steep terrain, used for grazing, vulnerable for soil erosion				
Current Land Use / Land Cover: grass land 100%				
Closest (gravel) road: 1 km to main road				
Closest town: Chenna in 1 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation	(candidate, not visited)			**Plot NO: 10**
Woreda: Chena	Kebele: Boba Bala	Elevation (m.a.s.l.):1674,29		
Location (Lat/Lon): 35,87590043 / 7,15137432		Estimated Area (ha): 1,4		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Important to close / sustain corridor
	Biodiversity Increase (Enrichment Planting, different native tree species)		1	
Improvement	Erosion Control (Soil Improvement)	Hazard	2	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		1	
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: very steep slope, susceptible towards landslide, important function as corridor between two forest patches				
Current Land Use / Land Cover: grass land 100%				
Closest (gravel) road: 3,5 km to main road				
Closest town: Chenna in 2 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation (not visited)				**Plot NO: 11**
Woreda: Chena	Kebele: Shishinda	Elevation (m.a.s.l.):1568,56		
Location (Lat/Lon): 35,89926370 / 7,21070474		Estimated Area (ha): 26,8		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
	Biodiversity Increase (Enrichment Planting, different native tree species)		2	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Slope > 21°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Rehabilitation of degraded forests		4	Recent forest loss
Support	Riparian Forest Enhancement		2	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: very steep area, corridor creation, very susceptible towards landslide				
Current Land Use / Land Cover: grass land 100%				
Closest (gravel) road: 2,4 to main roads				
Closest town: Shishinda in 4,5				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation (not visited)				**Plot NO: 12**
Woreda: Chena	Kebele: Shishinda	Elevation (m.a.s.l.):1941,97		
Location (Lat/Lon): 35,97059881 / 7,22993078		Estimated Area (ha): 12,4		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Important to sustain corridor
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Slope > 21°
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Recent forest loss
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: very steep area, susceptible towards landslide, function as corridor between two forest patches, recent deforestation				
Current Land Use / Land Cover: scattered trees grass land				
Closest (gravel) road: 5,5km to main road				
Closest town: Dimbra in 7,5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation	**(not visited)**	**Plot NO: 13**
Woreda: Chena	Kebele: Wote Wora	Elevation (m.a.s.l.):1984,24
Location (Lat/Lon): 35,73106934 / 7,04748646	Estimated Area (ha): 139,0	

Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Recent landslide (2010)
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Good road access
	Amelioration of livelihood – sale of NTFP (commercial)		3	Good access to market
	Amelioration of livelihood – sale of timber products (commercial)		3	Good road access
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: governmental			

Site Characteristics: very degraded soil, affected by landslide, has to be stabilized, propose by DoAD

Current Land Use / Land Cover: open ground, debris, cultivation 30%

Closest (gravel) road: 5,5 km to main road

Closest town: Wacha in 4km

Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information

Site Assessment – Community Plantation (alternative Agroforestry)				**Plot NO: 14**
Woreda: Chena	Kebele: Boba Qocha		Elevation (m.a.s.l.):1839,59	
Location (Lat/Lon): 35,83984907 / 7,13924943		Estimated Area (ha): 214,1		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Recent landslide (2010)
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		3	
	Fertility of surrounding agriculture		3	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Good road access, pop. Area Chena Wacha
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		3	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: governmental (unclear)			
Site Characteristics: affected by landslide, intense cultivation				
Current Land Use / Land Cover: cultivation 60%, MPT 10%, shrub 10%, grass 10%, 10% gravel				
Closest (gravel) road: 1,4 km to main road				
Closest town: Wacha in 2 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

iv. Woreda Decha

Site Assessment – Reforestation	(candidate – outside of BR boundary / not visited)			**Plot NO: 1**
Woreda: Decha	Kebele: Yoka			
Location (Lat/Lon): 36,21879996 / 7,02415823		Estimated Area (ha): 19,3		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Additional Connection of forest patches
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Slope partly >21°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		3	
Support	Riparian Forest Enhancement		4	Fresh water support
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		2	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: very steep area, buffering of river inflow (Taka river)				
Current Land Use / Land Cover: scattered trees, along stream intense grazing				
Closest (gravel) road: 3,5 km to main road				
Closest town: Tiffa in 6,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation	(candidate – outside of BR boundary / not visited)			**Plot NO: 3**
Woreda: Decha	Kebele: Yoka			
Location (Lat/Lon): 36,22958424 / 7,02843092		Estimated Area (ha): 13,2		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	Core zone buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Slope > 21°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Degraded forest boundary
Support	Riparian Forest Enhancement		4	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		2	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: see PLOT 1				
Current Land Use / Land Cover: remnants of riparian forest, intense grazing				
Closest (gravel) road: 3,8 km to main road				
Closest town: Tiffa in 6 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation	(candidate – outside of BR boundary / not visited)			**Plot NO: 4**
Woreda: Decha	Kebele: Yoka			
Location (Lat/Lon): 36,23002384 / 7,03438347		Estimated Area (ha): 2,9		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	4	Core zone
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Slope > 21°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Degraded forest boundary
Support	Riparian Forest Enhancement		4	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		2	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: see PLOT 1				
Current Land Use / Land Cover: Shrub 80%, grass land 20%				
Closest (gravel) road: 10 km to main road				
Closest town: Tiffa in 6,5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation	(candidate / partly outside of BR boundary)			**Plot NO: 5**
Woreda: Decha	Kebele: Ufa			
Location (Lat/Lon): 36,21784774 / 7,05946165		Estimated Area (ha): 19,3		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Additional forest connection
	Biodiversity Increase (Enrichment Planting, different native tree species)		2	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Steep slope >26°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Rehabilitation of degraded forests		3	
Support	Riparian Forest Enhancement		4	Fresh water support
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: degraded riparian forest, degraded primary forest border, , very steep area, susceptible towards landslide, intense grazing, wood collection – low/medium				
Current Land Use / Land Cover: cultivation 5%, MPT 40% (remnants of riparian forest), shrub 35%, grass land 20%				
Closest (gravel) road: 2 km to gravel road				
Closest town: Mecha Ishena in 3,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 6**
Woreda: Decha	Kebele: Ufa	Elevation (m.a.s.l.):1425,53		
Location (Lat/Lon): 36,22499318 / 7,06351168		Estimated Area (ha): 5,2		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
	Biodiversity Increase (Enrichment Planting, different native tree species)		2	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Steep slope >26°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		3	
Support	Riparian Forest Enhancement		4	Serve as boundary demarcation
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		2	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: degraded forest border, understorey clearing to support coffee plantings, agriculture expansion				
Current Land Use / Land Cover: UCC medium, LCC open, very disturbed understorey (Schefllera abyssinica, Hygenia Abyssinia, Prunus Africana)				
Closest (gravel) road: 2 km to gravel road				
Closest town: Mecha Ishena in 3,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation	(candidate)			**Plot NO: 11**
Woreda: Decha	Kebele: Chiri			
Location (Lat/Lon): 36,20370797 / 7,09959210		Estimated Area (ha): 9,8		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
	Biodiversity Increase (Enrichment Planting, different native tree species)		2	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Slope > 21°, soil degradation
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		1	
Support	Riparian Forest Enhancement		4	Enhance fresh water supply
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		3	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: degraded riparian forest, high wood collection, affected by erosion (gullying), agriculture expansion, very steep slopes				
Current Land Use / Land Cover: UCC open – medium, LCC medium				
Closest (gravel) road: 0,5 km to main road				
Closest town: adjacent to Ufa				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 12**
Woreda: Decha	Kebele: Chiri	Elevation (m.a.s.l.):1759,98		
Location (Lat/Lon): 36,20907552 / 7,12206515		Estimated Area (ha): 9,1		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
	Biodiversity Increase (Enrichment Planting, different native tree species)		2	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Slope > 21°, soil degradation
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		2	
Support	Riparian Forest Enhancement		4	Enhance fresh water supply
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		2	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: degraded riparian forest (in candidate core zone), intense grazing				
Current Land Use / Land Cover: UCC open, LCC open (Prunus Africana, Syzygium guineese, Millittia ferruginea, Hagenia abyssinica, Schefllera abyssinica)				
Closest (gravel) road: 2 km to main road				
Closest town: Awurada in 2 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 13**
Woreda: Decha	Kebele: Chiri	Elevation (m.a.s.l.):1779,74		
Location (Lat/Lon): 36,20371544 / 7,11614877		Estimated Area (ha): 8,7		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Slope > 21°, soil degradation
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		1	
Support	Riparian Forest Enhancement		4	Enhance fresh water supply
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: degraded Riparian forest(only single trees), grazing pressure high,				
Current Land Use / Land Cover: UCC open, LCC open (Prunus Africana, Syzygium guineese, Millittia ferruginea, Hagenia abyssinica, Schefllera abyssinica)				
Closest (gravel) road: 1,5 km to main road				
Closest town: Awurada in 1,5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Agroforestry	(candidate – outside of BR boundary / not visited)			**Plot NO: 14**
Woreda: Decha	Kebele: Yoka			
Location (Lat/Lon): 36,22572468 / 7,02353552		Estimated Area (ha): 199,7		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	Release pressure on BR core
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)		2	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Shade		2	
	Wind Protection		2	
Cultural / Economic	Timber (commercial)		2	
	Timber (subsistence)		4	Minimize wood extraction from primary forest
	Fuel Wood		4	
	Fertility Control		2	
	Medicines		1	
	NTFP (commercial)		2	
	NTFP (subsistence)		2	
	Livestock fodder		3	
	Beehives		2	
other	Ownership: private			
Site Characteristics: see PLOT 1				
Current Land Use / Land Cover: cultivation 60%, MPT 10%, shrub 15%, grass 15%				
Closest (gravel) road: 3,6 km to main road				
Closest town: Tiffa in 6,5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Agroforestry	(partly outside BR boundary)			**Plot NO: 15**
Woreda: Decha	Kebele: Ufa	Elevation (m.a.s.l.):1548,45		
Location (Lat/Lon): 36,22417130 / 7,05991407		Estimated Area (ha): 56,7		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	Release pressure on BR core
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)		4	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Shade		1	
	Wind Protection		1	
Cultural / Economic	Timber (commercial)		2	
	Timber (subsistence)		4	Minimize wood extraction from primary forest
	Fuel Wood		4	
	Fertility Control		4	Surrounded by intense agriculture
	Medicines		1	
	NTFP (commercial)		2	
	NTFP (subsistence)		3	
	Livestock fodder		3	
	Beehives		3	
other	Ownership: private			
Site Characteristics: very steep slopes, erosion measures → soil bunds, fallowing; intercropping (bean, cardamom, crop) to minimize soil degradation, 12 HH left area due to grave landslide problem, 3 years ago participation in FAO program (watershed management)to avoid erosion, recent deforestation, problem of drying streams				
Current Land Use / Land Cover				
Closest (gravel) road: 2,3 km to main road // Closest town: Mecha Ishena in 3,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation (candidate)				**Plot NO: 18**
Woreda: Decha	Kebele: Chiri	Elevation (m.a.s.l.):1707,34		
Location (Lat/Lon): 36,21318514 / 7,12452269		Estimated Area (ha): 41,1		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		3	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Awurada
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		3	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: communal (unclear)			
Site Characteristics: scattered trees, used for communal grazing, rolling topography				
Current Land Use / Land Cover: cultivation 40% (maize), MPT 30%, shrub 10%, grass 20% (Prunus Africana, Syzygium guineese, Millittia ferruginea, Hagenia abyssinica, Schefllera abyssinica)				
Closest (gravel) road: 1,7 km to main road				
Closest town: Awurada in 2 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation (not visited)				**Plot NO: 19**
Woreda: Decha	Kebele: Chiri	Elevation (m.a.s.l.):1638,59		
Location (Lat/Lon): 36,21384321 / 7,13614093		Estimated Area (ha): 9,3		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Awurada
	Amelioration of livelihood – sale of NTFP (commercial)		3	
	Amelioration of livelihood – sale of timber products (commercial)		3	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: communal / private (unclear)			
Site Characteristics: degraded forest boarder, close to core zone, steep slope				
Current Land Use / Land Cover: degraded forest				
Closest (gravel) road: 2,4 km to main road				
Closest town: Beshibey in 2,5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 20**
Woreda: Decha	Kebele: Chiri		Elevation (m.a.s.l.):1690,77	
Location (Lat/Lon): 36,21378689 / 7,14268675		Estimated Area (ha): 16,2		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	2	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Awurada
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		2	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: unclear			
Site Characteristics: degraded forest boarder, close to core zone, recent forest loss, rolling topography, close to abort edge, strong forest boundary demarcation necessary				
Current Land Use / Land Cover: UCC open, LCC open (Syzygium guineese, Millittia ferruginea, Hagenia abyssinica, Schefllera abyssinica)				
Closest (gravel) road: 1,4 to main road				
Closest town: Beshibey in 2,5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation (candidate - not visited)				**Plot NO: 21**
Woreda: Decha	Kebele: Modiyo Gombera	Elevation (m.a.s.l.):1845,83		
Location (Lat/Lon): 36,29240350 / 7,17990898		Estimated Area (ha): 32,4		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	BR core Buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
	Biodiversity Increase (Enrichment Planting, different native tree species)		1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Very steep slope >35°
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Recent forest loss
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: recent forest loss, very steep slopes, adjacent to BR core zone, highly recommended to establish strong boundary demarcation, propose by DoAD				
Current Land Use / Land Cover: degraded forest border				
Closest (gravel) road: 1 km to gravel road				
Closest town: Andaracha in 3,3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation	(candidate - not visited, no PRA)	**Plot NO: 22**
Woreda: Decha	Kebele: Modiyo Gombera	Elevation (m.a.s.l.):1872,68
Location (Lat/Lon): 36,29420644 / 7,17679241	Estimated Area (ha): 108,9	

Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	4	Release pressure of BR core
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Very steep slope >35°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Recent forest loss
	Amelioration of livelihood – sale of NTFP (commercial)			
	Amelioration of livelihood – sale of timber products (commercial)			
	Increase of livestock fodder			
	Medicines			
	Resin (subsistence / commercial)			
	Secret meeting sites			
other				

Site Characteristics: recent forest loss, very steep slopes, adjacent to BR core zone, highly recommended to establish strong boundary demarcation, propose by DoAD

Current Land Use / Land Cover:

Closest (gravel) road: 1 km to gravel road

Closest town: Andaracha in 3,3 km

Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information

Site Assessment – Reforestation	(candidate - not visited, no PRA)	**Plot NO: 23**
Woreda: Decha	Kebele: Budi	Elevation (m.a.s.l.):1820,47
Location (Lat/Lon): 36,25000159 / 7,11753981	Estimated Area (ha): 56,1	

Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	Forest loss within BR core
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Recent forest loss
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary			
	Enhancement of Agricultural Productivity			
	Secret Meeting Sites			
other	Ownership: governmental			

Site Characteristics: very steep slopes, dried out forest, human activity detected, propose of DoAD
Current Land Use / Land Cover: disturbed forest
Closest (gravel) road: 3,5 to gravel road
Closest town: Mankira in 3,5 km
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information

Site Assessment – Reforestation	(candidate - not visited, no PRA)	**Plot NO: 24**
Woreda: Decha	Kebele: Yaha Checha	Elevation (m.a.s.l.):1490,21
Location (Lat/Lon): 36,25731365 / 7,07712545	Estimated Area (ha): 31,5	

Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	Forest loss within BR core
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		2	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Recent forest loss
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity			
	Secret Meeting Sites			
other	Ownership: governmental			

Site Characteristics: very steep slope, susceptible towards landslide, agricultural expansion to BR core zone, propose by DoAD
Current Land Use / Land Cover: degraded forest, farmland expansion
Closest (gravel) road: 8,4 km to dry weather road
Closest town: Ache Dacha in 3,7
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information

Site Assessment – Community Plantation				**Plot NO: 25**
Woreda: Decha		Kebele: Chiri		Elevation (m.a.s.l.):1843,51
Location (Lat/Lon): 36,19739493 / 7,11254171			Estimated Area (ha): 14,8	
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection		BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)		Hazard	4	Steep slope along river
	Flood / Runoff Control (Water holding capacity)			1	
	Water Pollution Control			1	
	Fertility of surrounding agriculture			4	Intense agriculture in vicinity
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			4	Release pressure on BR core zone
	Amelioration of livelihood – sale of NTFP (commercial)			3	
	Amelioration of livelihood – sale of timber products (commercial)			2	
	Increase of livestock fodder			3	
	Medicines			2	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: governmental				
Site Characteristics: woodlot connecting river network, very steep slope, recent forest loss, need of enrichment planting and proper management, community suggests PFM					
Current Land Use / Land Cover: UCC open, LCC open, forest grazing (Hagenia abyssinica, Schefllera abyssinica, Prunus Africana)					
Closest (gravel) road: 1,3 km to main road					
Closest town: Awurada in 1,8 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

Site Assessment – Agroforestry	(candidate)			**Plot NO: 26**
Woreda: Decha	Kebele: Chiri		Elevation (m.a.s.l.):1912,29	
Location (Lat/Lon): 36,17899524 / 7,13733970		Estimated Area (ha): 18,5		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)		4	
	Flood / Runoff Control (Water holding capacity)		4	
	Water Pollution Control		4	
	Shade		3	
	Wind Protection		3	
Cultural / Economic	Timber (commercial)		4	According to PRA → missing
	Timber (subsistence)		4	According to PRA → missing
	Fuel Wood		4	According to PRA → missing
	Fertility Control		3	
	Medicines		1	
	NTFP (commercial)		2	
	NTFP (subsistence)		2	
	Livestock fodder		3	
	Beehives		3	
other	Ownership: private			
Site Characteristics: very steep slope, adjacent to main road and town Beshibey, degraded soil, vulnerable towards landslide				
Current Land Use / Land Cover: cultivation 50%, MPT 20%, shrub 20%, grass 10%				
Closest (gravel) road: adjacent to main road				
Closest town: adjacent to Beshibey				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation (candidate)				**Plot NO: 27**
Woreda: Decha		Kebele: Chiri	Elevation (m.a.s.l.):1893,39	
Location (Lat/Lon): 36,17463035 / 7,13954769			Estimated Area (ha): 13,2	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Slope > 16°
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		3	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	According to PRA → missing
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		2	Could be compensated by PLOT 26
	Increase of livestock fodder		3	
	Medicines		2	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: unclear			
Site Characteristics: degraded forest patch, very steep slope, already communally used				
Current Land Use / Land Cover: UCC medium, LCC medium				
Closest (gravel) road: adjacent to main road				
Closest town: adjacent to Beshibey				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation (not visited)				**Plot NO: 28**
Woreda: Decha	Kebele: Shapa		Elevation (m.a.s.l.):1581,53	
Location (Lat/Lon): 36,25485876 / 7,21404994		Estimated Area (ha): 14,3		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		2	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		3	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop Area Anderach
	Amelioration of livelihood – sale of NTFP (commercial)		3	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		2	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: governmental			
Site Characteristics: degraded riparian forest, intense agriculture, steep slope				
Current Land Use / Land Cover: UCC open, LCC open				
Closest (gravel) road: 1 km to gravel road				
Closest town: Andracha in 1 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

v. Woreda Gawata

Site Assessment – Community Plantation				**Plot NO: 1**
Woreda: Gawata	Kebele: Medabo	Elevation (m.a.s.l.):1594,39		
Location (Lat/Lon): 35,99936484/ 7,50789542		Estimated Area (ha): 3,7		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		3	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		3	
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		1	
	Medicines		3	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: governmental (but private intervention by Abamecha Abagero)			
Site Characteristics: previously illegally settled, vacant area since May 2011, remnants of farm land (maize, sugarcane, coffee), sheet erosion				
Current Land Use / Land Cover: cultivation 70%, multiple tree species 5%, shrub 10%, grass 15% (Cordia Africana, Croton macrostachyus, Millittia ferruginea, Acokanthera schimperi)				
Closest (gravel) road: 5,5 km				
Closest town: Saja in 7,3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 2**
Woreda: Gawata	Kebele: Kasha		Elevation (m.a.s.l.):1943,71	
Location (Lat/Lon): 36,07021509 / 7,45219299		Estimated Area (ha): 18,9		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	1	
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Rehabilitation of degraded forests		4	cultivation
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	4	
	Support of Watershed Management / interdisciplinary		3	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: communal			
Site Characteristics: recently deforested, vacant land, used for grazing, hot air condition due to absence of trees				
Current Land Use / Land Cover: 100% grass land				
Closest (gravel) road: 2,7 km				
Closest town: Keja Kata in 3,6 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 3**
Woreda: Gawata	Kebele: Qolla		Elevation (m.a.s.l.):1798,12	
Location (Lat/Lon): 35,97653136 / 7,47761296		Estimated Area (ha): 13,7		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		4	
Improvement	Erosion Control (Soil Improvement)	Hazard	1	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental		1	
Site Characteristics: disturbance of intact forest, active agriculture expansion, 5 households affected				
Current Land Use / Land Cover: cultivation 60%, multiple tree species 10%, shrub 15%, grass 15% (Schefflera abyssinica, Olea welwitschii, Croton macrostachyus, Sapium ellipticum)				
Closest (gravel) road: 8,4 km				
Closest town: Macheto in 6,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 4**
Woreda: Gawata	Kebele: Duma		Elevation (m.a.s.l.):2004,63	
Location (Lat/Lon): 36,09325880 / 7,46688736		Estimated Area (ha): 8,9		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	Serve as boundary demarcation
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		1	
Improvement	Erosion Control (Soil Improvement)	Hazard	1	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Enrichment planting
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: communal			
Site Characteristics: activity within BR core zone, previously settled (2010), vacant				
Current Land Use / Land Cover: remnants of cultivation 80%, grass land 20%				
Closest (gravel) road: 2,7 km				
Closest town: Kobech in 2,6 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 5**
Woreda: Gawata	Kebele: Saja		Elevation (m.a.s.l.):2002,89	
Location (Lat/Lon): 36,03638609 / 7,49435341		Estimated Area (ha): 93,4		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	Serve as boundary demarcation
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Steep slope > 26°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Severe forest loss
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		3	
	Secret Meeting Sites		1	
other	Ownership: governmental (illegal agricultural expansion)			
Site Characteristics: agricultural expansion along natural forest border, grazing areas				
Current Land Use / Land Cover: cultivation 60%, multiple tree species 10%, shrub 15%, grass 15% (Cordia Africana, Croton macrostachyus, Millittia ferruginea)				
Closest (gravel) road: 0,1 km				
Closest town: Saja in 1,8 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 6**
Woreda: Gawata		Kebele: Saja		Elevation (m.a.s.l.):1956,27
Location (Lat/Lon): 36,04200076 / 7,48604163			Estimated Area (ha): 16,4	
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection		BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)		Hazard	4	Steep slope > 21°
	Flood / Runoff Control (Water holding capacity)			3	
	Water Pollution Control			2	
	Fertility of surrounding agriculture			3	
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			4	Release pressure of BR core zones
	Amelioration of livelihood – sale of NTFP (commercial)			3	
	Amelioration of livelihood – sale of timber products (commercial)			1	
	Increase of livestock fodder			3	
	Medicines			1	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: governmental				
Site Characteristics: scattered trees between rivers, steep area, used for grazing					
Current Land Use / Land Cover: UCC open, LCC open, grass land 50% (Cordia Africana, Croton macrostachyus, Millittia ferruginea, Acokanthera schimperi)					
Closest (gravel) road: 1,9 km					
Closest town: Saja in 2,9 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

Site Assessment – Reforestation				**Plot NO: 7**
Woreda: Gawata	Kebele: Yeshana Turana		Elevation (m.a.s.l.):1635,22	
Location (Lat/Lon): 35,97122842 / 7,48170359		Estimated Area (ha): 0,4		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		1	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	Moderately steep
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Recent forest loss
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: perforation within intact forest, cultivated with maize, sugarcane, coffee				
Current Land Use / Land Cover: cultivation 80%, MPT 5%, grass 15% (Cordia Africana, Croton macrostachyus, Millittia ferruginea)				
Closest (gravel) road: 9,1 km				
Closest town: Macheto in 7,3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 8**
Woreda: Gawata	Kebele: Gawa Mecha		Elevation (m.a.s.l.):1842,28	
Location (Lat/Lon): 36,02477363 / 7,45342119		Estimated Area (ha): 20,5		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	Serve as boundary demarcation
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
	Biodiversity Increase (Enrichment Planting, different native tree species)		1	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	recent forest loss due to illegal settlement
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: active LU conversion, overgrazing, compacted soil				
Current Land Use / Land Cover: degraded forest, UCC open, LCC open (Schefllera abyssinica, Olea welwitschii, Croton macrostachyus, Sapium ellipticum)				
Closest (gravel) road: 2,3 km				
Closest town: Macheto in 1,5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation (candidate – propose for 2013)				**Plot NO: 9**
Woreda: Gawata		Kebele: Saja	Elevation (m.a.s.l.):2016,76	
Location (Lat/Lon): 36,04588078 / 7,46292968			Estimated Area (ha): 311,6	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Strong corridor between BR core zones
	Biodiversity Increase (Enrichment Planting, different native tree species)		4	Surrounded by agriculture
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Partly steep
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		4	River system serves around 200 HH
	Rehabilitation of degraded forests		2	
Support	Riparian Forest Enhancement		4	Enrichment planting
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		2	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: enrichment of riparian forest, could connect forest patches, very steep area				
Current Land Use / Land Cover: scattered trees, grazing area, UCC open, LCC open				
Closest (gravel) road: 0,1 km				
Closest town: Saja in 0,5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 10**
Woreda: Gawata	Kebele: Saja		Elevation (m.a.s.l.):2040,23	
Location (Lat/Lon): 36,07615224 / 7,47929698		Estimated Area (ha): 31,2		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	Forest loss/settlement within BR core
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
	Biodiversity Increase (Enrichment Planting, different native tree species)		1	
Improvement	Erosion Control (Soil Improvement)	Hazard	1	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: communal (illegal settlement)			
Site Characteristics: used for grazing, start to expand farm land				
Current Land Use / Land Cover: grass land and single trees				
Closest (gravel) road: 1,9 km				
Closest town: Saja in 3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 11**
Woreda: Gawata	Kebele: Kasha		Elevation (m.a.s.l.):2125,18	
Location (Lat/Lon): 36,08032474 / 7,46141222		Estimated Area (ha): 16,8		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	Serve as boundary demarcation
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
	Biodiversity Increase (Enrichment Planting, different native tree species)		1	
Improvement	Erosion Control (Soil Improvement)	Hazard	2	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Recent forest loss
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: communal			
Site Characteristics: used for grazing, agricultural expansion, heavy disturbance of forest boundary				
Current Land Use / Land Cover: grass land 100%, (Millittia ferruginea, Cordia Africana, Pouteria adolfi-friederici)				
Closest (gravel) road: 4 km				
Closest town: Saja in 4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 12**
Woreda: Gawata	Kebele: Kasha	Elevation (m.a.s.l.):2048,23		
Location (Lat/Lon): 36,08587969 / 7,46130023		Estimated Area (ha): 8,1		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	4	Serve as boundary demarcation
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		1	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Enrichment planting
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: communal			
Site Characteristics: remnants of farm land, agricultural expansion, clearing of forest within core zone				
Current Land Use / Land Cover: grass land 100% (Millittia ferruginea, Prunus Africana, Pouteria adolfi-friederici, Croton macrostachyus)				
Closest (gravel) road: 3,6 km				
Closest town: Kobech in 3,9 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 13**
Woreda: Gawata	Kebele: Medabo		Elevation (m.a.s.l.):1565,49	
Location (Lat/Lon): 36,02999761 / 7,51498297		Estimated Area (ha): 60,0		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	4	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	Sheet erosion
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		3	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Release pressure of primary forest
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		1	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: Communal (until May 2011 illegal settlement)			
Site Characteristics: still occupied by agriculture (maize, sugarcane, coffee), steep area, vulnerable to landslide				
Current Land Use / Land Cover: cultivation 70%, MTS 5%, shrub 10%, grass 15%, (Cordia Africana, Croton macrostachyus, Millittia ferruginea, Acokanthera schimperi)				
Closest (gravel) road: 1,9 km				
Closest town: Boginda in 3,3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 14**
Woreda: Gawata		Kebele: Saja		Elevation (m.a.s.l.):2046,41
Location (Lat/Lon): 36,04628557 / 7,49562631			Estimated Area (ha): 15,6	
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection		BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)		Hazard	4	Steep > 26°
	Flood / Runoff Control (Water holding capacity)			3	
	Water Pollution Control			1	
	Fertility of surrounding agriculture			4	Soil degradation, sheet erosion, gullying
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			4	Wood resource for Saja, release pressure of BR core zone
	Amelioration of livelihood – sale of NTFP (commercial)			3	
	Amelioration of livelihood – sale of timber products (commercial)			2	
	Increase of livestock fodder			2	
	Medicines			1	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: governmental				
Site Characteristics: scattered trees, used for grazing, adjacent to river network, high wood collection					
Current Land Use / Land Cover: scattered trees, grass land (Cordia Africana, Croton macrostachyus, Millittia ferruginea, Pouteria adolfi-friederici)					
Closest (gravel) road: 0,7 km					
Closest town: Saja in 2 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

Site Assessment – Community Plantation				**Plot NO: 15**
Woreda: Gawata	Kebele: Kasha		Elevation (m.a.s.l.):1807,42	
Location (Lat/Lon): 36,08921390 / 7,43102487		Estimated Area (ha): 66,4		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	perforation
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Recent forest loss on site and in vicinity
	Amelioration of livelihood – sale of NTFP (commercial)		1	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: communal (illegal settlement)			
Site Characteristics: activity very close to the BR core zone, used for grazing, agriculture expansion				
Current Land Use / Land Cover: cultivation 85%, MPT 15% (Croton macrostachyus, Dracaena afromontane)				
Closest (gravel) road: 2,8 km				
Closest town: Keja Kata in 2,2 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 16**
Woreda: Gawata	Kebele: Duma		Elevation (m.a.s.l.):1839,54	
Location (Lat/Lon): 36,10184674 / 7,45281027		Estimated Area (ha): 73,1		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)	Hazard	1	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Recent forest loss on site and in vicinity
	Amelioration of livelihood – sale of NTFP (commercial)		1	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		3	
	Medicines		3	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: Communal (illegal settlement, 9 HH)			
Site Characteristics: grass land/agriculture within intact forest				
Current Land Use / Land Cover: cultivation 70%, MTS 5%, shrub 10%, grass 15%, (Cordia Africana, Croton macrostachyus, Millittia ferruginea)				
Closest (gravel) road: 1,9 km				
Closest town: Kobech in 2,7 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 17**
Woreda: Gawata		Kebele: Gawa Mecha	Elevation (m.a.s.l.):1788,10	
Location (Lat/Lon): 36,04698138 / 7,44165777			Estimated Area (ha): 20,1	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Forest loss on site and in vicinity, release pressure on BR core
	Amelioration of livelihood – sale of NTFP (commercial)		3	
	Amelioration of livelihood – sale of timber products (commercial)		3	
	Increase of livestock fodder		1	
	Medicines		3	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: Communal (illegal agricultural expansion)			
Site Characteristics: used for grazing, agricultural expansion, degraded forest				
Current Land Use / Land Cover: cultivation 70%, MTS 15%, shrub 10%, grass 5%, (Cordia Africana, Croton macrostachyus, Millittia ferruginea)				
Closest (gravel) road: 0,3 km				
Closest town: Keja Kata in 2,3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 18**
Woreda: Gawata	Kebele: Duma		Elevation (m.a.s.l.):2022,19	
Location (Lat/Lon): 36,09454786 / 7,46447168		Estimated Area (ha): 18,6		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	4	BR core protection
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Perforation
Improvement	Erosion Control (Soil Improvement)	Hazard	2	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Severe forest loss in vicinity
	Amelioration of livelihood – sale of NTFP (commercial)		1	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		3	
	Medicines		2	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: Communal (illegal agriculture expansion, 8 HH on site)			
Site Characteristics: forest perforation, close to BR core zone, recent activity				
Current Land Use / Land Cover: cultivation 80%, MTS 15%, shrub 10%, grass 5%, (Cordia Africana, Croton macrostachyus, Millittia ferruginea, Acokanthera schimperi)				
Closest (gravel) road: 2,6 km				
Closest town: Kobech in 2,9 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 19**
Woreda: Gawata		Kebele: Kasha	Elevation (m.a.s.l.):2109,73	
Location (Lat/Lon): 36,08024552 / 7,46458709			Estimated Area (ha): 55,0	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Perforation
Improvement	Erosion Control (Soil Improvement)	Hazard	2	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		3	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Severe forest loss in vicinity
	Amelioration of livelihood – sale of NTFP (commercial)		1	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		3	
	Medicines		2	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: Communal (illegal settlement, HH 19)			
Site Characteristics: agricultural patch in intact forest, used for grazing and shifting cultivation (only during rainy season)				
Current Land Use / Land Cover: 100% grass land (fallow)				
Closest (gravel) road: 3,6 km				
Closest town: Saja in 3,7 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 20**
Woreda: Gawata		Kebele: Gawa Mecha	Elevation (m.a.s.l.):1840,57	
Location (Lat/Lon): 36,02478931 / 7,44868822			Estimated Area (ha): 30,7	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)	Hazard	2	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Very recent deforestation
	Amelioration of livelihood – sale of NTFP (commercial)		1	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: Communal (occupied by 2 HH without permission)			
Site Characteristics: very close human activity to BR core zone				
Current Land Use / Land Cover: cultivation 80%, MTS 15%, shrub 10%, grass 5%, (Schefllera abyssinica, Olea welwitschii, Croton macrostachyus, Sapium ellipticum)				
Closest (gravel) road: 2,4 km				
Closest town: Macheto 1,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 21**
Woreda: Gawata		Kebele: Saja		Elevation (m.a.s.l.):2164,43
Location (Lat/Lon): 36,08644491/ 7,50654015			Estimated Area (ha): 48,8	
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection		BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)		Hazard	3	
	Flood / Runoff Control (Water holding capacity)			3	
	Water Pollution Control			1	
	Fertility of surrounding agriculture			3	
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			4	Good road access, could supply Saja / Medabo with additional wood
	Amelioration of livelihood – sale of NTFP (commercial)			3	
	Amelioration of livelihood – sale of timber products (commercial)			2	
	Increase of livestock fodder			3	
	Medicines			1	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: Communal (illegal settlement)				
Site Characteristics: rolling, vulnerable to soil degradation, used for grazing, propose of DoAD					
Current Land Use / Land Cover: cultivation 40%, MTS 15%, shrub 30%, grass 15%, (Cordia Africana, Croton macrostachyus, Millittia ferruginea)					
Closest (gravel) road: 0,2 km					
Closest town: Saja in 1,9 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

Site Assessment – Community Plantation (candidate)				**Plot NO: 22**
Woreda: Gawata	Kebele: Saja		Elevation (m.a.s.l.):2041,35	
Location (Lat/Lon): 36,07219675 / 7,48686380		Estimated Area (ha): 21,0		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Serve as stepping stone in agricultural matrix
Improvement	Erosion Control (Soil Improvement)	Hazard	1	
	Flood / Runoff Control (Water holding capacity)		4	Soil degradation, gullying
	Water Pollution Control		2	
	Fertility of surrounding agriculture		3	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Additional wood resource
	Amelioration of livelihood – sale of NTFP (commercial)		1	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		3	
	Medicines		2	
	Resin (subsistence / commercial)		3	
	Secret meeting sites		1	
other	Ownership: governmental			
Site Characteristics: improvement of riparian forest cover, safeguard connectivity of forest patches				
Current Land Use / Land Cover: cultivation 40%, MPT 20%, shrub 20%, grass 20%, most cultivations are set as fallow				
Closest (gravel) road: 1,5 km				
Closest town: Saja in 1,2 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 23**
Woreda: Gawata	Kebele: Medabo	Elevation (m.a.s.l.):1545,5		
Location (Lat/Lon): 36,05380614 / 7,53294647		Estimated Area (ha): 15,1		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Connectivity between wetland and forest
Improvement	Erosion Control (Soil Improvement)	Hazard	1	
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		3	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		3	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		3	
	Amelioration of livelihood – sale of NTFP (commercial)		3	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		4	Decrease pressure on wetland
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: unclear (should be communal, but used for private cultivation)			
Site Characteristics: along and on wetland scattered tree patch, agriculture expansion				
Current Land Use / Land Cover: cultivation 60% (mostly fallow), MPT 25%, shrub 10%, grass 5%				
Closest (gravel) road: 0,8 km				
Closest town: Boginda in 1,2 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation alternative Agroforestry				**Plot NO: 24**
Woreda: Gawata	Kebele: Duma	Elevation (m.a.s.l.):1837,28		
Location (Lat/Lon): 36,11599800 / 7,47514978		Estimated Area (ha): 24,0		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Steep slope > 26°
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		4	Water supply for Kobech
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Kobech
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		2	
	Increase of livestock fodder		2	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: Communal (approx. 7 HH)			
Site Characteristics: legal settlement but area susceptible to landslide and soil erosion, very close to BR core zone, very high wood collection				
Current Land Use / Land Cover: Cultivation 80%, MPT 5%, shrub 5%, grass land 10%				
Closest (gravel) road: 0,3 km				
Closest town: Kobech in 0,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

vi. Woreda Gesha

Site Assessment – Reforestation				**Plot NO: 40**
Woreda: Gesha	Kebele: Meligawa	Elevation (m.a.s.l.):2403,44		
Location (Lat/Lon): 35,86582458 / 7,68967750		Estimated Area (ha): 43,5		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Perforation
	Biodiversity Increase		4	Sustain bamboo forest
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Prevent soil erosion
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Rehabilitation of degraded forests		4	Dried out bamboo forest
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	3	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		2	
other	Ownership: governmental			
Site Characteristics: dried out bamboo forest (2010/2011) , immediate reforestation would prevent settlement, steep slopes				
Current Land Use / Land Cover: vacant, dried bamboo, grass land / debris				
Closest (gravel) road: 8,4 km to trail (difficult seedling transport)				
Closest town: Agaro Shuniti in 8,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 41**
Woreda: Gesha	Kebele: Meligawa	Elevation (m.a.s.l.):2391,34		
Location (Lat/Lon): 35,87247172 / 7,69371590		Estimated Area (ha): 8,5		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		4	Sustain bamboo forest
Improvement	Erosion Control (Soil Improvement)	Hazard	3	Prevent soil erosion
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Rehabilitation of degraded forests		4	Dried out bamboo forest
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	3	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		2	
other	See PLOT 40			
Site Characteristics: See PLOT 40				
Current Land Use / Land Cover: See PLOT 40				
Closest (gravel) road: 8,9 km to trail				
Closest town: Agaro Shuniti in 9,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 42**
Woreda: Gesha	Kebele: Meligawa	Elevation (m.a.s.l.):2366,72		
Location (Lat/Lon): 35,87759142 / 7,69645129		Estimated Area (ha): 5,0		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		4	Sustain bamboo forest
Improvement	Erosion Control (Soil Improvement)	Hazard	3	Prevent soil erosion
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Rehabilitation of degraded forests		4	Dried out bamboo forest
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	3	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		2	
other	See PLOT 40			
Site Characteristics: See PLOT 40				
Current Land Use / Land Cover: See PLOT 40				
Closest (gravel) road: 9,4 to trail				
Closest town: Agaro Shuniti in 9,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 1**
Woreda: Gesha	Kebele: Didifa		Elevation (m.a.s.l.):2151,91	
Location (Lat/Lon): 35,74319973 / 7,56049991		Estimated Area (ha): 11,7		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	2	
	Creation of Corridors	Fragmentation	4	Connectivity of Forest
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	2	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		3	
	Rehabilitation of degraded forests		3	
Support	Riparian Forest Enhancement		4	Wetland protection
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		2	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: communal (used privately → agricultural expansion)			
Site Characteristics: disturbed riparian forest, important site to maintain forest connectivity, safeguard perennial freshwater, connection between two wetlands and intact forest cover				
Current Land Use / Land Cover: scattered trees, cultivation (riverside highland forest)				
Closest (gravel) road: 0,6 km				
Closest town: Alem Zare in 3,7 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 2**
Woreda: Gesha	Kebele: Didifa	Elevation (m.a.s.l.):2145,63		
Location (Lat/Lon): 35,76344927 / 7,57301126		Estimated Area (ha): 8,6		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	2	
	Creation of Corridors	Fragmentation	4	Connectivity of Forest
	Biodiversity Increase (Enrichment Planting, different native tree species)		4	
Improvement	Erosion Control (Soil Improvement)	Hazard	2	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		3	
	Rehabilitation of degraded forests		4	
Support	Riparian Forest Enhancement		4	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		2	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other				
Site Characteristics: disturbed riparian forest, important site to maintain forest connectivity, safeguard perennial freshwater				
Current Land Use / Land Cover: scattered trees, cultivation (Schefllera abyssinica, Croton macrostachyus, Syzygium guineese)				
Closest (gravel) road: adjacent to food trail				
Closest town: Alem Zare 2,2 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation (on a long term, establishment of PFM)				**Plot NO: 3**
Woreda: Gesha		Kebele: Kicho	Elevation (m.a.s.l.):2354,55	
Location (Lat/Lon): 35,81728911 / 7,58104450			Estimated Area (ha): 10,6	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	corridor
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Scattered trees
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: Communal			
Site Characteristics: degraded forest with frequent human activity (agricultural expansion, grazing)				
Current Land Use / Land Cover: degraded forest (Pouteria adolfi-friederici, Prunus Africana)				
Closest (gravel) road: 1,5 km				
Closest town: Uuca in 3,6 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 4**
Woreda: Gesha	Kebele: Kicho	Elevation (m.a.s.l.):2011,88		
Location (Lat/Lon): 35,80371062 / 7,55023463		Estimated Area (ha): 68,5		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Slope >21°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Good road access
	Amelioration of livelihood – sale of NTFP (commercial)		4	Honey trees needed (Scheflera abyssinica)
	Amelioration of livelihood – sale of timber products (commercial)		2	
	Increase of livestock fodder		2	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: Communal			
Site Characteristics: very steep, vulnerable towards landslides, high wood collection, grazing medium, urgent				
Current Land Use / Land Cover: degraded forest, UCC moderate, LCC moderate (Pouteria adolfi-friederici, Szygium guineense)				
Closest (gravel) road: 0,6 km				
Closest town: Uuca in 2,8 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 5**
Woreda: Gesha	Kebele: Emiriky	Elevation (m.a.s.l.):2109,27		
Location (Lat/Lon): 35,73145546 / 7,64526264		Estimated Area (ha): 11,1		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Corridor between two forest patches
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	2	
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		3	
	Rehabilitation of degraded forests		3	
Support	Riparian Forest Enhancement		4	Scattered trees, intense agriculture in surrounding
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: communal			
Site Characteristics: disturbed riparian forest, grazing high, wood collection high, rolling topography, important corridor for forest patch connection				
Current Land Use / Land Cover: degraded forest, UCC open, LCC open (Szygium guineense, Schefllera abyssinica, Croton macrostachyus)				
Closest (gravel) road: 1,6 km to trail				
Closest town: Ata Tatek in 2,1 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation				**Plot NO: 6**
Woreda: Gesha		Kebele: Wechito Yeri	Elevation (m.a.s.l.):1960,18	
Location (Lat/Lon): 35,72765053 / 7,71145118			Estimated Area (ha): 8,5	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Corridor of forest patches
	Biodiversity Increase (Enrichment Planting, different native tree species)		2	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		2	
	Rehabilitation of degraded forests		3	
Support	Riparian Forest Enhancement		4	Conjunction of river streams, recent forest loss
	Wetland Conservation	CDM	3	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: communal (but legally used for private cultivation)			
Site Characteristics: very important site to maintain forest connectivity, very steep slopes, sheet erosion				
Current Land Use / Land Cover: cultivation 70%, MPT 10%, shrub 10%, grass land 10%				
Closest (gravel) road: 1,5 km to trail				
Closest town: Bihata in 4,2 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Agroforestry (candidate)				**Plot NO: 7**
Woreda: Gesha		Kebele: Danity		Elevation (m.a.s.l.):223,89
Location (Lat/Lon): 35,77043250 / 7,58719205		Estimated Area (ha): 31,1		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)		4	Steep slope >26°, degraded soil
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Shade		2	
	Wind Protection		2	
Cultural / Economic	Timber (commercial)		4	Good supply for Daka town
	Timber (subsistence)		4	Surrounded by intense agriculture
	Fuel Wood		4	Good supply for Daka town
	Fertility Control		4	Degraded soil, gullying
	Medicines		1	
	NTFP (commercial)		2	
	NTFP (subsistence)		2	
	Livestock fodder		4	Decrease pressure on adjacent wetland
	Beehives		1	
other	Ownership: private			
Site Characteristics: very steep site, so far no measures to control, sheet erosion, need of technical support, high wood collection, high grazing				
Current Land Use / Land Cover: Scattered trees, cultivation 40%, MPT 40% (remnants of primary forest), 20%grass (Schefllera abyssinica, Croton macrostachyus, Szygium guineense)				
Closest (gravel) road: 2,8 km				
Closest town: Daka in 0,9 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 8**
Woreda: Gesha		Kebele: Amero Atta		Elevation (m.a.s.l.):2127,30
Location (Lat/Lon): 35,74022282 / 7,64571929			Estimated Area (ha): 8,0	
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection		BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)		Hazard	4	Rolling slope > 12°
	Flood / Runoff Control (Water holding capacity)			2	
	Water Pollution Control			1	
	Fertility of surrounding agriculture			3	
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			4	Stable woodlot (size) for last 10 years, enrichment planting recommended
	Amelioration of livelihood – sale of NTFP (commercial)			2	
	Amelioration of livelihood – sale of timber products (commercial)			2	
	Increase of livestock fodder			3	
	Medicines			1	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: Communal				
Site Characteristics: scattered trees, high wood collection, high grazing, need of additional wood resource, rolling					
Current Land Use / Land Cover: UCC open, LCC open (Szygium guineense, Schefllera abyssinica, Croton macrostachyus)					
Closest (gravel) road: 1,2 km to trail					
Closest town: Ata Tatek in 1,6 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

Site Assessment – Community Plantation				**Plot NO: 9**
Woreda: Gesha		Kebele: Gechito Yeri		Elevation (m.a.s.l.):2092,77
Location (Lat/Lon): 35,75411901 / 7,66259759			Estimated Area (ha): 12,4	
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection		BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	4	Connection between forest patches and wetland
Improvement	Erosion Control (Soil Improvement)		Hazard	3	
	Flood / Runoff Control (Water holding capacity)			1	
	Water Pollution Control			1	
	Fertility of surrounding agriculture			1	
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			3	
	Amelioration of livelihood – sale of NTFP (commercial)			2	
	Amelioration of livelihood – sale of timber products (commercial)			4	Good supply for close town Ata Tatek
	Increase of livestock fodder			3	
	Medicines			1	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: governmental				
Site Characteristics: degraded riparian forest, adjacent to wetland, overgrazing					
Current Land Use / Land Cover: UCC open, LCC open (Szygium guineense, Schefllera abyssinica)					
Closest (gravel) road: 0,3 km to trail					
Closest town: Ata Tatek in 0,4 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

Site Assessment – Community Plantation				**Plot NO: 10**
Woreda: Gesha		Kebele: Gechito Yeri		Elevation (m.a.s.l.):2095,63
Location (Lat/Lon): 35,74352610 / 7,65881766			Estimated Area (ha): 15,4	
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection		BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)		Hazard	4	Compacted soil, importance to maintain / enrich forest cover (density)
	Flood / Runoff Control (Water holding capacity)			3	
	Water Pollution Control			1	
	Fertility of surrounding agriculture			2	
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			3	
	Amelioration of livelihood – sale of NTFP (commercial)			2	
	Amelioration of livelihood – sale of timber products (commercial)			4	Good supply for close town Ata Tatek
	Increase of livestock fodder			2	
	Medicines			1	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other					
Site Characteristics: degraded forest, recent human activity, need of additional wood resource, overgrazing, high wood collection, soil erosion					
Current Land Use / Land Cover: UCC open, LCC open (Szygium guineense, Bambus spec., Schefllera abyssinica)					
Closest (gravel) road: 0,6 km to trail					
Closest town: Ata Tatek in 0,3 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

Site Assessment – Reforestation				**Plot NO: 11**
Woreda: Gesha	Kebele: Amero Atta	Elevation (m.a.s.l.):2111,90		
Location (Lat/Lon): 35,75078928 / 7,64786437		Estimated Area (ha): 18,7		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Corridor between two forest patches
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		2	
Support	Riparian Forest Enhancement		4	Enrichment of riparian forest
	Wetland Conservation	CDM	4	Protection of close by wetland
	Support of Watershed Management / interdisciplinary		2	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental			
Site Characteristics: very degraded riparian forest, adjacent to wetland, agricultural expansion, high grazing				
Current Land Use / Land Cover: UCC open, LCC open (Szygium guineense, Croton macrostachyus), cultivation 40%				
Closest (gravel) road: trail crossing,				
Closest town: Ata Tarek in 1 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Agroforestry				**Plot NO: 12**
Woreda: Gesha		Kebele: Bat Ogity		Elevation (m.a.s.l.):2587,47
Location (Lat/Lon): 35,83685220 / 7,67370503		Estimated Area (ha): 215,0		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)		4	Distinct topography with slopes up to 35°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Shade		3	
	Wind Protection		2	
Cultural / Economic	Timber (commercial)		2	
	Timber (subsistence)		3	
	Fuel Wood		4	Pop. Areas Meligawa, Bat Ganity, Shupa Waho
	Fertility Control		4	Degraded soil, affected by gullying
	Medicines		1	
	NTFP (commercial)		2	No appropriate road access
	NTFP (subsistence)		4	Espec. Honey
	Livestock fodder		4	Site surrounded by intense agriculture
	Beehives		1	
other	Ownership: private			
Site Characteristics: Very steep slopes, degraded soil, no erosion measures so far, susceptible towards landslide				
Current Land Use / Land Cover: cultivation 70% (maize, enset), MPT 10%, shrub 5%, grass 15%				
Closest (gravel) road: 7,1 km to trail				
Closest town: Bihata in 7,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Agroforestry				**Plot NO: 13**
Woreda: Gesha		Kebele: Bat Ogity		Elevation (m.a.s.l.):2311,99
Location (Lat/Lon): 35,79273118 / 7,64591495		Estimated Area (ha): 113,1		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)		4	Severe soil degradation, recent forest loss
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Shade		2	
	Wind Protection		1	
Cultural / Economic	Timber (commercial)		4	Access to town Ata Tatek
	Timber (subsistence)		4	Surrounded by intense agriculture
	Fuel Wood		4	Release pressure from nearby primary forest (severe forest loss within 10 years)
	Fertility Control		4	
	Medicines		1	
	NTFP (commercial)		2	
	NTFP (subsistence)		1	
	Livestock fodder		3	
	Beehives		4	Recommendation: Schefllera abyssinica
other	Ownership: private			
Site Characteristics: very steep area, susceptible to landslide, intense agriculture				
Current Land Use / Land Cover: cultivation 80%, MPT 10%, Shrub 5%, grass 5% (Croton macrostachyus, Olea welwitschii, Croton macrostachyus)				
Closest (gravel) road: 2,9 km to trail				
Closest town: Ata Tatek in 4,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Agroforestry				**Plot NO: 14**
Woreda: Gesha		Kebele: Bat Ganity		Elevation (m.a.s.l.):2671,09
Location (Lat/Lon): 35,82989317 / 7,61856318		Estimated Area (ha): 72,3		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)		4	Server forest loss on steep slopes>26°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Shade		3	
	Wind Protection		2	
Cultural / Economic	Timber (commercial)		1	
	Timber (subsistence)		4	Pop pressure in Kebele Bat Ganity, protection of forest in BR candidate zone
	Fuel Wood		4	
	Fertility Control		3	
	Medicines		3	
	NTFP (commercial)		1	
	NTFP (subsistence)		2	
	Livestock fodder		3	
	Beehives		1	
other	Ownership: private			
Site Characteristics: very steep slope, recent deforestation, high danger of landslide, intense cultivation, no erosion measure				
Current Land Use / Land Cover: cultivation 85%, shrub 5%, grass land 10%				
Closest (gravel) road: 4,9 km				
Closest town: Dibdib in 4,2 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Agroforestry				**Plot NO: 15**
Woreda: Gesha	Kebele: Kicho		Elevation (m.a.s.l.):2278,14	
Location (Lat/Lon): 35,79870031 / 7,55914818		Estimated Area (ha): 75,5		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)		4	Soil degradation, rill erosion,
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Shade		2	
	Wind Protection		2	
Cultural / Economic	Timber (commercial)		4	Good road access
	Timber (subsistence)		3	
	Fuel Wood		4	Release pressure on adjacent primary forest
	Fertility Control		4	Declining yield
	Medicines		1	
	NTFP (commercial)		1	
	NTFP (subsistence)		3	
	Livestock fodder		3	
	Beehives		3	
other	Ownership: private			
Site Characteristics: very steep slopes, susceptible towards landslide, degraded soil, low fertility				
Current Land Use / Land Cover: cultivation 85% (maize, enset), shrub 5%, grass land 10%				
Closest (gravel) road: 0,2 km				
Closest town: Uuca in 3,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Agroforestry				**Plot NO: 16**
Woreda: Gesha	Kebele: Kicho	Elevation (m.a.s.l.):2103,40		
Location (Lat/Lon): 35,79037566 / 7,55744518		Estimated Area (ha): 75,4		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)		4	Soil degradation, rill erosion
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Shade		2	
	Wind Protection		2	
Cultural / Economic	Timber (commercial)		2	Good road
	Timber (subsistence)		4	
	Fuel Wood		4	Release pressure on adjacent
	Fertility Control		4	Declining
	Medicines		1	
	NTFP (commercial)		1	
	NTFP (subsistence)		3	
	Livestock fodder		3	
	Beehives		3	
other	Ownership: private			
Site Characteristics: very steep slopes, susceptible towards landslide, degraded soil, low fertility				
Current Land Use / Land Cover: cultivation 85% (maize, enset), shrub 5%, grass land 10%				
Closest (gravel) road: 0,2 km				
Closest town: Uuca in 3,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

vii. Woreda Gimbo

Site Assessment – Community Plantation	(Candidate – unclear land use rights)	**Plot NO: 1**
Woreda: Gimbo	Kebele: Hamani	Elevation (m.a.s.l.):1948,55
Location (Lat/Lon): 36,30781112 / 7,36167714	Estimated Area (ha): 54,4	

Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Steep slope>26°
	Flood / Runoff Control (Water holding capacity)		4	Problem with dried out streams
	Water Pollution Control		3	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	At the moment exploitation of governmental pine plantation
	Amelioration of livelihood – sale of NTFP (commercial)		1	
	Amelioration of livelihood – sale of timber products (commercial)		1	No market access
	Increase of livestock fodder		3	
	Medicines		2	
	Resin (subsistence / commercial)		3	
	Secret meeting sites		1	
other	Ownership: communal / private (status of permission unclear) around 30 HH			

Site Characteristics: very steep area, landslide (2010), between governmental pine plantation and primary forest, PFM site established (Baqa), grave fresh water shortage, perennial steams dried out

Current Land Use / Land Cover: cultivation 70%, MPT 10%, shrub 5%, grass 15% (Schefflera abyssinica, Croton macrostachyus, Prunus africana, Olea welwitschii)

Closest (gravel) road: adjacent to trail // Closest town: Diri in 2 km

Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information

Remark: Unsustainable use of gov. pine plantation for fire wood supply (selective cutting of young, slender trees due to inappropriate harvesting tools→ consequence: no regeneration

Site Assessment – Reforestation (next year implementation)				**Plot NO: 2**
Woreda: Gimbo	Kebele: Hamani	Elevation (m.a.s.l.):1837,38		
Location (Lat/Lon): 36,30665263 / 7,36479018		Estimated Area (ha): 36,4		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
	Biodiversity Increase (Enrichment Planting, different native tree species)		2	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Steep slope >26°, affected by landslide (4 HH left area), problem of dried out streams
	Flood / Runoff Control (Water holding capacity)		4	
	Water Pollution Control		2	
	Rehabilitation of degraded forests		1	
Support	Riparian Forest Enhancement		4	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		4	Support of FAO watershed management
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: communal			
Site Characteristics: (See PLOT 1) degraded riparian forest, grave problems of fresh water access, degraded soil on openings, intense grazing				
Current Land Use / Land Cover: UCC medium, LCC open (Albizia gummifera, Cordia Africana, Schefllera abyssinica)				
Closest (gravel) road: See PLOT 1				
Closest town: See PLOT 1				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation (at least enrichment planting at southern PLOT edge)				**Plot NO: 4**
Woreda: Gimbo	Kebele: Michity	Elevation (m.a.s.l.):1964,83		
Location (Lat/Lon): 36,09969351 / 7,30257092		Estimated Area (ha): 21,2		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		2	
	Rehabilitation of degraded forests		4	Degraded forest border
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: Private (but agricultural expansion to primary forest, southern border)			
Site Characteristics: steep slopes, agricultural expansion, understorey clearing for coffee plantation, forest grazing, Agroforestry is common practice				
Current Land Use / Land Cover: cultivation 70%, MPT 20%, shrub 5%, grass 5% (Millittia ferruginea, Cordia Africana, Schefllera abyssinica)				
Closest (gravel) road: adjacent to main road				
Closest town: Gari in 1,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				
Remarks: Recommendation towards BR Zonation: Enlarge buffer around BR core zone. Due to road access, high disturbance				

Site Assessment – Community Plantation				**Plot NO: 5**
Woreda: Gimbo	Kebele: Kutti	Elevation (m.a.s.l.):1825,82		
Location (Lat/Lon): 36,19372751 / 7,44717243		Estimated Area (ha): 9,3		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		4	High wild life density→potential for tourism
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Release pressure of primary forest
	Amelioration of livelihood – sale of NTFP (commercial)		1	
	Amelioration of livelihood – sale of timber products (commercial)		3	
	Increase of livestock fodder		4	Forest grazing
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: communal			
Site Characteristics: rolling topography, soil degradation (fallow practiced), illegal agricultural / coffee plantation expansion, public well, very frequent observations of lion /leopard (!)				
Current Land Use / Land Cover: scattered trees, understorey cleared for coffee plantation, cultivation 20% (illegal), shrub 30%, grass 30%, 20% degraded forest				
Closest (gravel) road: 0,5 km to main road				
Closest town: Kuti in 2,3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation	(alternatively Agroforestry)			**Plot NO: 6**
Woreda: Gimbo	Kebele: Kutti	Elevation (m.a.s.l.):1690,65		
Location (Lat/Lon): 36,20132660 / 7,45992269		Estimated Area (ha): 21,1		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient or close to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Steep slope >26°
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Recent forest loss
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		3	
	Secret Meeting Sites		1	
other	Ownership: Private (since 3 years fallowing due to soil degradation)			
Site Characteristics: very degraded soil, used for communal grazing, gullying, area close to core zone, agriculture expansion				
Current Land Use / Land Cover: MPT (remnants of forest) 20%, shrub 30%, grass 50% (Schefllera abyssinica, Gravillia robusta, Croton macrostachyus)				
Closest (gravel) road: 1 km to main road				
Closest town: Kuti in 1,7 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 7**
Woreda: Gimbo		Kebele: Tula	Elevation (m.a.s.l.):1843,05	
Location (Lat/Lon): 36,17440133 / 7,44753463			Estimated Area (ha): 33,7	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Gullying, steep slopes >26°, degraded soil
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		3	
	Fertility of surrounding agriculture		2	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Release pressure of primary forest
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		4	Good road access
	Increase of livestock fodder		4	Instead of using site as grazing, compensate with fodder trees
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: Communal			
Site Characteristics: very degraded soil thus only fallowing, used for communal grazing, gullying, area close to core zone				
Current Land Use / Land Cover: shrub 20%, grass 80%				
Closest (gravel) road: adjacent to main road				
Closest town: Kasha in 0,5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 8**
Woreda: Gimbo	Kebele: Michity		Elevation (m.a.s.l.):2326,82	
Location (Lat/Lon): 36,08695854 / 7,26110589		Estimated Area (ha): 38,9		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	4	BR core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Perforation
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		3	
	Animal / Plant habitats		3	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Additional wood support of for Michity, Daga
	Amelioration of livelihood – sale of NTFP (commercial)		3	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		1	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: communal (recent settlement approx. 3 yr ago) unclear property rights, approx. 12 HH			
Site Characteristics: very recent settlement, causes forest perforation, expansion of agriculture, steep area, so far no soil erosion observed				
Current Land Use / Land Cover: cultivation 80% (maize), MPT 10% , shrub 5%, grass 5%				
Closest (gravel) road: adjacent to trail (very remote, 5 km to gravel road)				
Closest town: Gari in 5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation	(not visited)			**Plot NO: 9**
Woreda: Gimbo	Kebele: Shocha	Elevation (m.a.s.l.):2075,84		
Location (Lat/Lon): 36,35887228 / 7,37077399		Estimated Area (ha): 28,5		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is close to core zones)	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Steep slope >26°
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: communal (according to DoAD)			
Site Characteristics:				
Current Land Use / Land Cover: cultivation 100%				
Closest (gravel) road: 4 km to all weather road				
Closest town: Uorka in 1,3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Reforestation	(candidate/no visited)	**Plot NO: 10**
Woreda: Gimbo	Kebele: Meligawa	Elevation (m.a.s.l.):1810,98
Location (Lat/Lon): 36,26183565 / 7,29348361	Estimated Area (ha): 8,1	

Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is within candidate core)	BR Maintenance	4	BR candidate core buffer
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		1	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Degraded forest border
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: governmental (illegal settlement)			

Site Characteristics: perforation within intact forest
Current Land Use / Land Cover
Closest (gravel) road:2,3 km to all weather road
Closest town: Kaja Kela in 3,4 km
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information

Site Assessment – Reforestation	(candidate/no visited)	**Plot NO: 11**
Woreda: Gimbo	Kebele: Hamani	Elevation (m.a.s.l.):1708,68
Location (Lat/Lon): 36,25821752 / 7,30540546	Estimated Area (ha): 31,9	

Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	
Improvement	Erosion Control (Soil Improvement)	Hazard	1	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Patch inside of primary forest (but stable for years)
Support	Riparian Forest Enhancement		1	
	Wetland Conservation	CDM	1	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership: private			

Site Characteristics:

Current Land Use / Land Cover: 100% agriculture

Closest (gravel) road: 1,6 to all weather road

Closest town: Kaya Kela in 2,3 km

Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information

Site Assessment – Agroforestry				**Plot NO: 12**
Woreda: Gimbo		Kebele: Kayakela		Elevation (m.a.s.l.):1700,51
Location (Lat/Lon): 36,22240886 / 7,29683320			Estimated Area (ha): 49,0	
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection		BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)		Hazard	3	
	Flood / Runoff Control (Water holding capacity)			1	
	Water Pollution Control			1	
	Fertility of surrounding agriculture			1	
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			4	Pop. Area Bonga
	Amelioration of livelihood – sale of NTFP (commercial)			1	
	Amelioration of livelihood – sale of timber products (commercial)			4	Pop. Area Bonga, good road access
	Increase of livestock fodder			3	
	Medicines			1	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: private (HH 14)				
Site Characteristics: recent forest loss (< 10yr), conversion to farm land, very steep terrain, soil erosion (gullying)					
Current Land Use / Land Cover: cultivation 70 % (maize, bean, enset)					
Closest (gravel) road: 1 km to all weather road					
Closest town: Kaya Kela in 1,7 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

Site Assessment – Community Plantation				**Plot NO: 13**
Woreda: Gimbo		Kebele: Ufudo		Elevation (m.a.s.l.):1772,09
Location (Lat/Lon): 36,21735941 / 7,37182676			Estimated Area (ha): 8,4	
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection		BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)		Hazard	3	
	Flood / Runoff Control (Water holding capacity)			2	
	Water Pollution Control			1	
	Fertility of surrounding agriculture			3	
	Animal / Plant habitats			2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			4	Better woodlot management needed, already used as community plantation, enrichment with espec. Schefllera abyssinica, Hagenia abyssinica
	Amelioration of livelihood – sale of NTFP (commercial)			2	
	Amelioration of livelihood – sale of timber products (commercial)			3	
	Increase of livestock fodder			3	
	Medicines			1	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: communal				
Site Characteristics: small degraded woodlot, which needs proper management and assigned property rights, Situation will become worse in 2012 when closed by governmental forest is under concessions (missing wood resource)					
Current Land Use / Land Cover: degraded forest, UCC medium, LCC medium (Gravillia robusta, Prunus Africana, Millittia ferruginea)					
Closest (gravel) road					
Closest town					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

viii. Woreda Saylem

Site Assessment – Reforestation				**Plot NO: 1**
Woreda: Saylem	Kebele: Senteriya		Elevation (m.a.s.l.):2266,59	
Location (Lat/Lon): 35,82433483 / 7,76609354		Estimated Area (ha): 12,1		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Strengthen river buffer, important corridor between two forest patches
	Biodiversity Increase (Enrichment Planting, different native tree species)		4	Severe forest loss on site
Improvement	Erosion Control (Soil Improvement)	Hazard	2	
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		3	
	Rehabilitation of degraded forests		1	
Support	Riparian Forest Enhancement		4	
	Wetland Conservation	CDM	2	
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		3	
	Secret Meeting Sites		2	
other			1	
Site Characteristics: Buffer of river, protect riparian forest, water conservation, important side to maintain connectivity of forest patches				
Current Land Use / Land Cover: degraded riparian forest (Schefllera abyssinica, Acokanthera schimperi, Prunus Africana, Szygium guineense)				
Closest (gravel) road: 0,2 km to trail				
Closest town: Agaro Shuniti in 3,3 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 2**
Woreda: Saylem		Kebele: Senteriya		Elevation (m.a.s.l.):2236,05
Location (Lat/Lon): 35,81231650 / 7,77245973			Estimated Area (ha): 11,3	
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection		BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	4	Connection between forest patches
Improvement	Erosion Control (Soil Improvement)		Hazard	4	Steep slopes along river channel
	Flood / Runoff Control (Water holding capacity)			2	
	Water Pollution Control			3	
	Fertility of surrounding agriculture			3	
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			4	In surrounding severe forest loss
	Amelioration of livelihood – sale of NTFP (commercial)			3	
	Amelioration of livelihood – sale of timber products (commercial)			4	Good road access
	Increase of livestock fodder			3	
	Medicines			2	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: governmental				
Site Characteristics: Buffer of river, protect riparian forest, water conservation, recent deforestation, wood collection medium, high grazing, steep slope					
Current Land Use / Land Cover: degraded riparian forest (Schefllera abyssinica, Acokanthera schimperi, Prunus Africana, Szygium guineense)					
Closest (gravel) road: 1,7 km to trail					
Closest town: Agaro Shuniti in 3,3 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

Site Assessment – Community Plantation				**Plot NO: 3**
Woreda: Saylem		Kebele: Shunity		Elevation (m.a.s.l.):2090,97
Location (Lat/Lon): 35,78507403 / 7,74794413			Estimated Area (ha): 37,7	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	3	Slopes > 16°
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Decrease pressure on BR candidate core
	Amelioration of livelihood – sale of NTFP (commercial)		4	Already used for bee hive hanging
	Amelioration of livelihood – sale of timber products (commercial)		4	Good access to Agaro Shunity
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: governmental (was occupied by settlement 2010)			
Site Characteristics: Due to vicinity to Chella and Agaro Shuniti, high wood demand, very high human activity in the last 10 years, strongly rolling slopes, degraded soil				
Current Land Use / Land Cover: degraded riparian forest, MPT 90%, shrub 10%				
Closest (gravel) road: 1,2 km to trail				
Closest town: Agaro Shuniti in 1,7 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation (combination with Agroforestry)				**Plot NO: 4**
Woreda: Saylem		Kebele: Shunity		Elevation (m.a.s.l.):2269,47
Location (Lat/Lon): 35,79139913 / 7,72429250			Estimated Area (ha): 43,6	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Severe recent forest loss
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		3	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Pop. Area Shunity, prevent from forest exploitation in surrounding forest
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		4	Adjacent to main road
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: private (partly legally given to landless people 2010)			
Site Characteristics: partially given to landless people, very steep area, high human activity in last 10 years, important for water protection, additional wood source for				
Current Land Use / Land Cover: degraded forest, inside cultivation (maize false banana)				
Closest (gravel) road: 0,2 to trail				
Closest town: Agaro Shunti in 1,7 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 5**
Woreda: Saylem		Kebele: Yuna Homi		Elevation (m.a.s.l.):2123,96
Location (Lat/Lon): 35,79959383 / 7,90805077			Estimated Area (ha): 20,6	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	3	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)	Hazard	2	
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Severe forest degradation in vicinity, due to intense wood collection and understorey clearing, prevention needed
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		1	
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: governmental			
Site Characteristics: very recent deforestation, rolling topography, used for grazing, high wood collection				
Current Land Use / Land Cover: degraded riparian forest (Acokanthera schimperi, Szygium guineense, Croton macrostachyus, Schefllera abyssinica)				
Closest (gravel) road: 0,4 km				
Closest town: Del in 8,6				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 6**
Woreda: Saylem		Kebele: Yuna Ginda		Elevation (m.a.s.l.):2189,31
Location (Lat/Lon): 35,81907981 / 7,85087808			Estimated Area (ha): 16,5	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)	Hazard	2	
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		3	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		2	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Mostly recommended to plant trees for livestock feeding to release pressure on adjacent wetland
	Amelioration of livelihood – sale of NTFP (commercial)		2	
	Amelioration of livelihood – sale of timber products (commercial)		2	
	Increase of livestock fodder		4	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: governmental			
Site Characteristics: conservation of ecosystem between wetland and river, high human activity (expanding agriculture), rolling topography, wetland protection				
Current Land Use / Land Cover: degraded riparian forest UCC open, LCC open (Schefllera abyssinica, Croton macrostachyus, Prunus africana)				
Closest (gravel) road: 1 km to trail				
Closest town: Del in 2,2 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 7**
Woreda: Saylem		Kebele: Senteriya		Elevation (m.a.s.l.):2230,28
Location (Lat/Lon): 35,83063900 / 7,83609776			Estimated Area (ha): 16,0	
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection		BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)		Hazard	3	
	Flood / Runoff Control (Water holding capacity)			1	
	Water Pollution Control			1	
	Fertility of surrounding agriculture			1	
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			4	Adjacent to Del (according to PRA, not much woodlot in home gardens due to labour in town)
	Amelioration of livelihood – sale of NTFP (commercial)			1	
	Amelioration of livelihood – sale of timber products (commercial)			4	Good road access
	Increase of livestock fodder			3	
	Medicines			1	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: communal				
Site Characteristics: buffer degraded riparian forest, steep slopes, medium grazing, sheet erosion, high wood collection					
Current Land Use / Land Cover: riparian forest UCC open, LCC open (Croton macrostachyus, Szygium guineense)					
Closest (gravel) road: 0,2 to trail					
Closest town: Del in 0,9 km					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

Site Assessment – Agroforestry				**Plot NO: 8**
Woreda: Saylem		Kebele: Agaro Ogity		Elevation (m.a.s.l.):22255,49
Location (Lat/Lon): 35,77948099 / 7,72812189		Estimated Area (ha): 29,3		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)		4	Degraded soil, steep slopes >26°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Shade		3	
	Wind Protection		2	
Cultural / Economic	Timber (commercial)		3	
	Timber (subsistence)		4	Avoid exploitation of adjacent forest (BR candidate core), in surrounding severe forest loss within last 10 years (due to resettlement)
	Fuel Wood		4	
	Fertility Control		4	
	Medicines		1	
	NTFP (commercial)		2	
	NTFP (subsistence)		2	
	Livestock fodder		3	
	Beehives		4	Recommendation: Schefllera abyssinica
other	Ownership: private			
Site Characteristics: Very steep area, soil protection, avoidance of erosion, susceptible to landslide, legally assigned for resettlement (2005)				
Current Land Use / Land Cover: cultivation 70% (maize, false banana), MRT 10%, shrub 10%, grass land 10%				
Closest (gravel) road: adjacent trail				
Closest town: Chella in 1 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Agroforestry				**Plot NO: 9**
Woreda: Saylem		Kebele: Shunity		Elevation (m.a.s.l.):2089,85
Location (Lat/Lon): 35,76538008 / 7,74081077		Estimated Area (ha): 32,7		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)		4	Strongly rolling slopes >16°
	Flood / Runoff Control (Water holding capacity)		3	
	Water Pollution Control		2	
	Shade		3	
	Wind Protection		3	
Cultural / Economic	Timber (commercial)		2	
	Timber (subsistence)		4	Pop. Area Chella town
	Fuel Wood		4	Prevent wood extraction from adjacent forest
	Fertility Control		2	
	Medicines		1	
	NTFP (commercial)		2	
	NTFP (subsistence)		2	
	Livestock fodder		3	
	Beehives		3	
other				
Site Characteristics: soil protection, very steep area, intense agriculture, no erosion measures so far				
Current Land Use / Land Cover: cultivation 75% (maize, false banana), MPT 5%, shrub 10%, grass land 10%				
Closest (gravel) road: 2,2 km to trail				
Closest town: Chella in 0,6 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation (candidate)				**Plot NO: 10**
Woreda: Saylem		Kebele: Shunity		Elevation (m.a.s.l.):2100,43
Location (Lat/Lon): 35,78301065 / 7,73410732			Estimated Area (ha): 28,1	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Strongly rolling slope>16°
	Flood / Runoff Control (Water holding capacity)		1	
	Water Pollution Control		1	
	Fertility of surrounding agriculture		1	
	Animal / Plant habitats		1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)		4	Prevent wood extraction from adjacent forest
	Amelioration of livelihood – sale of NTFP (commercial)		1	
	Amelioration of livelihood – sale of timber products (commercial)		4	Pop. Area Chella town
	Increase of livestock fodder		3	
	Medicines		1	
	Resin (subsistence / commercial)		1	
	Secret meeting sites		1	
other	Ownership: government (unclear use rights)			
Site Characteristics: Additional wood resource for Chella, very high human activity during the last 10 years, river protection, very steep area				
Current Land Use / Land Cover: cultivation 80% (maize, false banana), MPT 5%, shrub 10%, grass land 5%				
Closest (gravel) road: 0,5 to trail				
Closest town: Chella in 1,4 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

Site Assessment – Community Plantation				**Plot NO: 11**
Woreda: Saylem		Kebele: Gechity		Elevation (m.a.s.l.):2099,52
Location (Lat/Lon): 35,81604924 / 7,93808239			Estimated Area (ha): 19,6	
Issue	**Function**		**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection		BR Maintenance	2	
	Creation of Corridors (Gene Flow / Connectivity of Forest)		Fragmentation	2	
Improvement	Erosion Control (Soil Improvement)		Hazard	4	Rolling slope >12°, recent forest loss
	Flood / Runoff Control (Water holding capacity)			3	
	Water Pollution Control			1	
	Fertility of surrounding agriculture			1	
	Animal / Plant habitats			1	
Cultural / Economic	Supply of Construction Wood / Fuel Wood (subsistence)			4	Prevent from wood extraction of surrounding forest
	Amelioration of livelihood – sale of NTFP (commercial)			2	
	Amelioration of livelihood – sale of timber products (commercial)			2	
	Increase of livestock fodder			3	
	Medicines			1	
	Resin (subsistence / commercial)			1	
	Secret meeting sites			1	
other	Ownership: governmental				
Site Characteristics: recent deforestation, used for grazing, very steep slope, control agricultural expansion,					
Current Land Use / Land Cover: degraded forest, UCC open, LCC open (Acokanthera schimperi, Szygium guineense, Croton macrostachyus, Schefllera abyssinica)					
Closest (gravel) road: 2,5 km					
Closest town					
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information					

Site Assessment – Agroforestry				**Plot NO: 12**
Woreda: Saylem		Kebele: Dino		Elevation (m.a.s.l.):2219,54
Location (Lat/Lon): 35,83295552 / 7,84564187		Estimated Area (ha): 17,6		
Issue	**Function**	**Context**	**P**	**Relevance**
Protection	Core Zone Protection	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	3	
Improvement	Erosion Control (Soil Improvement)		4	Steep slope >26°, soil erosion (gully, rill)
	Flood / Runoff Control (Water holding capacity)		4	Compacted soil, high surface runoff
	Water Pollution Control		2	
	Shade		3	
	Wind Protection		3	
Cultural / Economic	Timber (commercial)		2	
	Timber (subsistence)		4	Recent forest loss, vicinity to town Del
	Fuel Wood		4	Prevent from forest extraction
	Fertility Control		4	Try to minimize application of fertilizers
	Medicines		1	
	NTFP (commercial)		2	
	NTFP (subsistence)		1	
	Livestock fodder		3	
	Beehives		2	
other	Ownership: governmental			
Site Characteristics: very steep area, avoidance of soil degradation, susceptible of landslide, intense agriculture, wetland protection, medium grazing, , sheet erosion				
Current Land Use / Land Cover: cultivation 80% (maize, false banana), MPT 15%, shrub 5% (Croton macrostachyus, Syzygium guineese)				
Closest (gravel) road: adjacent trail				
Closest town: Del in 1,8 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				
Site Assessment – Reforestation				**Plot NO: 13**

Woreda: Saylem		Kebele: Tachiby		Elevation (m.a.s.l.):2369,49
Location (Lat/Lon): 35,86880045 / 7,70057214		Estimated Area (ha): 116,2		
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	4	Perforation
	Biodiversity Increase (Enrichment Planting, different native tree species)		3	Sustain Bamboo forest
Improvement	Erosion Control (Soil Improvement)	Hazard	4	Partially steep slopes >62°
	Flood / Runoff Control (Water holding capacity)		2	
	Water Pollution Control		1	
	Rehabilitation of degraded forests		4	Dried bamboo forest
Support	Riparian Forest Enhancement		4	River / wetland protection
	Wetland Conservation	CDM	4	Adjacent wetland
	Support of Watershed Management / interdisciplinary		1	
	Enhancement of Agricultural Productivity		1	
	Secret Meeting Sites		1	
other	Ownership:			
Site Characteristics: Reforestation of dried bamboo forest, still vacant site, should be recovered, steep area, wetland protection				
Current Land Use / Land Cover: dried bamboo forest, grass land				
Closest (gravel) road: 7,5 km to trail				
Closest town: Agaro Shuniti in 7,5 km				
Key: 1=not important; 2=minor important; 3=important; 4=very important; blank=no information				

ix. Summary of all selected sites

Woreda	Component	Number of plots	Size of Plots in hectare	Remarks
Adiyo	Reforestation	1	2.5	this year/ next year
		6	12.3	this year/ next year
	Community Plantations	2	19.3	this year/ next year
		3	18.2	candidate
		4	22.3	candidate
		5	21.2	this year/ next year
		6	12.2	this year/ next year
		8	24.8	this year
		9	58.7	this year
		10	15.3	next year
		11	8.6	next year
		12	4.2	candidate
		13	37.9	this year/ next year
	Agroforestry	-	-	-
Bita	Reforestation	1	44.8	candidate
		3	45.05	candidate
		4	18.2	candidate
		22	40.8	this year
	Community Plantations	2	42.3	candidate
		5	35.5	this year
		6	19.7	this year
		7	28.2	this year
		8	68.7	candidate
		9	76.3	this year
		10	97.57	candidate
		11	38.2	this year
		13	91.3	candidate

Woreda	Component	Number of plots	Size of Plots in hectare	Remarks
		14	62.4	this year/ next year
	Agroforestry	-	-	-
Chena	Reforestation	1	12.2	candidate
		9	2.7	candidate
		10	1.4	candidate
		11	26.8	candidate
		12	12.3	candidate
	Community Plantations	4	48.3	this year/ next year
		5	92.3	this year/ next year
		6	98.3	this year/ next year
		7	17.5	candidate
		8	8.5	candidate
		13	139	candidate
		14	214	this year/ next year
	PFM	3	137.1	candidate
Decha	Reforestation	1	19.3	candidate
		3	13.2	candidate
		4	2.8	candidate
		5	19.2	candidate
		6	9.06	this year
		11	8.7	candidate
		12	9	this year
		13	8.7	this year
		21	32.4	candidate
		23	56.1	candidate
		24	31.5	candidate
	Community Plantations	18	41.1	candidate
		19	9.2	candidate
		20	16.23	this year
		22	108.8	candidate

Woreda	Component	Number of plots	Size of Plots in hectare	Remarks
		25	14.7	this year
		27	13.1	candidate
		28	14.2	candidate
	Agroforestry	14	199.6	candidate
		15	56.6	this year/ next year
		26	18.5	candidate
Gewata	Reforestation	2	18.9	this year
		3	13.6	this year
		4	8.8	this year
		5	93.4	this year/ next year
		7	0.3	this year
		8	20.5	this year
		9	311.6	candidate
		10	31.1	this year/ next year
		11	16.7	this year
		12	8	this year/ next year
	Community Plantations	1	3.7	this year
		6	16.3	this year
		13	59.9	this year
		14	15.5	this year
		15	66.4	this year/ next year
		16	73.03	this year/ next year
		17	20.1	this year
		18	18.5	this year/ next year
		19	54.9	this year/ next year
		20	30.6	this year/ next year
		21	48.7	this year
		22	21.03	candidate
		23	15	this year/ next year
		24	23.9	this year/ next year

Woreda	Component	Number of plots	Size of Plots in hectare	Remarks
	Agroforestry	-	-	-
Gesha	Reforestation	1	11.6	this year
		2	8.5	this year
		3	10.5	this year/ next year
		5	11.1	this year/ next year
		6	8.4	this year
		40	43.4	this year
		41	8.4	this year
		42	4.9	this year
	Community Plantations	4	68.4	this year/ next year
		8	8	this year
		9	12.4	this year
		10	15.4	this year/ next year
	Agroforestry	7	31	candidate
		12	215	this year/ next year
		13	113	this year/ next year
		14	72.2	this year/ next year
		15	75.4	this year/ next year
		16	75.4	this year/ next year
Gimbo	Reforestation	2	36.3	next year
		4	21.2	this year
		6	21	this year
		9	28.4	candidate
		10	8.1	candidate
		11	31.9	candidate
	Community Plantations	1	54.3	candidate
		5	9.2	this year
		7	33.7	this year
		8	38.9	this year
		13	8.4	this year

Woreda	Component	Number of plots	Size of Plots in hectare	Remarks
	Agroforestry	12	48.9	this year/ next year
Saylem	Reforestation	1	11.3	this year/ next year
		13	116.2	this year
	Community Plantations	2	12.1	this year/ next year
		3	37.6	this year/ next year
		4	43.5	this year/ next year
		5	20.5	this year/ next year
		6	16.5	this year/ next year
		7	15.9	this year/ next year
		10	28.1	candidate
		11	19.5	this year/ next year
	Agroforestry	8	29.2	this year/ next year
		9	32.6	this year/ next year
		12	17.6	this year/ next year

Table 25: Selected Sites on Woreda level

7. Lessons learned

After finishing the field trips to the study region some general experiences and lessons learned can be formulated which might serve for future project implementations.

a. Project planning

The component "Forest & Community Analysis" is part of the NABU Project "Climate Protection and Primary Forest Preservation - A Management Model using the Wild Coffee Forests in Ethiopia as an Example", scheduled to take place at the beginning. Former research in the region, local partners and a collection of different spatial data enable to step into the analysis in an early stage.
Due to the early state of the whole project, administrative and personnel structures were initiated but not fully operational. Therefore, this component could use the potential of synergetic effects with other project partners and subcontractors only to a minor extent. Once the framework is fully established, all project components should try to use synergetic effects for gap filling and saving resources. Parallel to the sub-component, there were different project partners and subcontractors in the Kafa region with overlapping issues and motivations but correspondence and the exchange of data was difficult.
To guarantee a maximum benefit of different components for local implementation, regular up-date meetings with all project partners are required. Establishing a sophisticated platform for the exchange of information and data is just as mandatory as this. Only a holistic approach will ensure to become able to make "a forest out of many single trees".

Be flexible in project design. In this analysis, it was assumed that the implementation of "Community Plantation" could be realized on large but connected communal land. The site visits and stakeholder meetings revealed, that communal land exists only on very patchy areas, the spatial extent and location is poorly described and it can be pointed out that it is assigned for a distinct LU with a hierarchy of rights for different stakeholders. It was not realistic to focus only on communal land for „Community Plantation" site selection, but it was feasible to search for areas which were left due to different reasons or sites where farmers are forced to practice fallowing due to insufficient yield. The former intention to consider sites which are connected to the road network or easy to reach could not be considered as strong criteria, due to a general limitation of appropriate sites. Due to the number of selected sites, their distribution and bad road access, it was not possible to visit all different sites for PRA implementation. The strategy was changed in that manner, to work together with the NABU rangers and draw relevant information by performing in-depth interviews. The spatial distribution of the sites might cause implementation difficulties concerning the transport of seedlings or establishment of tree nurseries and the monitoring of very distributed, remote plots will be a challenge.
In general, it is very challenging to find land without private claim (legal or illegal) in the Kafa region. Private investors, re-settlers, landless youth and demographic pressure in general claim land for their activities. Actually remote non-forest areas are assigned to land use purpose in the matter of agriculture or pasture farming and even very unfavorable sites (e.g. affected by mass-movement erosion, very steep slopes) are frequently cultivated.
The production of GIS models based on spatial criteria, to sort out a pre-selection of favorable sites can be useful if the study area is heterogeneous and a sound collection of spatial data exists. But best information about sites with "non-use" can be drawn out by personal communication on site. For the selection of communities where PRA could be conducted the model results provided good congruence.

Due to the altered project design and limited time for travelling to remote areas, the participation of local staff was very valuable. During a workshop in Bonga for recently employed Rangers the handling of GPS was exercised and tasks were discussed. The participation of local staff is the best guarantee for sustainability. A local contact person, who can assist the Rangers, is recommended.

b. Spatial Data

A well-known assumption states that approximately 80 percent of all data have a spatial link. Spatial data or geo-data describe objects of the real world which have a distinct position in a reference system. Almost all human activities take place in "space" or occupy it and are in dialogue with their environment.
Transparent and consistent spatial data is a pre-requisite for sound spatial planning and decision making.
In Kafa region, various NGOs already established a wide range of geo-data. The nature of most projects is a temporary activity in a project region. Staff and technical resources are bound to the project fund, thus after closing a project most collected spatial information disappears "in space". The Dutch NGO SUPAK developed a geo-dataset with valuable information for the Kafa region. Unfortunately, due to missing metadata the SUPAK dataset partially could only be harmonized with the data collected for this component.
Being able to draw out a reasonable site selection in approximately 6 month within a study area of 745.000 ha (BR size), a consistent spatial data set was needed. It was not realistic to collect all relevant data on site within the timeframe of the project. Thus, previously collected data of geoSYS, the national geodatabase (National Forest Priority Areas) and SUPAK data (administrative boundaries) were used. For the gain of information about recent participatory forest management sites (PFM) it was important to strengthen the collaboration with local NGOs, such as the Kaffa Forest Coffee Farmers Cooperative Union (KFCU). They are willing to share their experiences of conducted PRA for PFM site selection; furthermore the collaboration was important to get spatial data of recently established PPP PFM sites.

c. Project components

i. <u>In general</u>

For discussions with rural communities it is important to be able to stress out the exact benefits for the community of planned procedures and activities. The motivation to participate will increase, if participants not only know the main goals and general effects of the action (which was transported by showing the scenarios of pre-/ post-landuse) but also their duties and personal share of participation. The implementation of the action, and the use rights have to be communicated to show transparency.
If potential forest area is detected on satellite images and via GIS analysis but there are no trees remaining on the site, it is likely that this has an underlying reason. It is more efficient to tackle the cause of deforested sites, than to reforest systematically. In the analysis, a lot of potential sites were visited in vein due to information which could not be revealed by RS and GIS analysis (e.g. fallowing due to highly degraded soil, intense communal grazing).
It was recognized; that in areas allocated for resettlement (of oromian people) erosion measures were exemplary practiced (Gimbo/ Kutti). In-depth interviews show that the acceptance towards new practices is likely higher if successfully applied somewhere else in the community. Further studies should be carried out, if re-settlers from other regions could be involved to promote

erosion-preventing measures.

One major concern of rural communities is the demand of technical assistance beside the supply of plant material for being able to implement the project activity (all components). The assistance should preferably take place on-site and not in training centers. In Gimbo the training in DoAD centers (e.g. for watershed management, erosion measures) is common practice, but farmers can only adopt suggestions of methods if they would be related more closely to their problems and a model of 'good practice' is shown.

Especially around urban areas such as Wushwush town, people do not maintain home gardens with sufficient wood resource (woodlots). Thus, forest around industry is additionally under pressure for wood demand.

ii. Reforestation

The awareness of forest loss is present in all stakeholder groups, but possible effects are assessed differently. Rural communities in general are fully aware of the consequences the forest loss might cause. The acceptance of communities for reforestation is remarkably higher, if the project activity has strong relation to environmental issues they are concerned of. A real threat (like sites affected by landslide or drying streams) mobilizes people to act on that and they are grateful for assistance. In this case, reforestation seems to be a good option and will be supported by local communities. Hence, selected sites to be reforested are severely degraded (due to such agents as soil erosion, landslides, or other physical constraints). But the reforestation of areas that are severely degraded might be challenging and studies have to be carried out to identify species that do not need fertile soils, grow fast and produce a good amount of organic matter.

A different criterion for reforestation is the fragmentation of forests within Kafa. Deforestation and conversion of land use to agricultural land in closed forests is an increasing threat. The perforation of forests is observed to be a hot spot of anthropogenic action (steady increase during years) causing forest loss. Hence, it was a major concern to find the underlying reasons for this phenomenon and align the project activity to minimize perforation of forests. An underlying reason for forest settlements are re-settlers from other regions, who settle down in the forest without permission. It is challenging to find appropriate measures or incentives for the re-settlers to cooperate and support the implementation of reforestation.

iii. Agroforestry

The criteria for selecting sites to introduce agroforestry systems had been unclear during the running analysis for a long time. First strategy seemed to be promising and was pursued until the last third of the analysis. This strategy is still favored due to the potential it offers concerning education and as multiplier. The beneficial institution should be public and preferably related to environmental issues. The local coordinator (Bonga) suggested the Farmers training centers (FTC) for participation. Realizing the importance of educating and training for the rural communities in agricultural practices, the government established around 1610 FTCs in the whole SNNPR. Implementing Agroforestry systems in FTCs could help to promote the benefits of multipurpose tree species to a wide range of farmers.
The second strategy suggested, is to supply farmers facing soil degradation on-site with plant

material. To distribute plant material without return service (e.g. small fee) could resolve that individual farmers do not foster the cultivation sufficiently. Furthermore, if the selection of some pilot farmers is not done one exclusion criteria, this strategy could create competition between farmers. The best criteria to select pilot farmers include the evaluation of the accessibility to the site (easy for monitoring) and the degree of degradation of farm land.
In general, the farmers are willing to cooperate and work together with foresters and DoAD. Until now, there are selected regions for implementation, which fulfill the latter named criteria. During group discussions, the willingness to participate was confirmed, but the final selection of specific farm sites should depend on the location of the tree nursery to avoid additional transportation costs.
The farmers need technical assistance for implementation. This is essential for a successful integration. It might be helpful to show already established, well-managed Agroforestry systems of the region. One contact with an agroforestry farmer in Gimbo (Gari) could already be established (Ato Hyrdin Ibrahim /phone 0917385612) that could assist as model farmer for training purposes of target farmers. He has good experience in Agroforestry system development/ maintenance and managing around 2.5 ha farm land with integrated Agroforestry methods. He is willing to participate in the matter of demonstrating and training.

iv. Community Plantations

The initial intention, to establish the community plantations on communal land could not be realized due to absence, identification problems and unappropriate size of patches. Therefore, other land had to be acquired. Due to discrepancies of official information (governmental stakeholders) and the real situation it was most promising to get valuable information on site by interviewing local communities and key informants. This time-consuming strategy requires a lot of travelling and only weak spatial indicator for potential sites could be developed. The most challenging problem was the missing register of real estate. This forced a strategy of triangulate information to get reliable results which finally could be selected as 'Community Plantation' sites. But it can be assumed, if implementation and benefit sharing of the 'Community Plantations' is successful, this model will be accepted and supported within the whole study area. The experience with the PFM model shows that, if accepted by local communities, the model is adopted by different organizations and well known among the local people. Often they address a request to the Kebele administrative to take part in a PFM program.

d. Forest loss

Interviews, group discussions and analysis of spatial data could indicate that forest is extremely threatened if no proper boundary demarcation is present. In interviews, this was the most frequent solution named to overcome the problem of forest loss. It was indicated that the selection of an exotic tree species could remarkably contribute to a respected forest border. Private investors in Kafa Zone use Eucalyptus spec. as boundary demarcation trees. In combination with a good sustainable forest management (like PFM), these procedures seem promising.

The "round-tables" showed that high expectations exist concerning Carbon crediting. It is expected, that these initiatives can solve the issues of forest loss by giving additional monetary value to the forest while it remains intact. This point was often raised of governmental representatives but even in some communities during PRA (e.g. Gimbo / Michity)

e. Stakeholder

i. Governmental representatives

Spatial information supports decision making, thus additional material such as comprehensive maps and computer aided visualization were a good starting point for discussions.
A good tool to stress out the importance of the analysis and the urgent need for action is the identification of multitemporal land-use scenarios that would have occurred on the land with and without the project activity. Printed on maps which are handed over should be feasible for the discussion participants and should include the continuation of the pre-project land use with possible effects (e.g. forest loss, erosion, fresh water supply, fire wood access) and positive effects of project activities for future development. For identifying realistic land-use scenarios, sets of multitemporal satellite images, PRA, feedback from stakeholders and the local coordinator were appropriate sources.
The DoAD - as partner of the project - has good facilities (GPS) and staff (forest experts) to give valuable recommendation on site selections. For the discussion, it was good to request the participation of forest experts. The interest and motivation to discuss about the project action varied a lot among different Woredas. The discussions held in the Woredas Adiyo, Bita, and Gawata were helpful and led to immediate agreement and further additional site suggestions.

ii. Local Communities

Participatory Rural Appraisal (PRA) was implemented to present the analysis intentions and find out the willingness of participation. It is important to build trust and rapport for a successful PRA; otherwise you won't get reliable information.
In communities without previous experience of conducting a PRA, it was necessary to explain all details of the analysis (Gimbo/ Hamani) and give examples of other studies that have taken place in communities similar to theirs. If confidence is build, the group discussion and further interviews will be fruitful. Communities with experience in development projects (Decha/ Ufa) and programs (FAO watershed, PFM) are very cooperative. They have already benefited from different programs, thus it might be possible that they try to manipulate their response in a way, that they gain the biggest advantage out of the program. Therefore, the group discussion is very important and can also serve as verification of the in-depth interviews.
Producing sketch maps is not only a very communicative tool (everybody can draw and use a map, even if the person was not at school), but very helpful in assessing vast areas for the one or the other component. It is valuable to highlight the very good orientation and spatial memory of the local people. It was very easy to transfer the information into a GIS.
PRA should be implemented on different time points during the year. In dry season, problems of drought and water shortage were indicated as a main problem while PRA carried out in the rain season highlighted the effects of erosion.

Conflicts related to forest resource use are very prominent in interviews. The share of forest resource between different interest-groups (private investors, re-settlers, and landless youth) and the absence of clearly defined and regulated property rights in relation to natural resource and services create uncertainty and impede a sustainable management of forests.
But communities raise awareness concerning the legalization of collective resource management. At the moment, the best model for the entitlement legalization of forest resource and its security empowerment seem to be the mechanisms of Participatory Forest Management (PFM). Due to its

tradition in the Kafa region and well-established PFM projects, even remote communities have noticed the system and are interested in participation. Consequently, the awareness level of PFM among communities is much higher compared to other resource management concepts such as the "Regional Forest Priority Areas" or UNESCOs MAB biosphere reserve approach. This seems to be the reason for the existence and eligibility of PFM and BR Zonation on congruent sites. The coexistence of both structures can profit of synergetic effects.

8. Map production

For the map production very heterogeneous data sources were used. The homogenization/ pre-processing of geodata were performed with different software packages namely:

- GPS read out: GPSbabel
- GIS: ArcGIS 9.3.1 (ESRI), SAGA GIS and
- Remote Sensing: ERDAS Imagine 2010, ENVI 4.4, ILWIS
- Cartographic representation and design was done in ArcGIS 10

Incorporated data have been collected from different projects. Due to a lack of a seamless geodatabase for Kafa and rapid changes of the road infrastructure, it was necessary to integrate own GPS recordings.

- previous own projects within Kafa Region in conjunction with forest cover, namely:
  - Field work in 05/2008 in conjunction with the Msc. Thesis of Elisabeth Dresen
  - Consultancy agreement with NABU 06/2009 concerning cartographic representation of Biosphere Reserve Boundary
  - Consultancy agreement with GEO schützt den Regenwald e.V. concerning change detection and forest loss estimation of PFM areas
- existent spatial data from other (previously) active NGOs and others in Ethiopia, namely:
  - SUPAK database (no metadata existent, needs clarification)
  - National Geodatabase (received by Sisay Nune in 2008, not suitable for a cartographic representation of 1 : 50.000)
- Satellite Imagery:
  - ASTER (10/2009, 01/2007, 01/2005) with a resolution of 15x15 m
  - Landsat ETM+(02/2001) with a resolution of 15x15 m (by resolution merge)
  - DigitalGlobe (8-Band Challenge) with 2m (0.48 m Pan) → 11/11/2010

Data	Acquisition time	Resolution
Satellite imagery 1. ASTER 2. SPOT 3. DigitalGlobe 4. Landsat	 2008 – 2010 (full coverage) 2005 – 2013 (full coverage/year) 2010 (~ 100 sqkm) 2002 (full coverage)	 15 m 2.5 m 0.48 – 2 m 30 m
Vector data: 1. own field data 2. SUPAK 3. national geodatabase	 2008-2011 (streets, LULC, protected areas etc) 2002 (?) (LULC, census, infrastructure) (?) (administrative borders, RFPA, other PA)	 1: 5,000 1: 100,000 (?) 1: 1,000,000 (?)

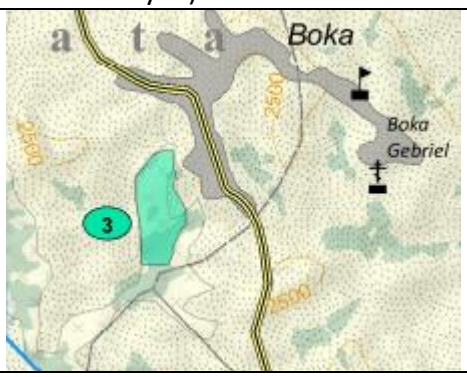
4. Open Street Map 5. PFM sites	(?) streets Kaffa Forest Coffee Farmers Cooperative Union	1: 5,000 (?)
Topographic Maps (EMA)	1977 - 1985	1 : 50,000

Table 26: Data Source in general

Due to different spatial representation of all geodata, they were transformed to the coordinate system UTM37 /WGS 84. This was most suitable to overlay GIS layers onto Satellite images. For cartographic representation the local adopted coordinate system Adindan (Zone 36/ Zone 37 North) with ellipsoid Clark 1880 was preferred due to better accuracy.

For a seamless workflow of implementation (logistic planning, planting, tree nursery establishment, investigating potential synergetic effect), thematic maps with all site proposals are generated on woreda level. The map scale 1 : 50.000 is not appropriate to show very small sites in detail, but consistent labeling of the sites will ensure a good reference for the Matrix sheets and the detailed site description (can be found in the Appendix).

Labeled site (map extract of Woreda "Adiyo")



Appending Matrix

Site Assessment – Community Plantation		(candidate)		Plot NO: 3
Woreda: Adiyo		Kebele: Alarigata		Elevation (m.a.s.l.):2455,33
Location (Lat/Lon): 36,39923189 / 7,2801952195			Estimated Area (ha): 18,2	
Issue	**Function**	**Context**	**Priority**	**Relevance**
Protection	Core Zone Protection (Agricultural Land, which is ancient to core zones)	BR Maintenance	1	
	Creation of Corridors (Gene Flow / Connectivity of Forest)	Fragmentation	1	

Table 27: How to read the maps?

Different additional information is integrated in the thematic maps, which did not have prior importance for the site selection analysis. This information is crucial for orientation in the field. All information and its source data can be found in the following table.

Additional Information on Maps	**Data Source**

Points of Interest (Church, Schools)	Topographical Maps 1:50,000 (EMA), GPS recordings
Height Points	Topographical Maps 1:50,000 (EMA)
Rivers	Topographical Maps 1:50,000 (EMA), SPOT5, hydrological model (DEM)
Town area & names	SPOT5, Topographical Maps 1:50,000 (EMA)
Roads	GPS recordings
Contour lines	DEM
Hillshade	DEM
Tree nurseries	GPS recordings
Land Use / Land Cover	ASTER ('10), SPOT5 ('11)

Table 28: Additional Information on Maps and their data source

9. Recommendations on the future status of forest and socioeconomic issues / project planning adaptation

This chapter will give a summary on problems occurred and recommendations in general and concerning the site selection. This might help to adopt the project planning.

a. Geodata – Kafa Biosphere reserve

- It was found, that the different zones are patchy due to different source data (Landsat 2001, SUPAK data). It is recommended to revise the BR Zonation geodata taking into consideration the most recent Satellite images. In the figure below, one example is given:

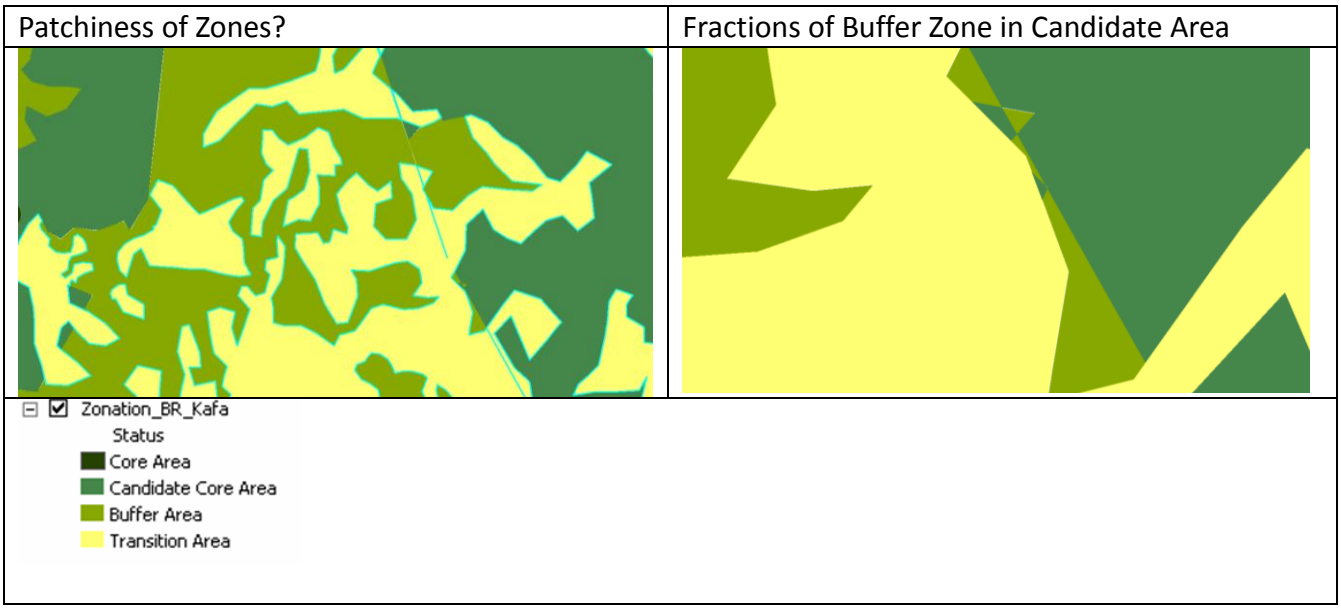


Figure 4: Patchy BR Zonation

- Very different information exists about the size and the different zones of the Kaffa Biosphere Reserve. It is recommended to integrate the missing core zones.
- In some areas, the BR core zone is not protected by a candidate core zone or a buffer zone. It is recommended to have a buffer of min. 100 meter around BR core zones. Examples can

be found in the table below

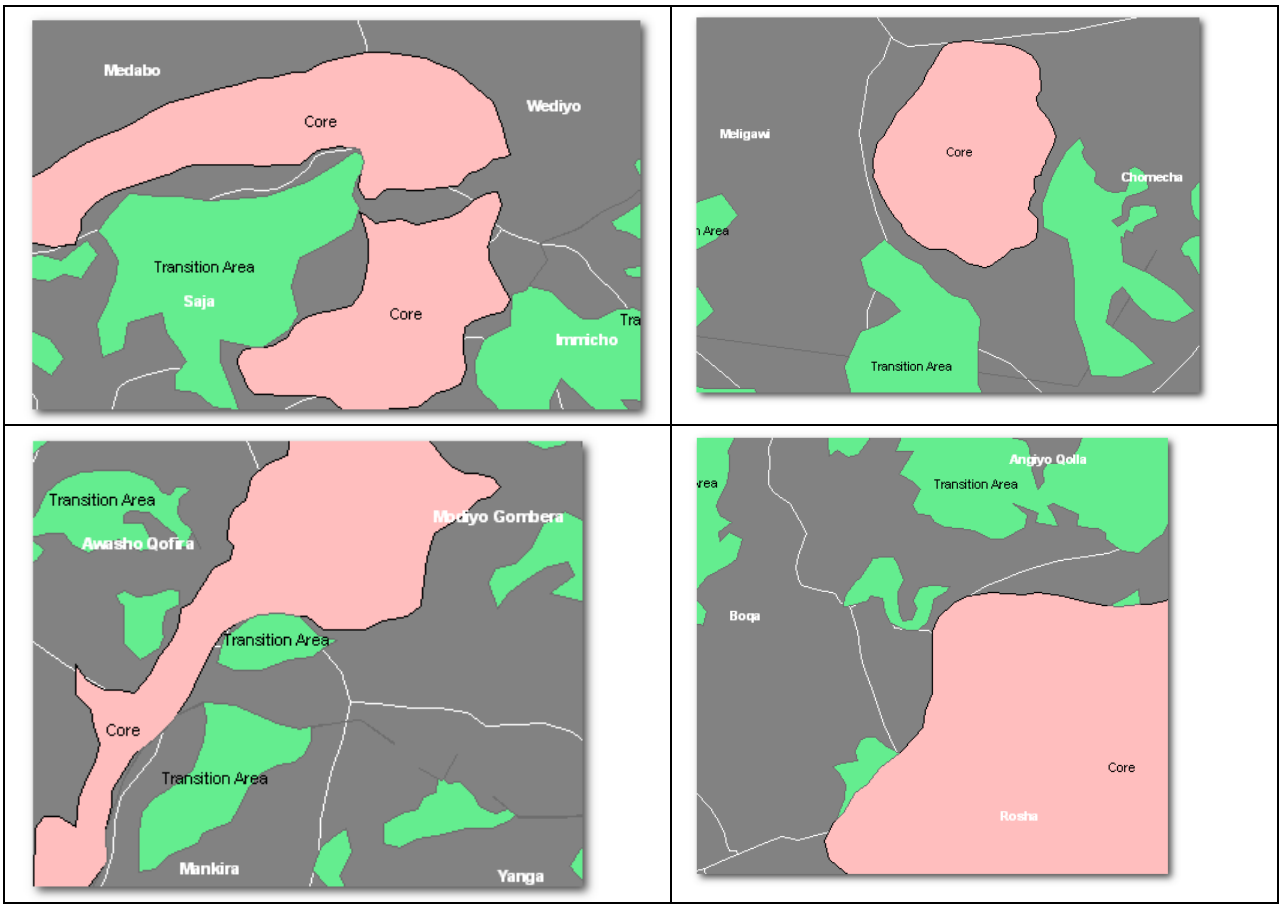


Figure 5: BR Core Zone unprotected

- In one case the BR core zone is very close to border of the BR (Kebeles: Yoka, Ufa, Sheda)

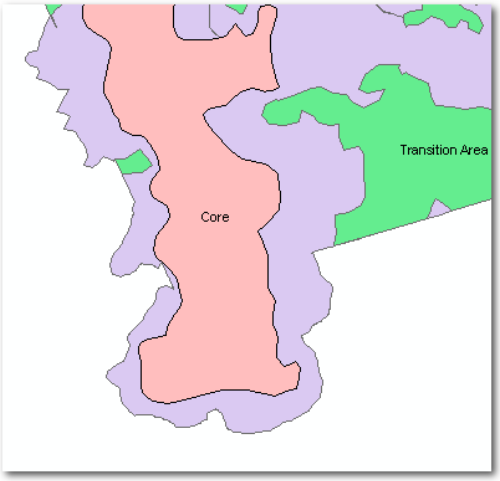


Figure 6: BR Core zone very close to BR boundary

- An inconsistent handling of roads (Gawata) concerning zonation was found. It is recommended to either include roads into core zones, or to exclude them consequently.

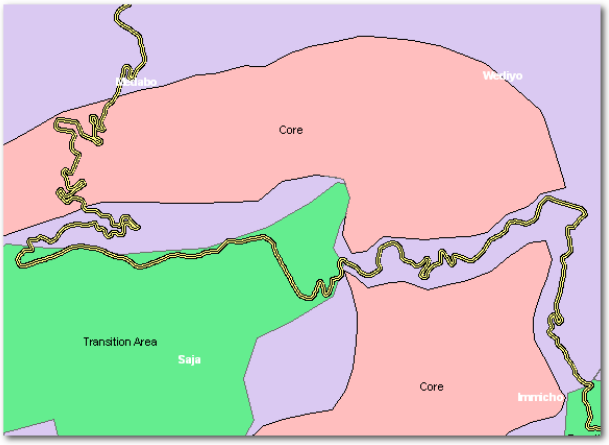


Figure 7: Inconsistent handling of road network

- It was found that the candidate core zone is often located on agriculture land.
- "Collect once, use many times". Consistent methods of data collection and storage are required. Especially for the geodata the rangers are recording. If possible, supply rangers with GPS mobile phones, that they can send text messages with coordinates to a local coordinator.

b. Specific recommendations

- Supply all rangers with sufficient (technical) material: It was always highlighted from the rangers that they have problems in using the GPS devices from DoAD (especially in Chena)
- More focus on agriculture expansion, population pressure, more efficient agriculture, resettlements
- Resettlements are often located on inappropriate areas (steep slopes, inside forest): It is possible to strengthen the cooperation with the governmental side; this will be a win-win situation for the project goal and for farmers.
- There is a discrepancy in supplying synthetic fertilizers and using them! Rural farmers would rather shift to biological fertilizers but technical assistance and governmental or zonal support is missing
- Ensure clean distinction between management models (PFM) and protection status (BR Zonation)
- Focus on property rights! According to PRA the boundary demarcation is most important
- Introduce "clean cooking" label for gastronomy → "we cook without primary forest wood" → awareness creation
- Promote BR at local level, especially in rural communities situated close to core zone (information gap)
- New LULC classification exclusively based on SPOT5 satellite imagery with combined technique of spectral and object-based classification. This technique could serve also for further stratification of the forest.

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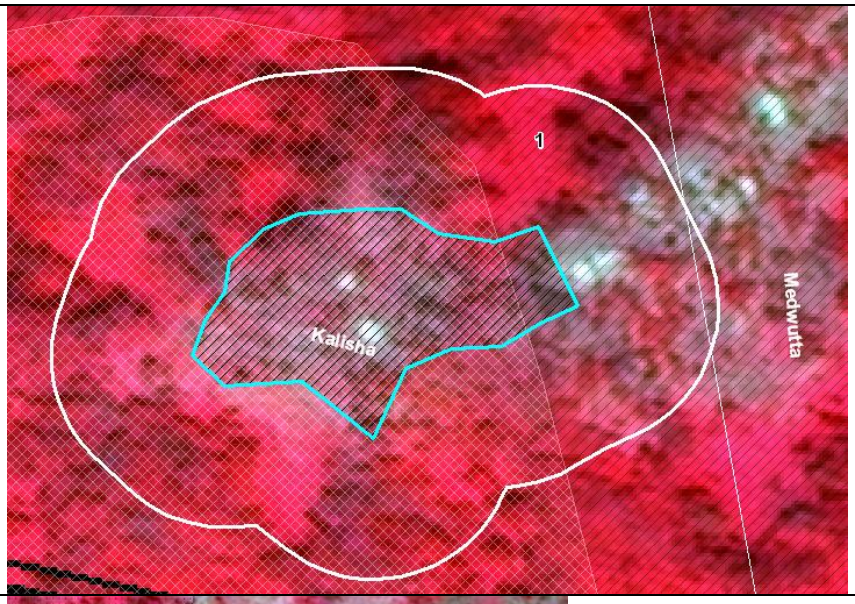
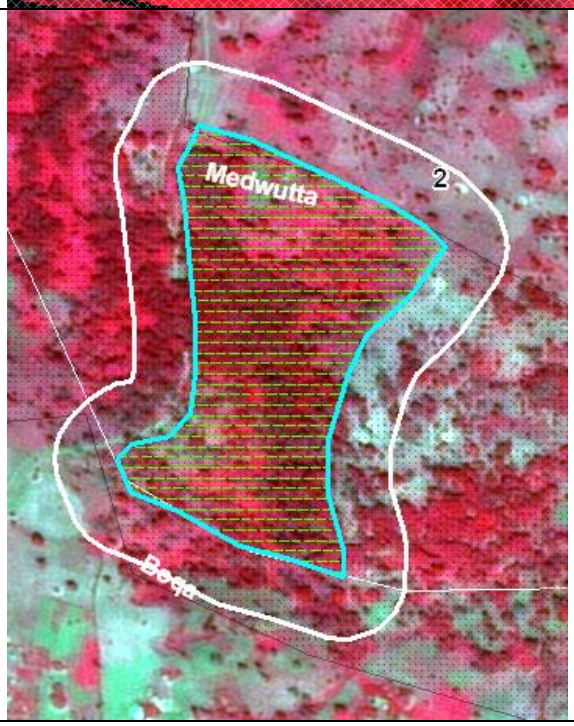
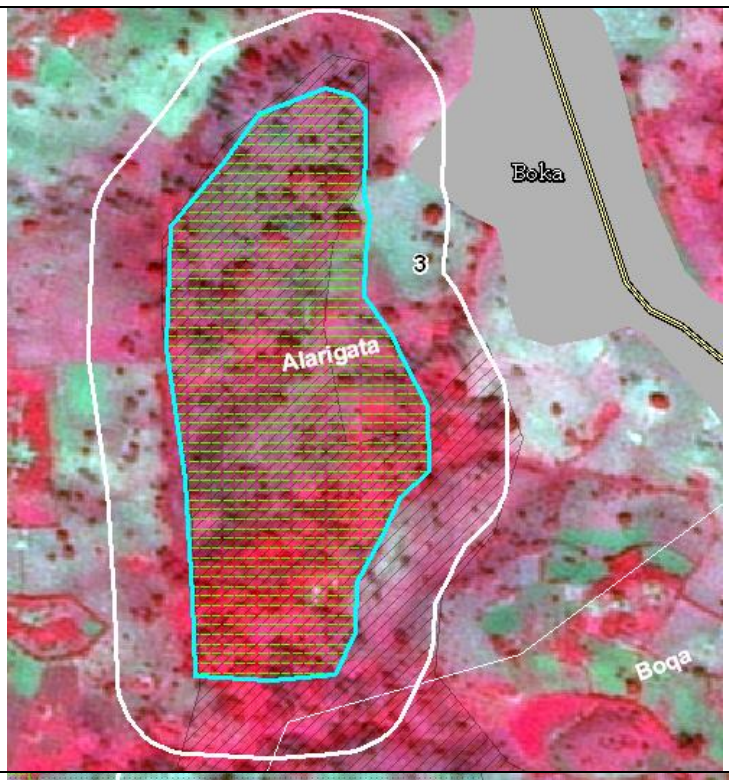
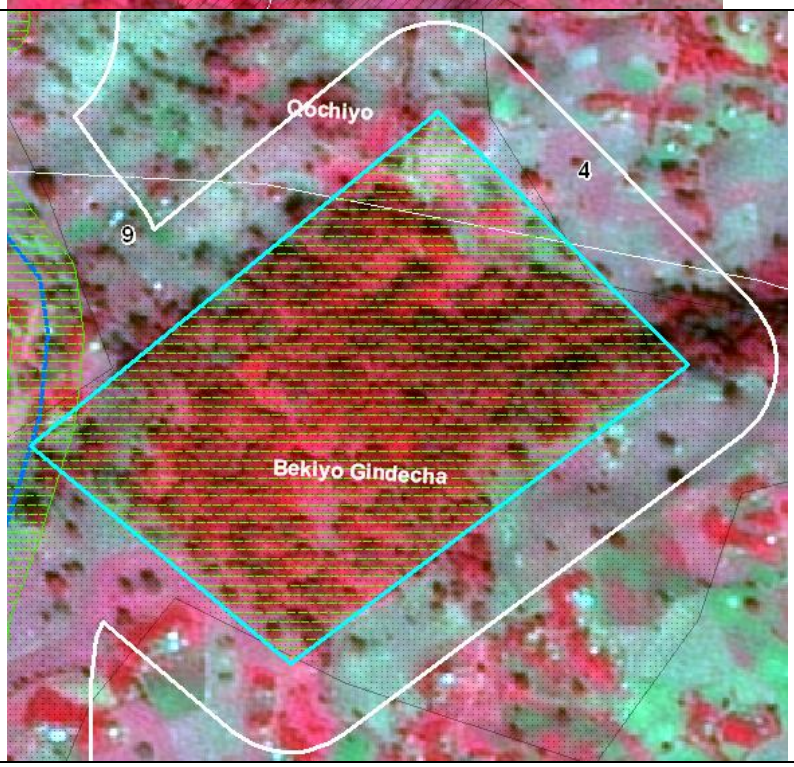
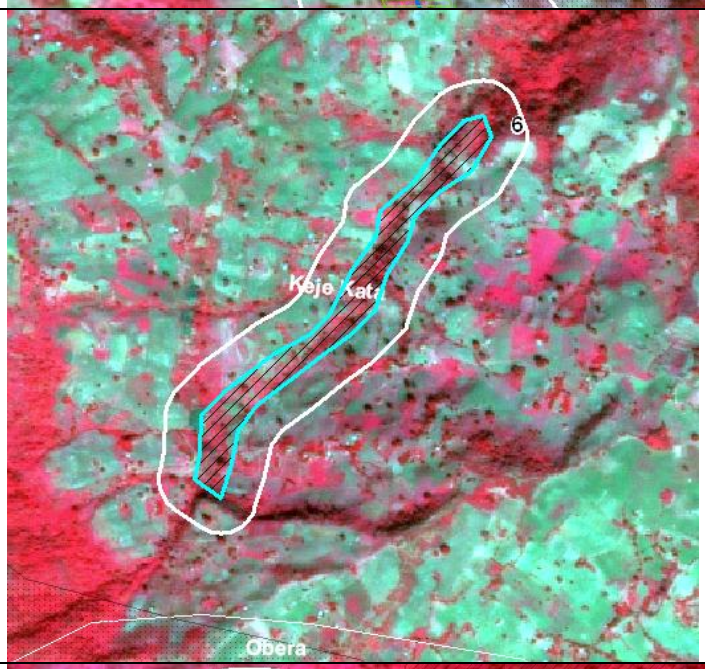
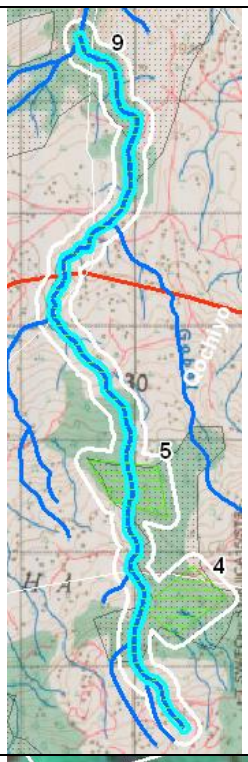
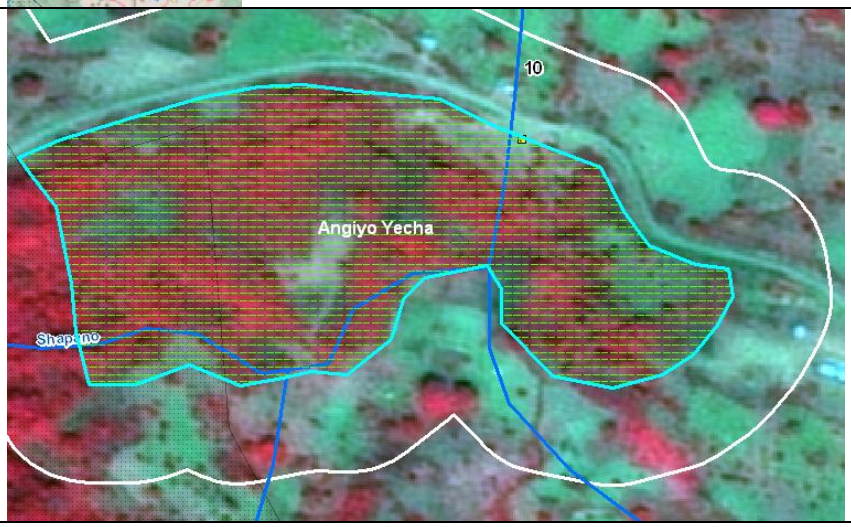
11. Annex

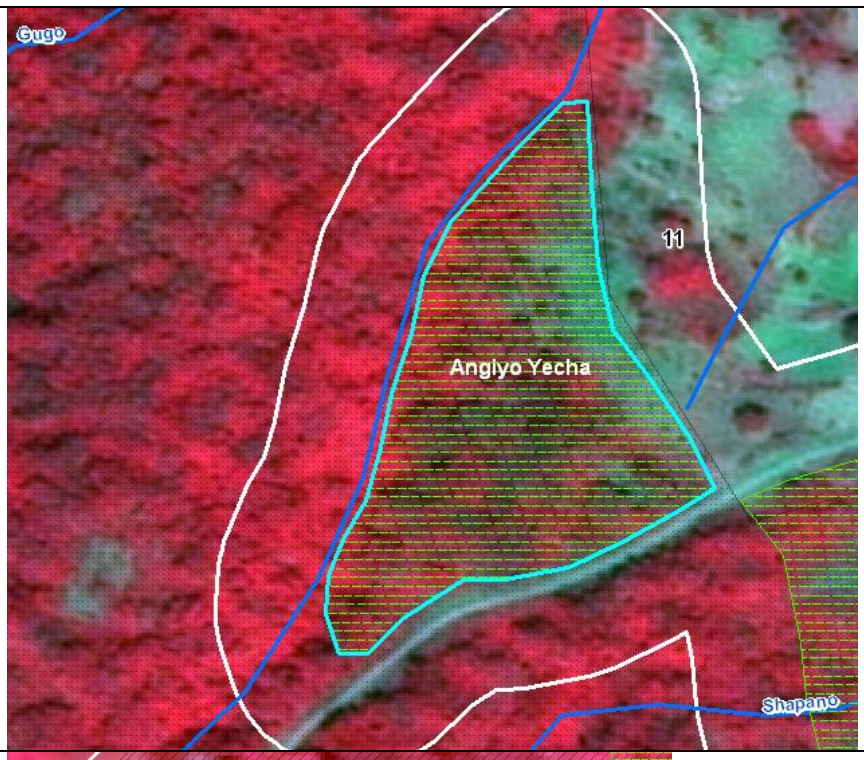
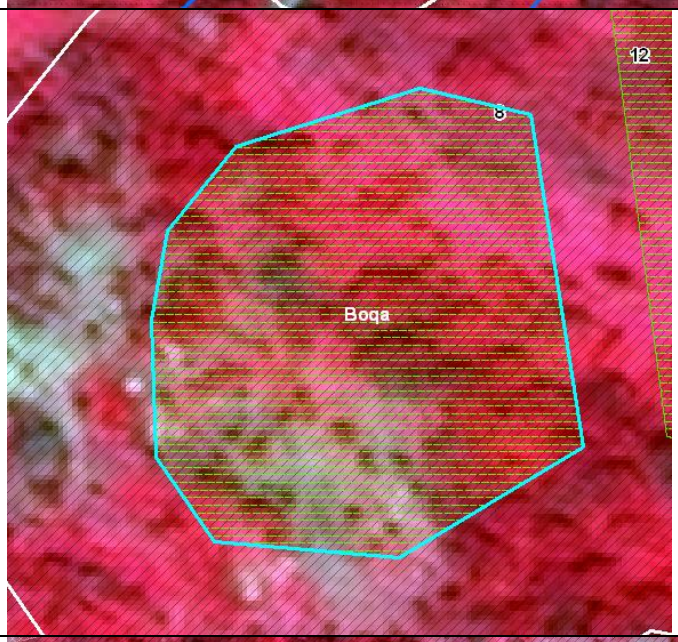
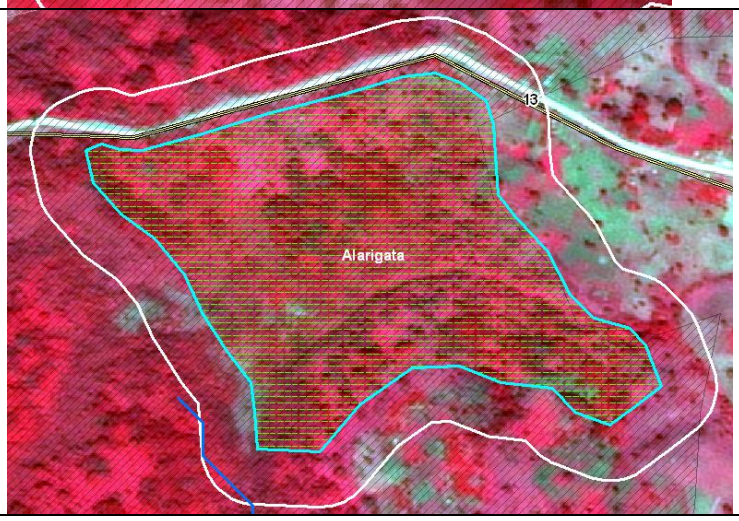
a) Annex 1: In depth description of sites (distributed to Rangers)

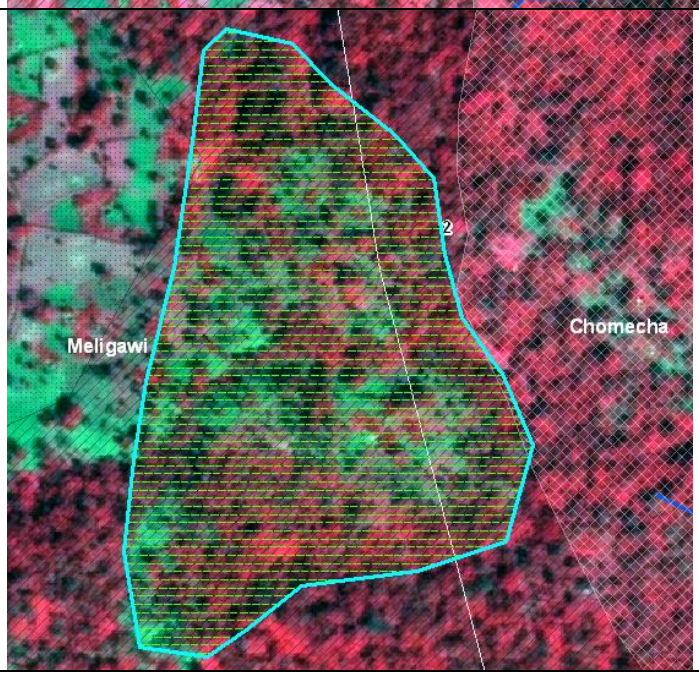
Detailed site description for Action sites of **Adiyo**		
Plot No	Satellite Image (March 2011)	Site Description
1		Size: 2,75 Action: Reforestation Function: Human activity within the core zone, at least 2 households, very recent development Location: Along the Kuyum Chego Ridge, Kebele Kalisha, at the border of Medwutta
2		Size: 19,3 Action: Community Plantation Function: scattered trees, recent deforestation, used for grazing, expanding agriculture, river protection, on the north side steep slopes Location: Kebele Medwutta, along Dope River,

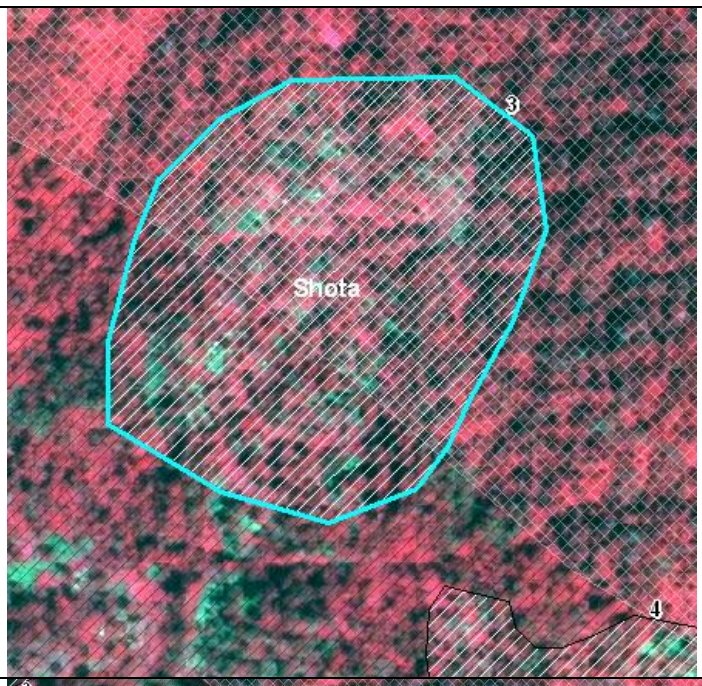
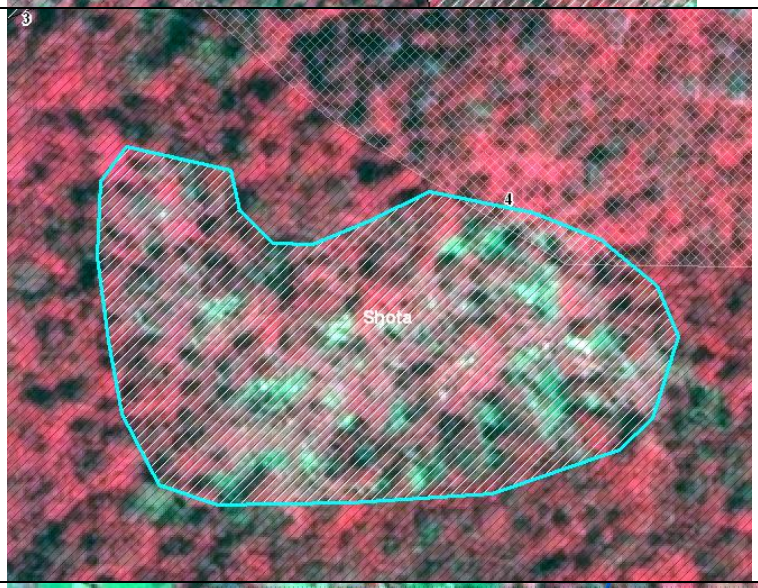
3		Size: 18,19 ha Action: Community Plantation Function: additional wood resource for Boka town, scattered trees, preliminary grazing, minor agriculture Location: west of Boka Town
4		Size: 22,34 ha Action: Community Plantation Function: Additional wood resource for adjacent Kaka town, scattered trees, area used for grazing, minor agriculture expansion Location: south of Kaka town, east of Gobet river, east of Gondero river

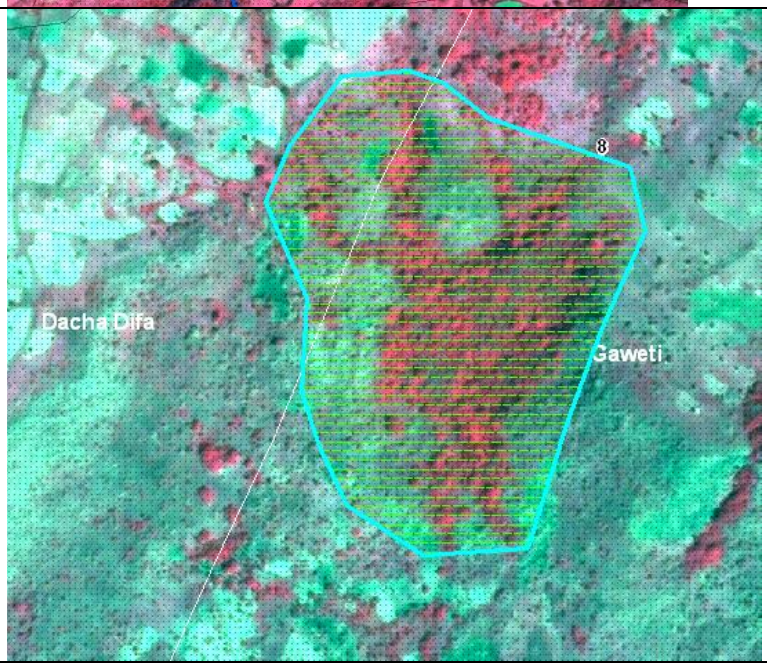
5		Size: 21,21 ha Action: Community Plantation Function: scattered trees, river protection, both sides vulnerable for landslides due to steep slopes Location: est and west side of Gondero river,
6		Size: 12,25 ha Action: Reforestation Function: Avoidance of erosion, connection between forest patches (Muda forest and Shoda forest), river protection, no households affected (too steep) Location: Kebele Keja Kata, north of Kebele Obera,
8		Size: 24,81 ha Action: Community Plantation Function: additional wood resource for Boka and Shaka town Location: along main road to Kaka town, between Yoma and Buta forest

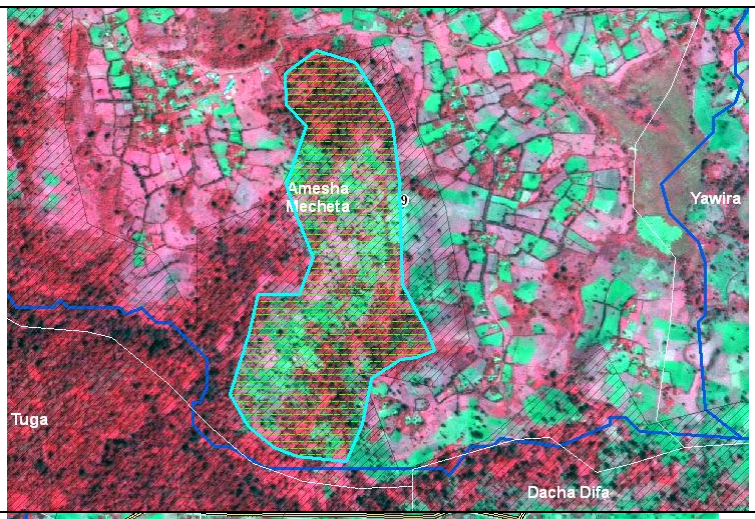
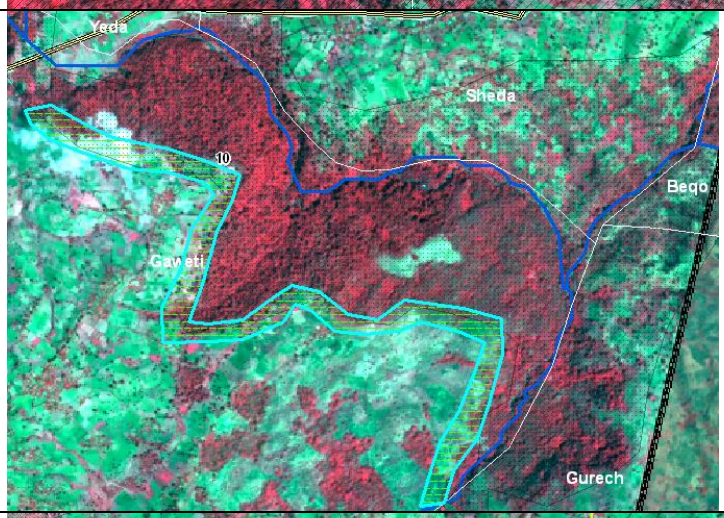
9		Size: 58,74 ha Action: Community Plantation Function: water protection, water supply for Kaka town, riparian forest, avoidance of forest fragmentation Location: along Gondero river
10		Size: Action: Community plantation Function: river protection, additional wood resource for Kaka town Location: between Shapano river and main road to Kaka

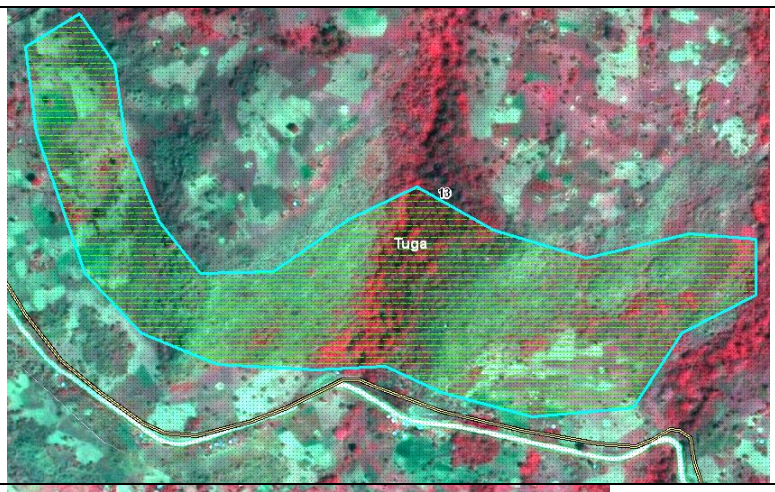
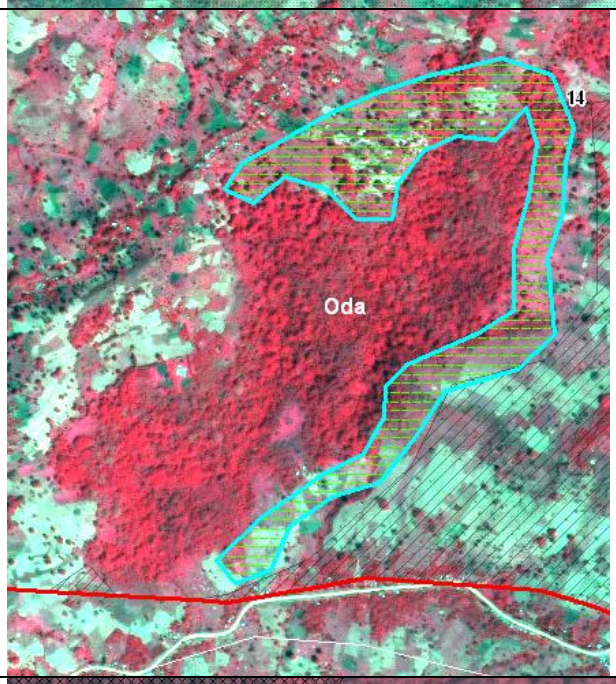
11		Size: 8,65 ha Action: Community Plantation Function: Additional wood resource, very recent human activity, degraded forest, scattered trees remaining Location: north of Shapano river, along main road
12		Size: 4,25 ha Action: Community Plantation Function: scattered trees, in Boqa Kebele, possible extension of Plot 12 (year 2012) Location: extension of plot 8 (west side)
13		Size: 38 ha Action: Function: Community Plantation compensation of wood resource for close located core zone, scattered trees, recent deforestation Location: along main road to Kaka town, west of Boka town

Detailed site description for Action sites of **Bita**		
Plot No	Satellite Image (March 2011)	Site Description
1		Size: 44,86 ha Action: Reforestation Function: Human activity within the Core Zone, recent development (< 4 years), agriculture expansion, very steep area (>35°) Location: Close (west) to River Gay in Amesha Mecheta Kebele
2		Size: 42,31 Action: Community Plantation Function: Very recent activity close to core zone (<50m), disturbed forest with scattered trees, preliminary used for grazing but also agriculture expansion Location: Kebele Meligawi, west of border to Chena Woreda, north of Shonga mountain

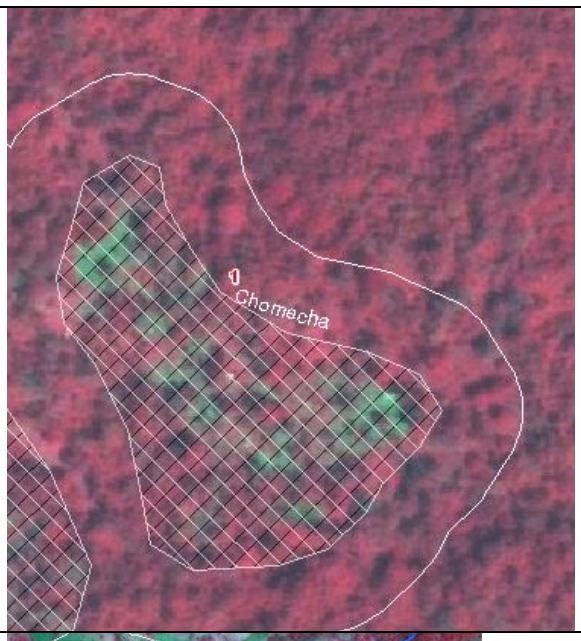
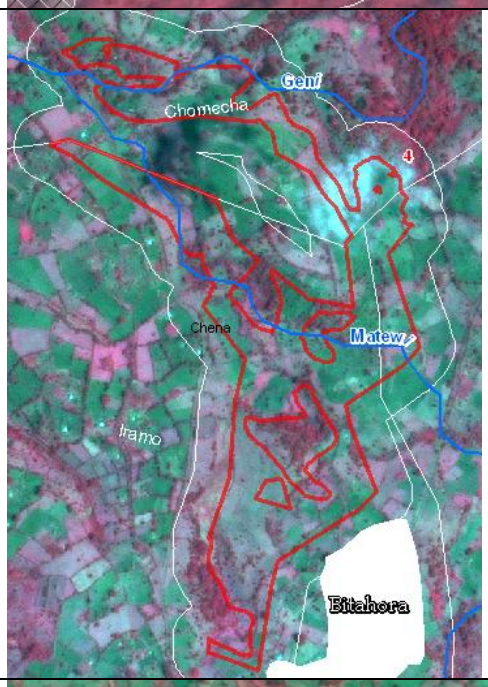
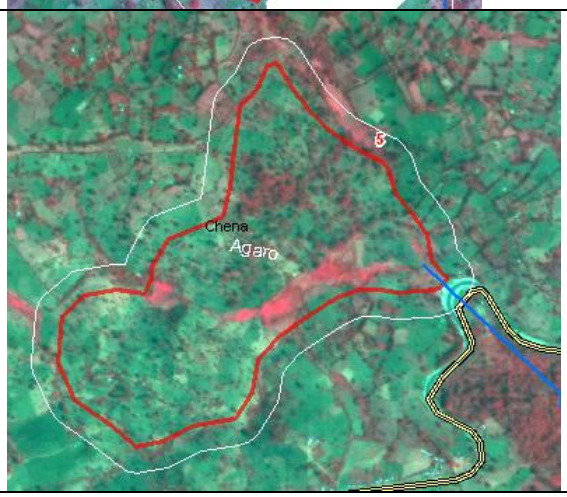
3		Size: 45,06 ha Action: Reforestation Function: Activity within core zone, core zone protection, recent human activity (5 – 10 households), curtail perforation of primary forest, steep terrain, hazard (landslide) control Location: In Shota kebele, between river Getechi and Shoshi
4		Size: 18,17 ha Action: Reforestation (or Community Plantation with strong demarcation) Function: Activity within core zone, core zone protection, steep terrain, hazard (landslide) control Location: close to PLOT 3 (south-east)
5		Size: 35,51 Action: Community Plantation & Agroforestry Function: additional wood resource for town Bita Genet (approx. 1,5 km), land used for communal grazing and fallowing, scattered trees, river protection Location: west side (and along) river Chercheri,

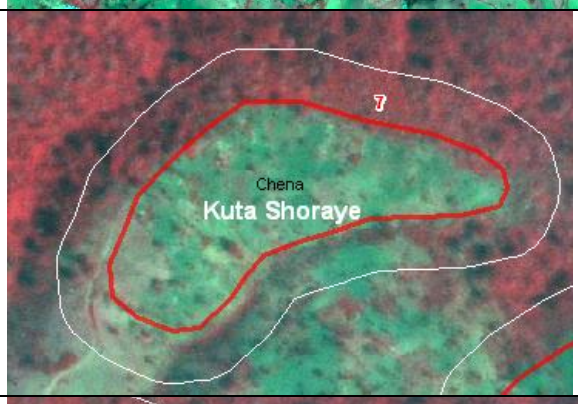
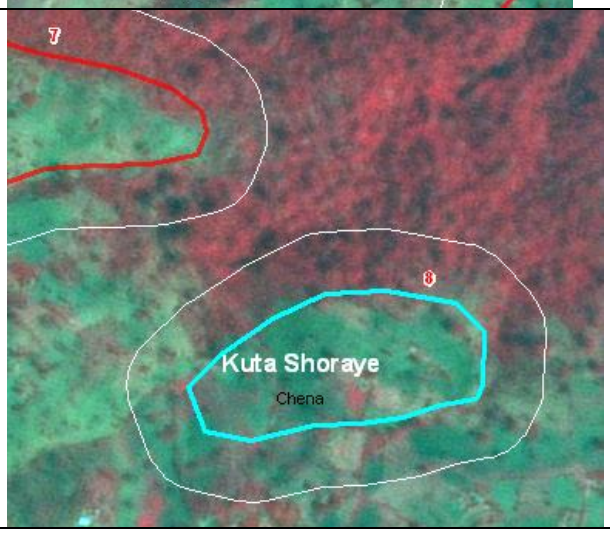
6		Size: 19,71 ha Action: Community Plantation Function: Recent land cover change (forest – agriculture) (< 8 yr), good road access for timber transport, additional wood resource, protection of adjacent primary forest Location: East of Mera-Kuni wetland, along road (Bita Chenet to Lemlem), north of Bita Genet
7		Size: 28,23 ha Action: Community Plantation Function: tongue of riparian forest with scattered trees, very populated area Location: between river Channa and Gojeb river
8		Size: 68,75 ha Action: Community Plantation Function: steep terrain, hazard (landslide) control, additional wood resource for populated area, high deforestation (due to resettlement and agriculture expansion) Location: south of Bita Genet

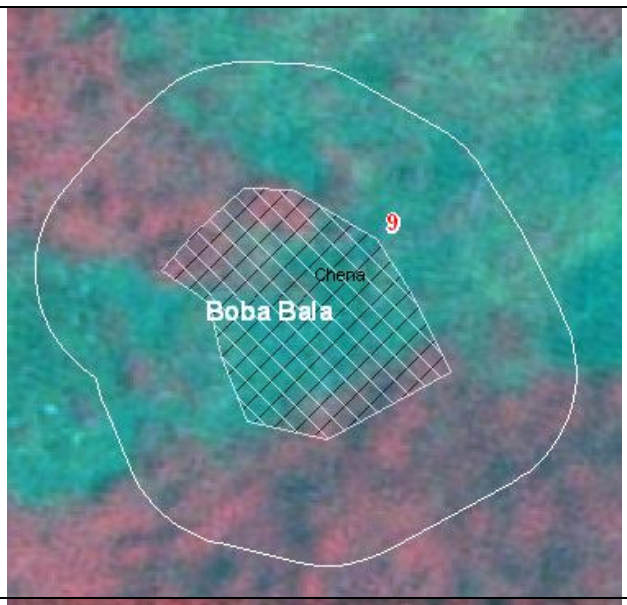
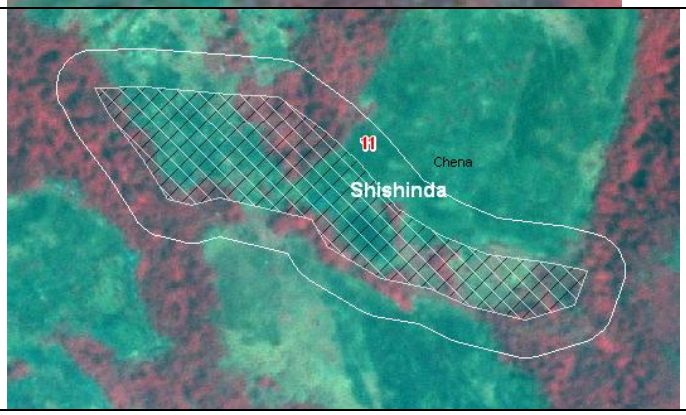
9		Size: 76,4 Action: Community Plantation Function: Additional wood resource, recent land cover change (< 8 years), north of river Meni, curtail of forest fragmentation Location: north of river Meni, north-west of Bita Genet
10		Size: 97,58 ha Action: Community Plantation Function: east side→protection of Meni river, buffering of primary forest, curtail agriculture expansion, wood resource compensation Location: in Kebele Gaweti to boarder Gurech, Beqo, Yeda Kebele, south side of main road
11		Size: 38,28 ha Action: Community Plantation Function: curtail agriculture expansion, buffering of primary forest (candidate PFM area), used for grazing, understorey is already cleared Location: north of main road, east of Bita Genet

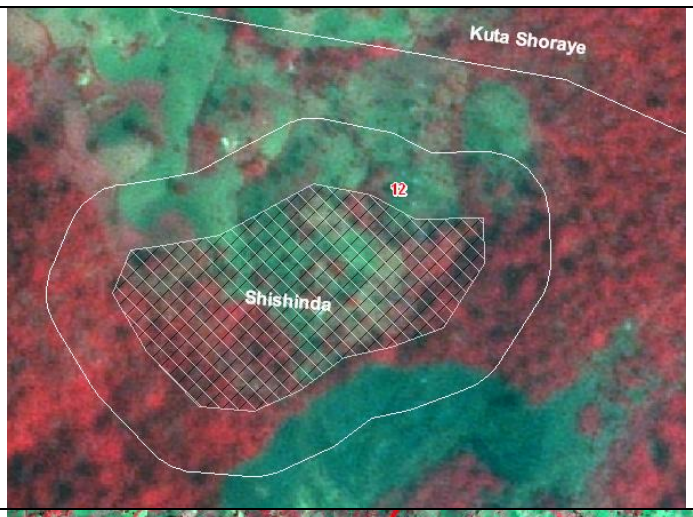
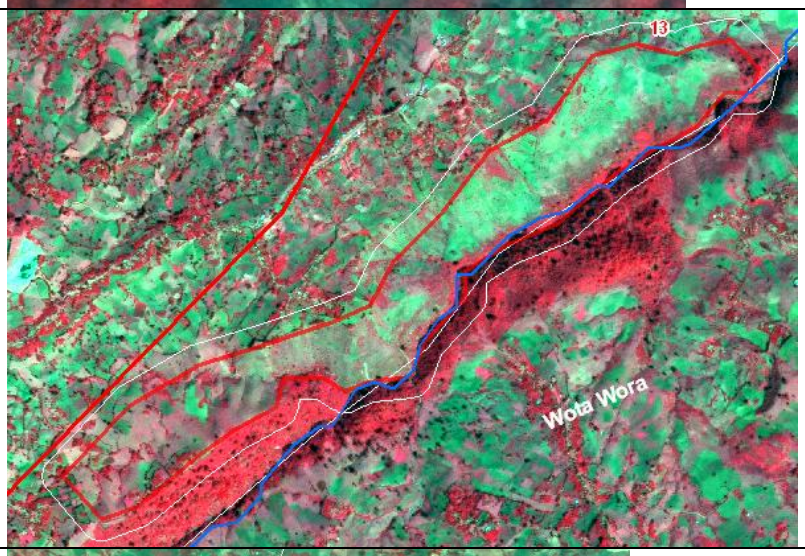
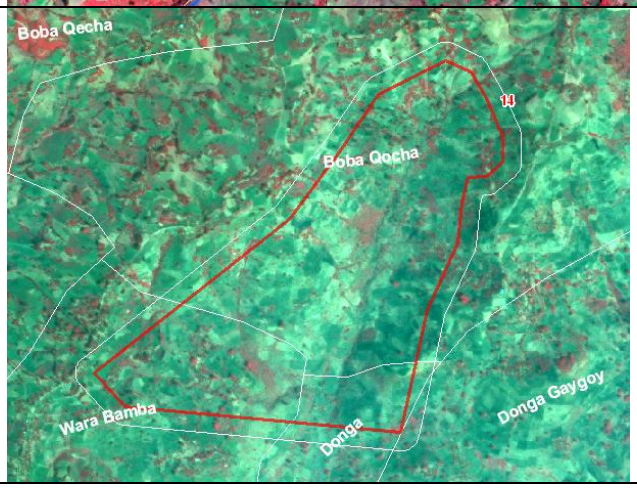
13		Size: 91,38 ha Action: Community Plantation Function: Hazard control (landslide), very steep area (>35°), afforestation (could be relevant for carbon crediting (area was not forested 50 years ago) Location: along main road, Tuga Kebele
14		Size: 62,49 ha Action: Community Plantation Function: buffering of primary forest , additional wood resource of Oda town, good road access, Location: along river Sasay, north of town Oda, west of river Bubi
22		Size: 40,8 ha Action: Reforestation Function: buffering of BR core zone, stop agriculture expansion, curtail settlement in primary forest (candidate core zone)recent agricultural expansion and grazing, degraded forest, enrichment planting, strong boundary demarcation, steep slope, vulnerability of landslide, no HH affected Location: southeast of Gey river, south of waterfalls

Detailed site description for Action sites of **Chena**		
Plot No	Satellite Image (March 2011)	Site Description

1		Size: 12.24 ha Action: Reforestation Function: Recent human activity within core zone of Biosphere Reserve, active spot Location: In Shonga forest, close to the border of Bita Woreda (Meligawa Kebele), around 10 households
4		Size: 48,39 ha Action: Community Plantation Function: Additional wood source for very populated area (north of Bitahora) Location: North of Bitahora, around River Geni and River Matewi
5		Size: 92,36 ha Action: Community Plantation Function: Very recent deforestation, conservation of wetland and water resource, intense use for grazing Location: Adjacent to main road, in Kebele Agaro

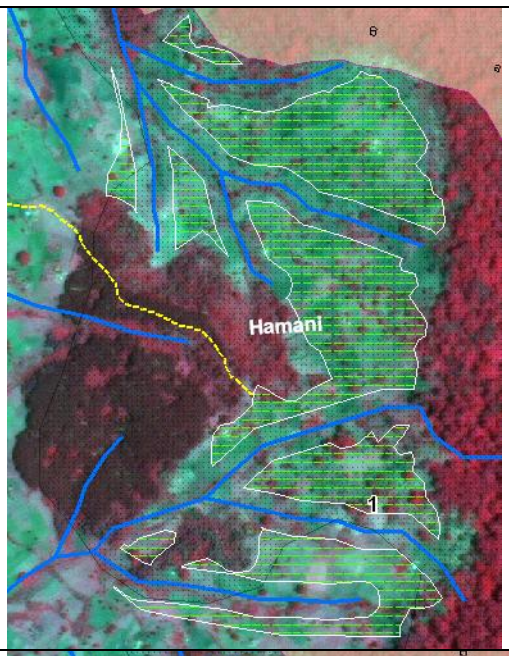
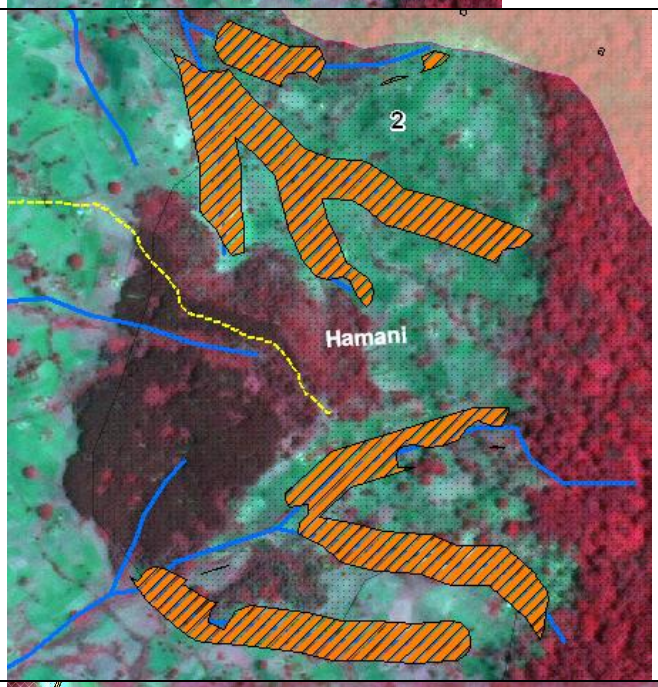
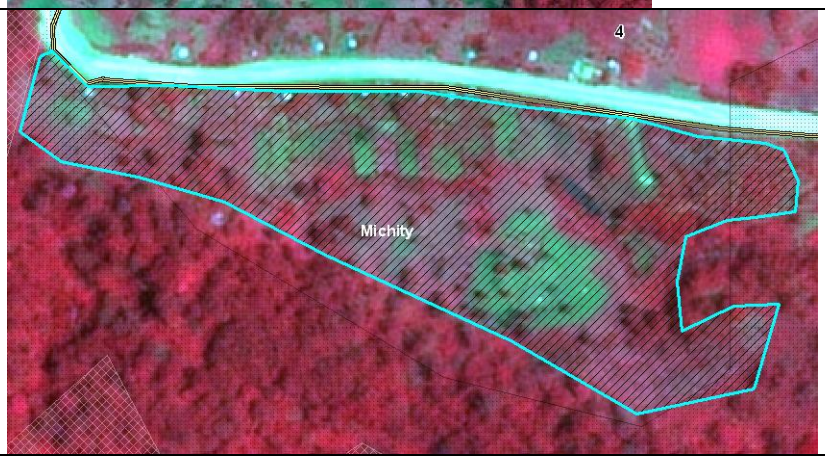
6		Size: 98,3 ha Action: Community Plantation Function: Very steep area, last year affected by landslide, heavy erosion, water protection, soil protection, additional wood source for very populated area Location: Between Kebele Dosha, Shayicha Meka, and Shayicha Sheka NEEDS ACTION!
7		Size: 17,6 ha Action: Community Plantation Function: Soil / Erosion protection, very susceptible to landslides Location: Between rivers Shora (in the east), River Kofa (north), and Yuchi (west)
8		Size: 8,55 ha Action: Community Plantation Function: Very steep area, intense use for grazing, susceptible to landslides Location: West of river Shora

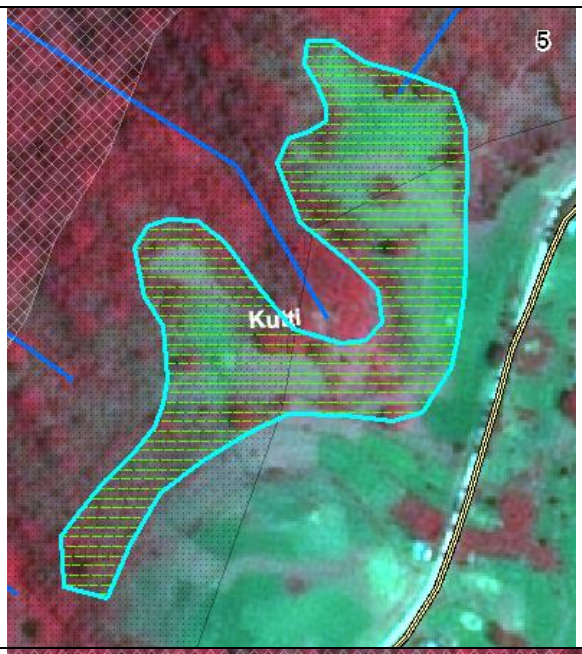
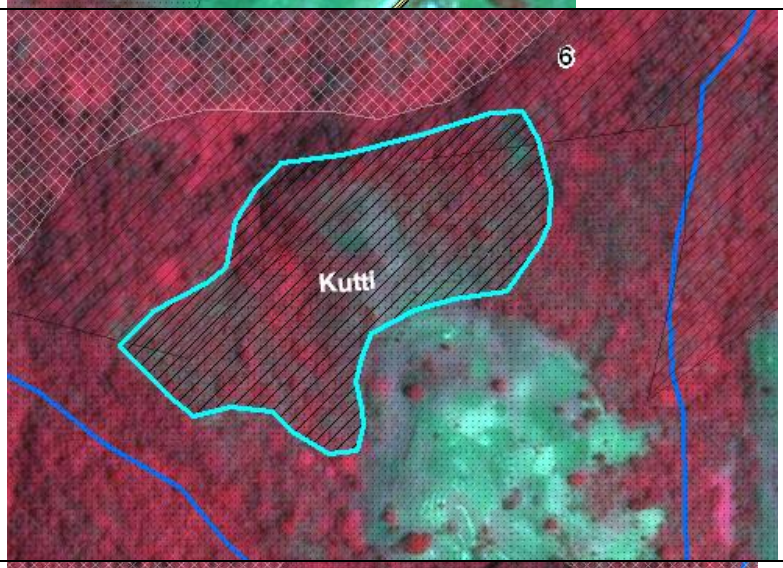
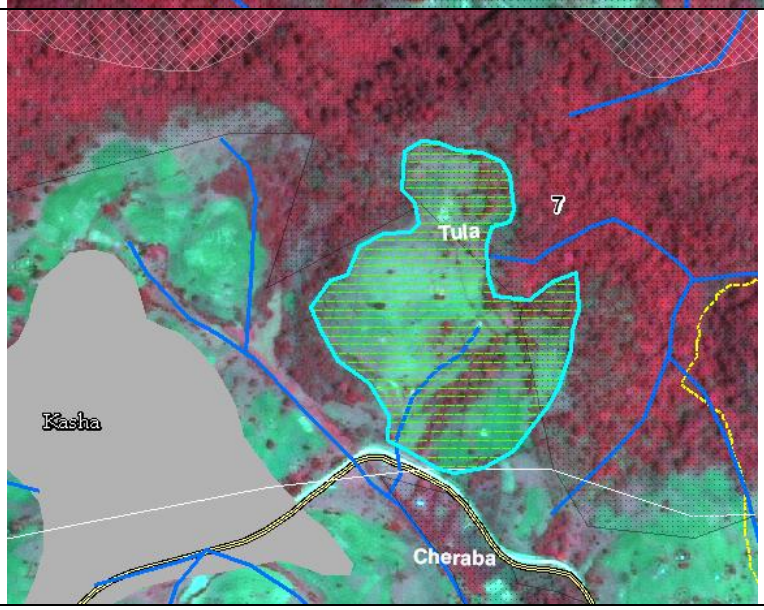
9		Size: 2,79 ha Action: Reforestation Function: Connection of forest patches, avoid fragmentation of forest cover, recent deforestation Location: In Boba Bala Kebele, west of Gaygoy
10		Size: 1,43 ha Action: Reforestation Function: Connection of forest patches, recent deforestation, steep area → avoid erosion Location: east of Plot 9, in Boba Bala Kebele
11		Size: 26,81 ha Action: Reforestation Function: Very steep area, protection very much recommended! Connection of forest patches Location: Shingira Forest

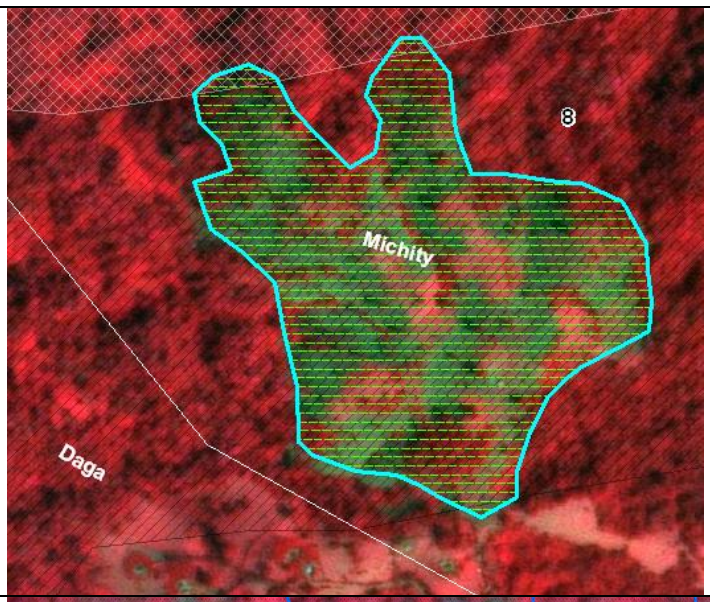
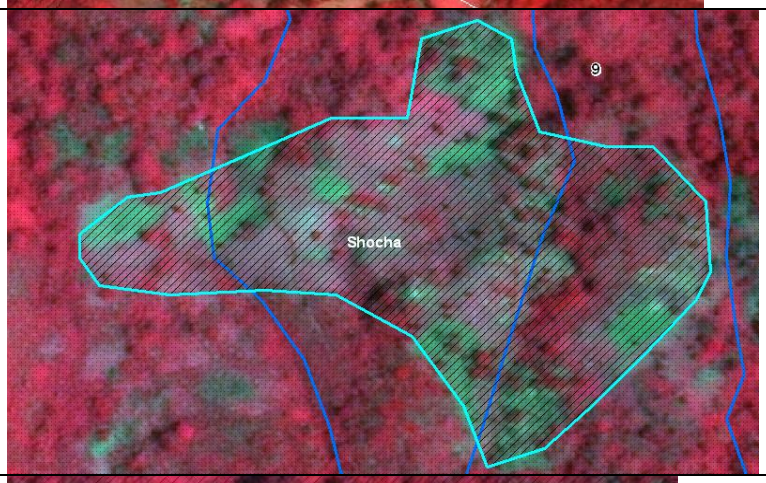
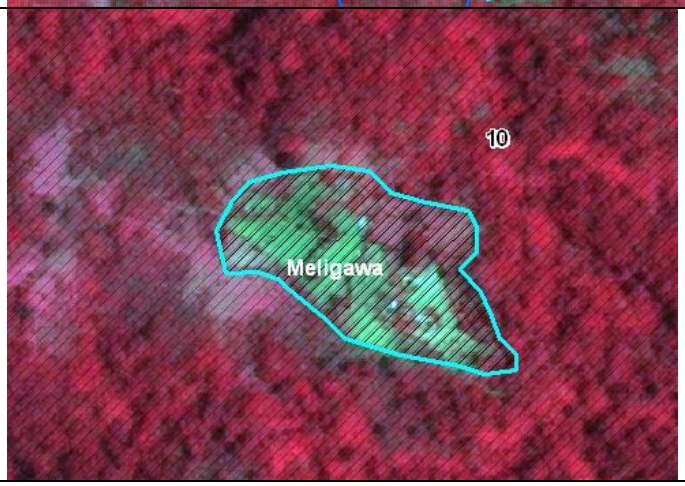
12		Size: 12,38 ha Action: Reforestation Function: Avoid erosion and landslide, very steep area, used for grazing Location: Bita forest, west of Woshi river
13		Size: 139 ha Action: Community Plantation Function: Landslide protection, recent landslide affected 3 households and killed a person! Location: Along Chuka River (north west side), close to Biosphere Reserve boundary
14		Size: 214,05 ha Action: Community Plantation Function: Additional wood source for dense populated area south of Wacha, mostly used for grazing, very steep area, avoid erosion Location: south of Capital Wacha, protecting the River Gaja

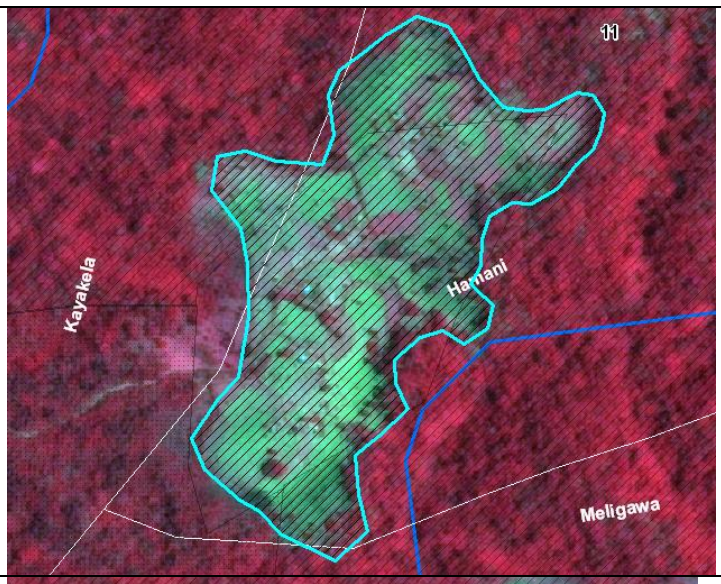
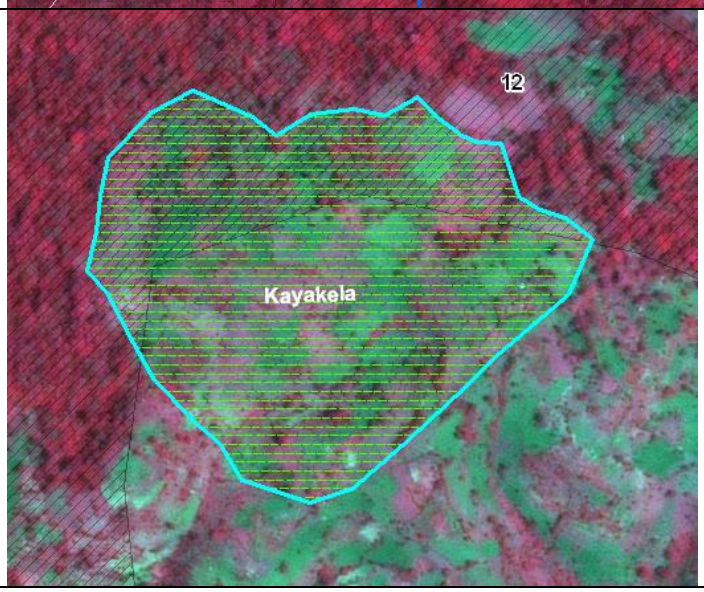
Detailed Site description of Woreda GIMBO

Plot No	Satellite Image (2011)	Site Description

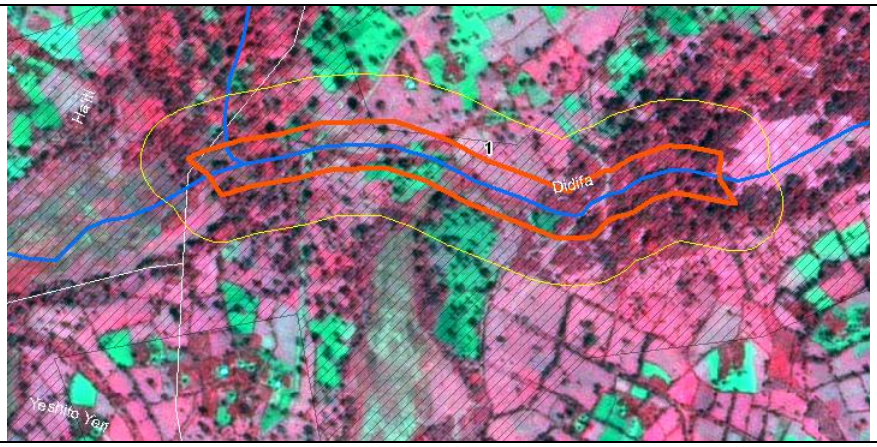
1		Size: 54,4 ha Action: Community Plantation Function: Soil conservation → steep area, connection of forest patches, additional wood source for Diri town Location: South of Diri town, between Pine Plantation and natural forest
2		Size: 36,93 ha Action: Reforestation, Riparian Forest Function: Water protection, soil protection → eroded area, connect forest patches Location: South of Diri town, Hamani Kebele, between Pine Plantation and natural forest
4		Size: 21,22 ha Action: Reforestation Function: Activity within the core zone (coffee planting, long pepper), only buffer area between core zone and main road Location: along road from Wushwush

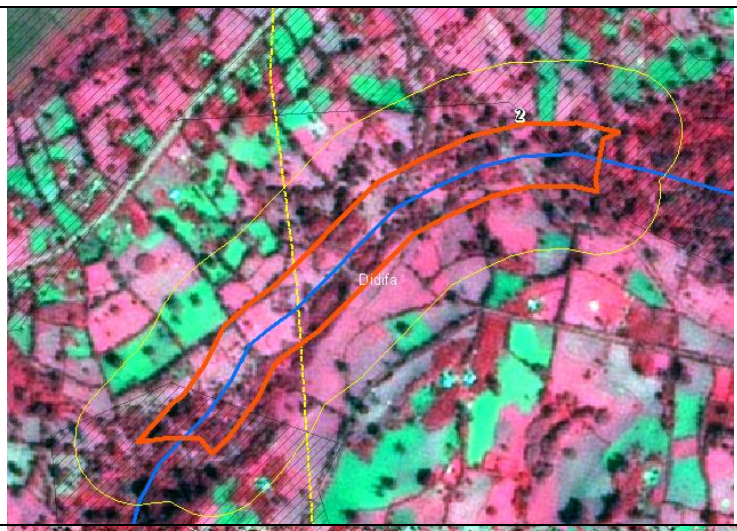
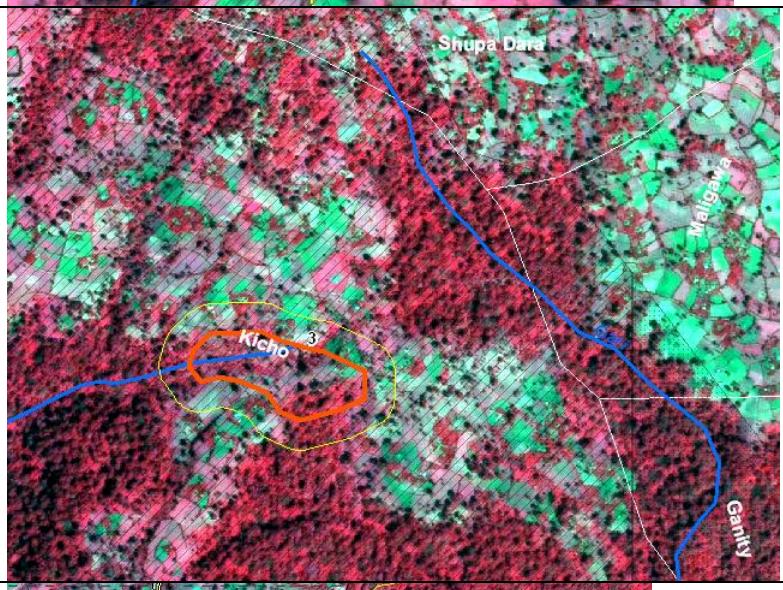
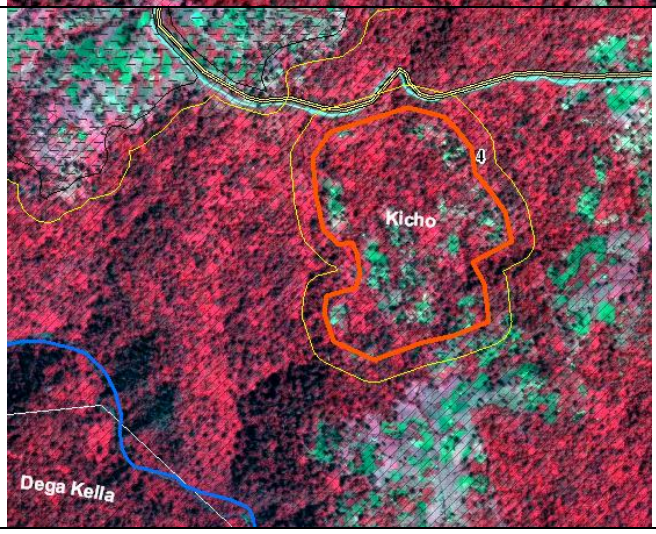
5		Size: 9,3 ha Action: Community Plantation Function: Additional wood source for populated area around Kuti Kebele close to Tula town, activity within the core zone → coffee plantation, steep area → soil protection Location: East of Tula town
6		Size: 21,9 ha Action: Reforestation Function: Activity very close to the core zone, very degraded soil, privately owned but since 3 years fallow, nowadays used for grazing Location: Dadiban forest
7		Size: 33,73 ha Action: Community Plantation Function: Additional wood source for very populated area (Tula, Kasha) Location: Between Kasha and Tula

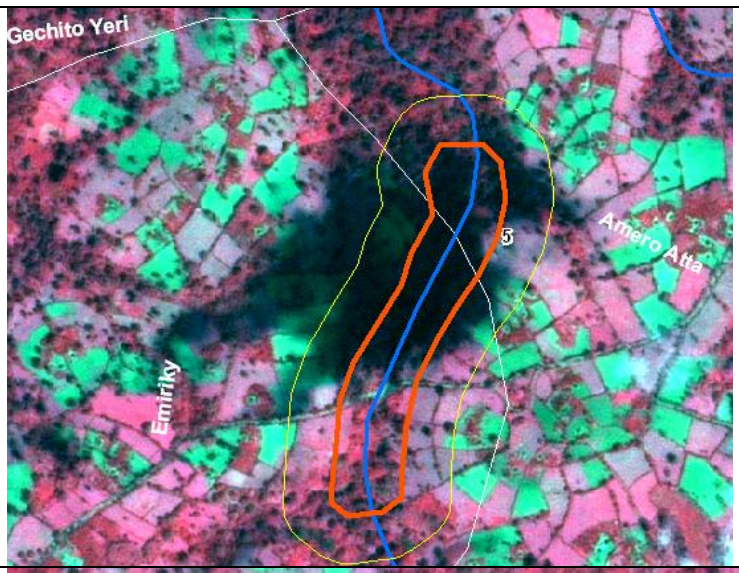
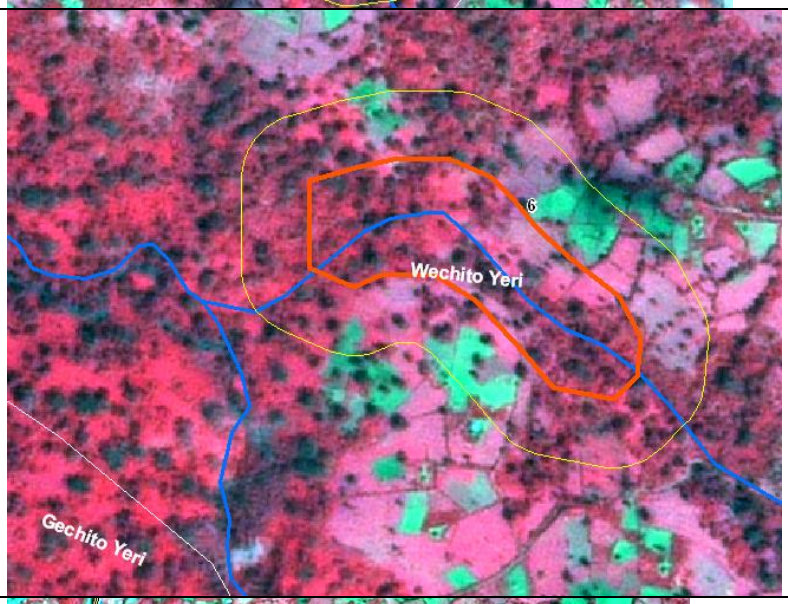
8		Size: 38 ha Action: Community Plantation Function: Very recent human activity (< 3 yr), very steep area, additional wood source for Wushwush, covered by maize fields Location: South of Wushwush, Michity
9		Size: 28,46 ha Action: Reforestation Function: Very recent human activity (agriculture expansion) within natural forest, avoid forest perforation Location: Socha forest, east of Bonga
10		Size: 8,1 Action: Reforestation Function: Human activity within intact forest and candidate zone Location: Meligawa kebele, east of Bonga

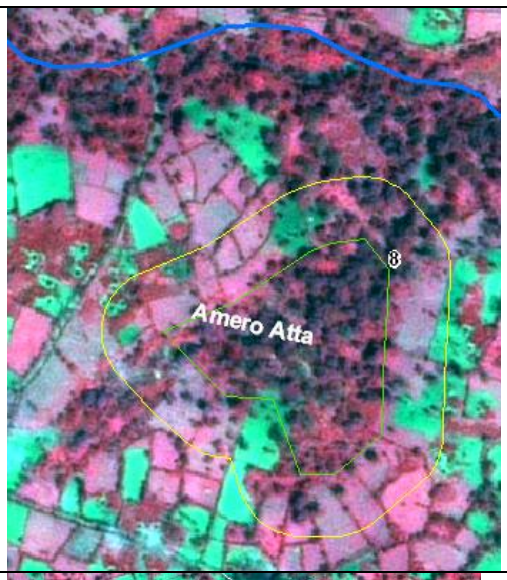
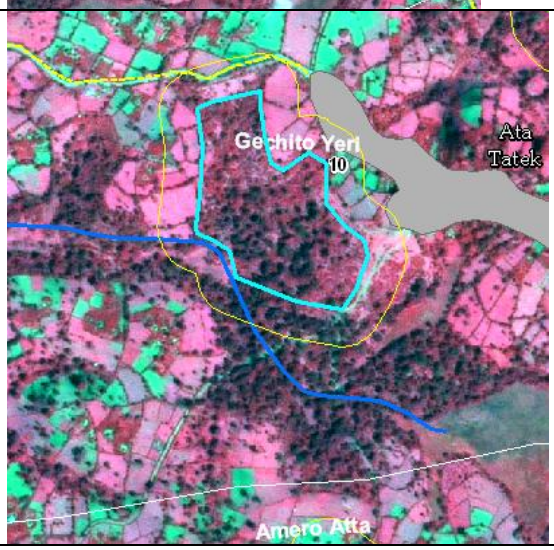
11		Size: 31,94 Action: Reforestation Function: Avoid erosion and landslide, recent human activity, candidate core zone Location: East of Kaya Kela
12		Size: 49 ha Action: Agroforestry / Agroforestry Function: Privately managed, degraded land, steep terrain, Location: Araba Kasha, north of Kobech river, west of Bonga town

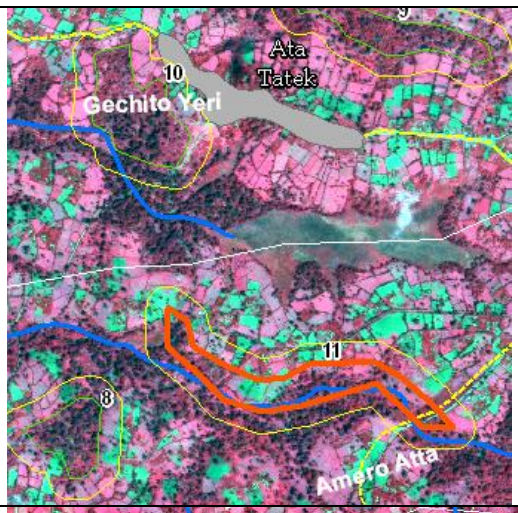
13		Size: 8,44 ha Action: Community Plantation Function: Degraded forest on communal land, strong boundary demarcation! Steep area, agricultural expansion observed Location: south of Gimbo, along the road

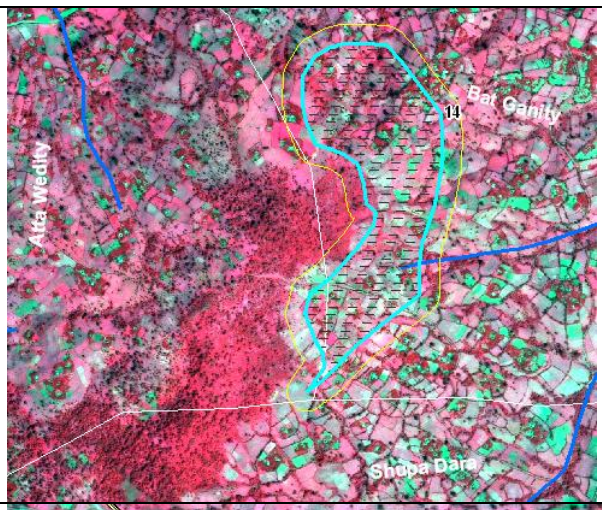
Detailed site description for Gesha		
Plot No	Satellite Image (March 2011)	„Action“ site description
1		- 11.68 ha - Reforestation - Riparian Forest → 50 meter buffer - Function: avoid fragmentation of the forest - Location: along Dadati river

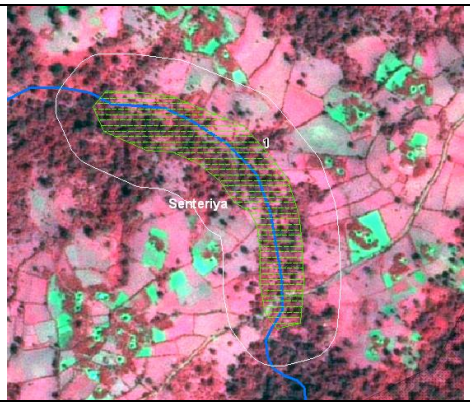
2		- 8.56 ha - Reforestation - Riparian Forest → 50 meter buffer - Function: avoid fragmentation of the forest - Location: along Dadati river, connecting wetland and riparian forest
3		- 10.57 ha - Reforestation - Enrichment planting - Function: avoid fragmentation of the forest - Location: west of Gari river, east of Netsanet village
4		- 68.47 ha - Community Plantation - Enrichment planting - Function: human activity within last 3 years, 32 illegal settlements - Location: north of Gojeb river, south of main road to Konda/Daka

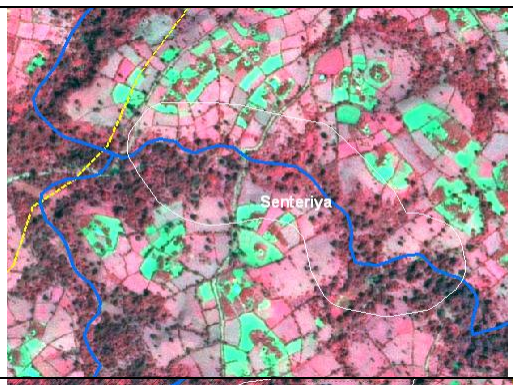
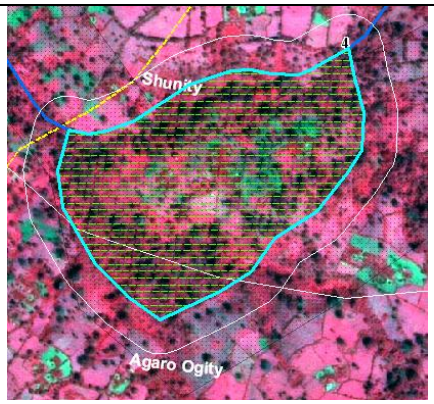
5		- 11.12 ha - Reforestation - Enrichment planting - Riparian Forest → 50 meter buffer - Function: human activity within last 3 years, connection of forest patches - Location: west of Gonegori river, south of Daka, connecting borders of Gechito Yeri, Amero Atta, Emiriky kebele
6		- 8.48 ha - Reforestation - Enrichment planting - Riparian Forest → 50 meter buffer - Function: human activity within last 3 years, connection of forest patches - Location: branch of Gewuso river, between Tageta and Giritcho Gerity
7		- 31.05 ha - Agroforestry on private land - Function: human activity within last 3 years, susceptible of landslide, danger of infrastructure - Location: east of Daka, adjacent to school of Daka

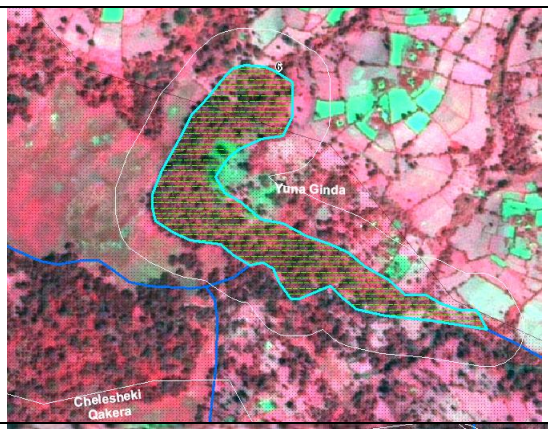
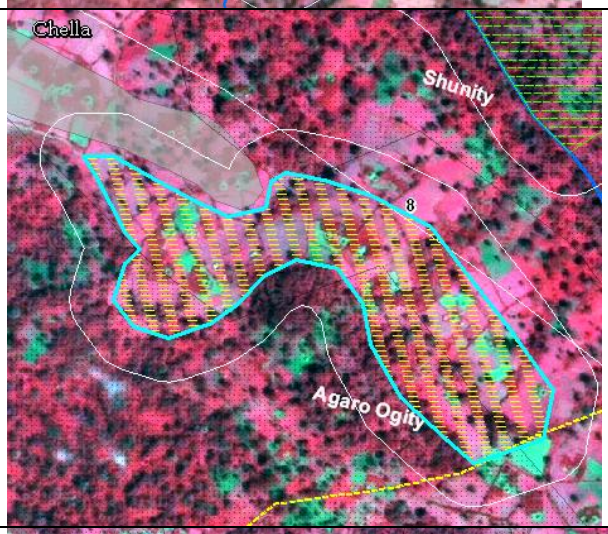
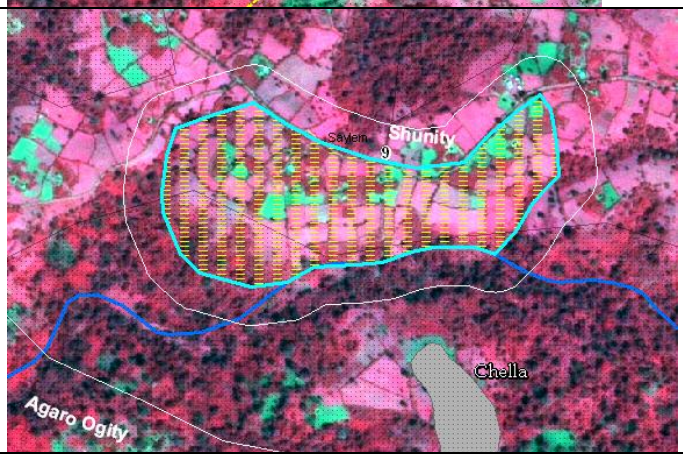
8		- 8.01 ha - Community Plantation - Function: very populated area, need of additional wood source, degraded forest - Location: close to Amero settlement
9		- 12.43 ha - Community Plantation - Riparian River, 50 m buffering of Shengar River - Function: very populated area, need of additional wood source, degraded forest - Location: North of Ata Tatek, along Shengar River
10		- 15.44 ha - Community Plantation - Enrichment Planting of degraded forest - Function: very populated area, need of additional wood source, degraded forest - Location: South of Ata Tatek

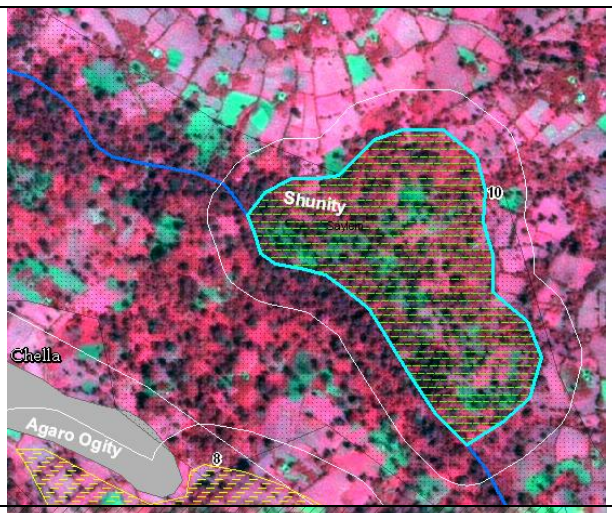
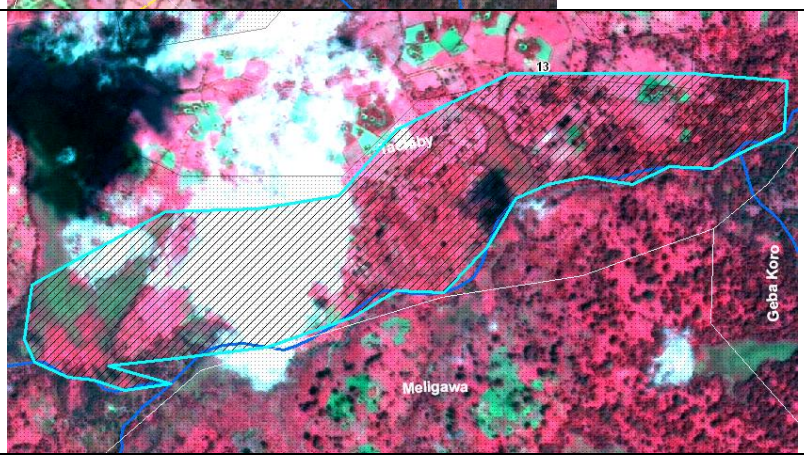
11		- 18.65 ha - Reforestation - Enrichment Planting Riparian River, 50 m buffering of degraded forest - Function: very populated area, degraded forest, fresh water supply - Location: North of Amero Village, South of wetland
12		- 215.03 ha - Agroforestry - selection of 5 model farmers with degraded land - Function: very steep area (slope > 35°), danger of land slide - Location: Between Duchi and Gogi River
13		- 113.08 ha - Agroforestry - selection of 5 model farmers with degraded land - Function: very steep area (slope > 35°), danger of land slide - Location: Between Ata Weditі and Hayo Ogiti, along northern side of river

14		- 72.92 ha - Agroforestry - selection of 5 model farmers with degraded land - Function: very steep area (slope > 35°), danger of land slide - Location: Close to Shupa village, between Ata Wedity, Shupa Dara, and Bat Ganity kebeles
15 And 16		- 75.49 / 75.45 ha - Agroforestry - selection of 15 – 20 model farmers with degraded land - Function: very steep area (slope > 35°), danger of land slide, danger of infrastructure - Location: Both side of road from Konda to Daka, Kicho kebele

Site selection for Saylem in the frame of ICI (NABU) – „Forest and Community Analysis“		
Plot No	Satellite Image (SPOT, March 2011)	Description
1		Size: 11.34 ha Action: Community Plantation, enrichment planting (50 meter buffer along Hawuri River) Function: Buffer of river, protect riparian forest, water conservation Location: Riparian buffer of Hawuri River, east part of site Plot 2

2		Size: 12.5 ha Action: Reforestation, enrichment planting (50 meter buffer along Hawuri River) Function: Buffer of river, protect riparian forest, water conservation Location: Riparian buffer of Hawuri River, conjunction of Goki and Kawus River
3		Size: 37.66 ha Action: Community Plantation Function: Due to vicinity to Chella and Agaro Shuniti, high wood demand, very high human activity in the last 10 years Location: North of Chella and Shulika River, west of Agaro Shuniti
4		Size: 43.55 ha Action: Community Plantation Function: high human activity in last 10 years, illegal settlement, important for water protection, additional wood source for Chella Location: South of Shulika River, east of Chella, between Agaro Ogity and Shunity
5		Size: 20.58 Action: Community Plantation Function: very high human activity in the last 10 years, scattered trees, fulfil high wood demand of kebele Yuna Homi Location: degraded forest with grazing areas, along Kukum river (northern site) at the conjunction to river Sor, about 500 m south of main road

6		Size: 16.25 ha Action: Community Plantation Function: conservation of ecosystem between wetland and river, high human activity (expanding agriculture) Location: North of Yadota, along river Sor
7		Size: 16 ha Action: Community Plantation on Communal land (?) Function: Additional wood source for Yadota (direct vicinity), water conservation due to river vicinity Location:
8		Size: 29.3 ha Action: Agroforestry (5 – 8 pilot farmers) Function: Very steep area, soil protection, avoidance of erosion, susceptible to landslide Location: south of Chella
9		Size: 32.66 ha Action: Agroforestry (3 – 5 pilot farmers) Function: soil protection, very steep area, intense agriculture Location: North of Chella, along the Shulika river

10		Size: 28.13 ha Action: Community Plantation Function: Additional wood resource for Chella, very high human activity during the last 10 years, river protection (Shulika) Location: Northern side of Shulika river, north of Chella
11		Size: 19.59 Action: Community Plantation Function: Additional wood resource of populated Kebele Miso, site within intact forest → avoid spread of human activity Location: In Gechity Kebele, north of Sotalo River, south of Dawara River
12		Size: 17.26 Action: Agroforestry Function: very steep area, avoidance of soil degradation, susceptible of landslide, intense agriculture, wetland protection Location: Dino Kebele, north of wetland, close to River Sor
13		Size: 116.24 ha Action: Reforestation Function: Reforestation of dried bamboo forest, still vacant site, should be recovered, steep area, wetland protection Location: Adjacent to Woreda Gesha, along River Duchi, close to wetland

b) Annex 2: Table: Share of PFM sites on different Kebele

PFM Name	KEBELE Name	Share of PFM on Kebele (%)
Baqa	Baqa	23,10
Baqa	Hamani	76,90
Budi	Awasho	2,06
Budi	Mankira	8,84
Budi	Chiri	10,29
Budi	Budi	78,71
Budi	Ufa	0,11
Gawa Mecha	Saja	5,92
Gawa Mecha	Tagera	3,30
Gawa Mecha	Gawa Mecha	90,77
Gomma	Wediyo	99,96
Kahin	Gedam	73,24
Kahin	Modiyo Gombera	22,18
Kahin	Awasho Qofira	4,06
Kahin	Gidi Tongela	0,52
Keja-Araba	Bonga	1,98
Keja-Araba	Qeja Araba	52,11
Keja-Araba	Yeba	45,11
Keja-Araba	Mesqela	0,80
Kejakata	Kasha	100,00
Mankira	Gedam	0,01
Mankira	Modiyo Gombera	23,22
Mankira	Awasho Qofira	3,03
Mankira	Awasho	9,61
Mankira	Mankira	50,52
Mankira	Yanga	10,75
Mankira	Chiri	0,01
Mankira	Budi	2,22
Mankira	Yaha Checha	0,62
Meshamello	Belteta	8,73
Meshamello	Qonda	12,49
Meshamello	Achuwa	0,01
Meshamello	Mesha Mello	78,77
Nada	Immicho	0,00
Nada	Tula	1,62
Nada	Wediyo	98,17
Nada	Kutti	0,08
Orora	Duma	2,49
Orora	Kasha	97,51
Qeshi	Budi	9,38
Qeshi	Ufa	3,54
Qeshi	Yoka	3,43
Qeshi	Wertta	13,82
Qeshi	Qeshi	43,88
Qeshi	Yaha Checha	25,95
Qeshi	Qeshi	22,51
Qeshi	Yaha Checha	77,49
Tagera	Saja	5,69
Tagera	Tagera	50,57
Tagera	Qolla	19,58
Tagera	Medabo	24,16
Tula	Tula	50,53
Tula	Cheraba	40,72
Tula	Tega	8,75
Ufa	Chiri	23,10
Ufa	Budi	1,88
Ufa	Ufa	75,03
Yanga	Mankira	41,09
Yanga	Yanga	49,24
Yanga	Yaha Checha	9,68
Yanga	Modiyo Gombera	22,71
Yanga	Bega	24,00
Yanga	Mankira	0,35
Yanga	Yanga	28,64
Yanga	Yaha Checha	24,30
Yanga	Yanga	100,00

c) Annex 3: Questionnaire for Group discussion

Group and key informant Discussion

Main Issues: Forest loss, Declining forest resources, Efficiency of farm land, farm land expansion

1. Some general questions:

1.1. How many households are around this area / in your community?

2. Resources / Forest

2.1. Did you experience any change in forest cover and/or density?

2.2. Who has access to:
a) the forest resource / plantation resource (of the community, apart the community)

b) water access

2.3. Who is controlling the access and use?

2.4. Are there problems to share the forest resource?

2.5. Why do you think the forest is declining?

2.6. Do you have suggestions, how to overcome the problem of forest loss?

2.7. Have you heard about different development programs, such as Participatory Forest Management (PFM)

2.8. What is the general opinion about such programs? Are there fears to participate in such programs?

3. Resources / Agriculture, Livestock

3.1. What climatic problems do you face affecting your farming activity?

a) Water shortage (drying streams/rivers, soil moisture stress, air moisture reduction, decline amount and duration of dew)
b) Soil condition (fertility change, soil moisture, soil structure, soil temperature)
c) Rain (irregularity/unpredictability, shortage, late coming and early stop, high intensity, short duration, affect crop drying, affect animal fodder availability).
d) Temperature (heat increase in dry season and extreme cold in wet season, day heat inhibits, field/outdoor work, affect animal productivity)

3.2. Which other impacts have been observed affecting your farming activities?

a) Land availability (population pressure, resettlement)
b) Competition between commercial interest and subsistence (expansion of concession areas, …)

3.3. Is there enough fodder / grazing land for your livestock?

3.4. What is mostly needed / missing in the community?

	Subsistence	Commercial
Edible flora		
Edible fauns (e.g. honey)		
Construction material		
Fuels		
Fodder		

4. Erosion / Soil Degradation

4.1. Is erosion a threat in your community, and how many people might be affected?

4.2. What are the effects of erosion?

a) Landslide
b) Productivity of farmland
c) Water availability, water holding capacity

4.3. What are adoption measures taken by the community?

a) Contour farming
b) Terraces
c) Soil bunds / Stone bunds
d) Mulching
e) Fallowing
f) Grass strips
g) Controlled grazing
h) Tree planting
i) Micro-basin / Check dam
j) Multiple cropping

4.4. What measurements need to be done?

a) Of whom?
b) Are there limitations in the system / or the need for support?
- Financial limitations, human capacity, knowledge transfer, training needs...)

5. What do you think will be the future development of your community?

a) Population development (increasing, decreasing, distribution of land)
b) Farmland (Productivity, Expansion, Variety of Crops, Dominative Crop)
c) Forest resources (Importance, Availability of wood / NTFP, Access, Decrease/Increase)
d) Education (Importance, Facility of schools)

d) Annex 4: Questionnaire In-depth interviews

Questionnaire for In-depth Interviews

Part 1 General Information

1. Name:
2. Sex: Male / Female
3. Age: 15 – 22 / 23 – 33 / 34 – 45 / 46 – 60 / > 60
4. Family Members: 1 – 5 / 6 – 10 / 11 – 15 / > 15
5. Origin: Indigenous / Resettler / Moved in /

   → If he/she moved in

   1. When did you move to that place?
   2. For what reason?

Part 2 Livelihood

1. Land ownership

   0.25 – 1 ha / 1 – 2.5 ha / 2.5 – 5 ha / > 5 ha / landless

2. Main livelihood support

   crop / coffee / forest / livestock / labour

3. Specify, which crop you have on your farmland: maize / enset / teff / haricot bean /

   other:

4. Which livestock do you keep and how many numbers: chicken no.__ /goat no.__ sheep no.__ /cattle no.__
5. Do you have enough land for agricultural activities? Yes / No
6. Was there a change in your crop yield in the last years? No change / Increase / Decrease
7. What was the nature (productivity, erosion, etc) of your land before 10 years?

8. What is the main source of feeding your livestock? Communal grazing / crop residue / forest / single grazing
9. Have you heard about agroforestry? Yes / No

   → if YES

   1. Do you practice it?

   Yes / No

   2. For what reason do you practice agroforestry?

   Wood supply / multiple products / erosion control / livestock fodder / it was advised / other reason:

   → if NO

10. Why do you <u>not</u> practice agroforestry?

    Have never heard of it / I don't see a benefit / I don't have enough financial / human resources to practice / other:

Part 3 Wood demand

1. For what purpose do you need the wood? Fuel wood / construction wood / charcoal / sale / other:
2. How much do you need daily for fuel wood consumption?

   (→ Ask question how much each person can carry every day? Estimate how much kg each person is carrying! Who is responsible to carry the wood? Children) women))

3. Where do you get the wood from? Governmental owned forest / private forest / communal forest / homegarden / agroforestry / other:
4. Is the resource you use for fuel wood enough to fulfil your demand? Yes / No
5. What should be more frequently available? Fuel wood / Construction wood / other:

Part 4 Forest

1. For what purpose do you use the forest? Wood collection / Non-timber forest products collection / hanging beehives / secret meeting site / rituals / grazing /shade for livestock / other:
2. Which product out of the forest is the most important for you? Wood / Non-timber forest products (NTFP)
3. Please, specify the Non-timber forest products you use: (→ ask for resin, roots, leafs, herbs, …)
4. Has the forest cover changed? Yes / No

   → if YES

   1. What has changed? Area / density / area & density / other:

Part 5 Erosion

1. Do you have a problem of erosion in your farm? Yes / No /

   → if YES

   1. On site / or off site ?
2. What kind of measures you have taken to control it? If not, why?
3. What are the factors that affect your decision to control erosion?
4. Do you have access to training/education about how to control erosion? Yes / No

   1. By Whom?
   2. How often?
   3. Do you participate?
2. What are the methods you use to avoid erosion? (Contour farming, Terraces, Soil bunds, Stone bunds, Mulching, Fallowing, Grass strips, Controlled grazing, Tree planting, Micro-basin, Check dam, Multiple cropping)

Part 6 Future Perspective

1. What do you plan/ or wish to do in the future?

Extend farming activities, Extend livestock, Getting more resource out of the forest, Enrichment of crop (different crop than nowadays), plant more multipurpose tree species, No changes, other:

2. Do you see any limitations to realize your plans or is there a need for support?

   Financial limitations, human capacity, knowledge transfer, training needs, Competition with other farmers

3. What do you think will be the most limited resource in future?

   Fuel wood, Wood for construction, NTFP, Land to expand farming activities, Land for grazing the livestock

e) Annex 5: Relevé Sheets

Relevé Sheet to record Land Cover & Use (Agroforestry / Community Plantation)

Plot observation:		Date:
Kebele:		Locality (N,W,S,E):
GPS No.:	N:	E:
Landform:		Slope class (flat, rolling, steep, very steep)
Accessibility:		
Erosion (gully, landslide, stones, degraded soil) other:		
Ownership:		
Land use (cultivation_____%, multipurpose trees____%, shrub____%, grass___%)		
Tree Species on site:		
Crop types on farm land:		

Remarks	

Relevé Sheet to record Land Cover & Use (Reforestation / Enrichment Planting PLOTS)

Plot observation:			Date:	
Kebele:			Locality (N,W,S,E):	
GPS No.:		N:	E:	
Landform:			Slope class (flat, rolling, steep, very steep)	
Accessibility:				
Ownership:				
Grazing (high, medium; low, none)			Wood collection (high, medium; low, none)	
Disturbance (high, medium; low, none)				
Crown cover & Species Composition		Closed	Moderate (<70%)	Open (<30%)
	Upper			
	Lower			
Dominant Tree Species (upper / lower) with Scientific Name				
Description of Natural Regeneration (> 2m) size, age				
Remarks				

f) Annex 6: Share of core zone area on administrative boundary (Kebele level)

WEREDA	Kebele Name	Kebele Size (ha)	Core Area (ha)	Percentage (%)
Gawata	Yeshana Turana	16606,19	0,16	0,00
Gawata	Saja	3504,81	1,83	0,05
Gawata	Saja	3504,81	844,14	24,09
Gawata	Immicho	1344,52	0,07	0,01
Gawata	Immicho	1344,52	247,88	18,44
Gawata	Tagera	1255,89	3,95	0,31
Gawata	Tagera	1255,89	20,43	1,63
Gawata	Duma	1590,78	273,21	17,17
Gawata	Kasha	6023,53	667,28	11,08
Gimbo	Tula	2851,05	544,50	19,10
Gawata	Gawa Mecha	2140,69	267,87	12,51
Chena	Chomecha	5273,22	915,44	17,36
Bita	Hamani	5995,12	696,21	11,61
Bita	Washero	9349,13	2934,51	31,39
Gimbo	Yeyibitto	4698,36	0,15	0,00
Bita	Amesha Mecheta	8936,73	1864,36	20,86
Gimbo	Bitta Chega	4814,36	751,27	15,60
Bita	Shota	6928,12	1714,21	24,74
Adiyo	Kalisha	2197,71	315,85	14,37
Adiyo	Angiyo Qolla	5627,53	15,14	0,27
Bita	Yina	3598,33	61,07	1,70
Chena	Gopa	1526,48	66,87	4,38
Adiyo	Alarigata	2496,56	180,99	7,25
Adiyo	Chare Guta	2461,64	1691,52	68,72
Adiyo	Rosha	3264,76	2542,53	77,88
Adiyo	Chega	2252,32	429,11	19,05
Decha	Gedam	942,90	19,53	2,07
Decha	Modiyo Gombera	3193,09	466,99	14,62
Adiyo	Mecha	2590,50	522,80	20,18
Tello	Achi'ino	1067,44	16,43	1,54
Decha	Erimo	1682,16	56,76	3,37
Tello	Shinato	1177,72	5,64	0,48
Decha	Awasho Qofira	799,28	139,80	17,49
Tello	Shosha	1744,98	281,85	16,15
Decha	Awasho	1032,05	290,24	28,12
Decha	Mankira	1146,29	15,99	1,40
Decha	Chiri	4189,96	612,54	14,62
Decha	Budi	1393,19	380,24	27,29
Decha	Ufa	2668,59	779,00	29,19
Decha	Yoka	3594,98	1147,55	31,92
Chetta	Wertta	2837,99	364,18	12,83
Gimbo	Michity	5758,46	974,64	16,93
Decha	Daga	8625,95	1985,05	23,01
Decha	Qeshi	1799,38	241,20	13,40
Decha	Yaha Checha	3146,74	290,77	9,24
Adiyo	Boqa	4412,29	249,15	5,65
Decha	Gessa	2592,80	0,07	0,00
Decha	Ogiya	3060,61	198,76	6,49
Gawata	Medabo	8056,89	1310,90	16,27
Gawata	Wediyo	6852,83	523,39	7,64
Gimbo	Kutti	3817,94	248,07	6,50