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# Biodiversity and Forestry Programme

Forestry and Biodiversity | We support the restoration of nature for the benefit of people!



Issue #4 Jul-Aug 2017

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### Project description

**Title:** Biodiversity and Forestry Programme

**Commissioned by:** German Federal Ministry for Economic Cooperation and Development (BMZ)

**Lead executing agency:** GIZ, KfW Development Bank

**Duration:** 2015 to 2019

### BFP works in four components or action fields:

- Strengthening the national parks strategy
- Integration of biosphere reserves and Forest Priority Areas into national system of protected areas
- Forest management and setting-up of forest sector
- Improving the coordination and knowledge management for the management of biodiversity

### Expected impacts

- Improvement of law enforcement in protected areas and forests, to prevent or control anthropogenic pressures on biodiversity.
- Management plans in place to ensure protection and management of protected areas and forests according to international standards.
- Forest coverage increase in the selected areas
- Local populations see positive economic effects from conservation through sustainable resource management and local economic development.
- Institutional and human capacities of public authorities are strengthened.
- A management structure is built at regional level to run the existing biosphere reserves.
- Reforms to improve protected area management are implemented



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# Witnessing the death of Lake Chamo, in Nech Sar National Park

**N**ech Sar National Park is the second most visited national park in Ethiopia. Tourists are attracted by its natural beauty, a combination of lakes and evergreen hills. Although wildlife is not abundant, as in other African parks, it's still possible to see gazelles and zebras in the plains and hippos and crocodiles, as well of a great variety of birds, in the Chamo Lake.

Lake Chamo is rich in fish species and is the main source of fish for Arba Minch and Addis Ababa, providing income to many fishermen in the area. A portion of this lake belongs to the park in order to protect the breeding area of the fishes. Securing the reproduction of fishes is fundamental to secure not only the livelihood of

fishermen, but also the survival of the species.

The GIZ-BFP is supporting the Arba Minch University and the park managers to implement measures to protect this area in a sort of enclosure in order to avoid that illegal fishermen get the small fishes.

But the most worrying situation for Lake Chamo is the constantly increasing siltation. Neighbouring Lake Abeya is currently a dead water body because of the sedimentation and siltation caused by deforestation. The washing of the agricultural fields, where a large amount of agrochemicals are used, cause erosion that dispose large quantities of soil into the lake. Lake Chamo is suffering the same fate.

An assessment performed by two trainees at GIZ-BFP to identify the land use dynamics in the Hare, Shae and Kulfo watersheds and the impact on the Abeya – Chamo sub-basin, has shown that inappropriate farming practices, over grazing and soil erosion in the upstream, and siltation in the downstream would put the potentials of fertile soil of the study area at risk. The erosion level in the upstream watersheds is considered as extreme, putting Lake Chamo in a very high danger and delicate situation, not only for the wildlife living in and around the lake, but also for the thousands of people that rely on the resources that the lake provide, such as fish and tourism.

Lake Chamo is suffering from a constantly increasing siltation



Contribution:

Awarris Mamo



# News

The tools introduced during the training will help improve the work of scouts and wildlife biologists

## Training on Wildlife and Ecological Monitoring Tools in Nech Sar National Park

**K**nowledge on the status and trends of ecosystems and the species they contain is fundamental to manage the resources in protected areas. The ecological monitoring is a key tool to gather, organize and make available all data and information on species, ecosystems and their associated processes that will contribute to an accurate park management.

The use of wildlife and ecological monitoring tools in Ethiopian parks and reserves has not been fully adopted so far by the institutions responsible for park management.

In order to build local capacities in the national parks under the administration of the Ethiopian Wildlife Conservation Authority (EWCA), BFP is providing trainings in wildlife and ecological

monitoring to take Ethiopian parks and reserves to the next level. Some of the tools introduced during the courses are Global Positioning Systems (GPS), Geographic Information Systems (GIS), Camera Traps, and Google Earth. A working GIS incorporates hardware (e.g. computers), software (e.g. QGIS), people (e.g. ecologist or GIS technician), data (e.g. wildlife observations), methods (e.g. geoprocessing), and a system (the integration of all other components).

The tools introduced during the training will help improve the work of scouts and wildlife biologists in activities that involve spatial (locational) issues, like:

- Locating their camps while patrolling
- Calculating areas (e.g. invasive plant infestation sites, wetlands, and burned areas)
- Keeping locational records of wildlife observations, important land marks, and habitat conditions

- Keeping track of their patrolling routes, trails, roads, and more
- Assess the effects of land-use change on protected areas (e.g. grazing, agriculture, deforestation)
- Determine the optimal suitable habitat for wildlife species using habitat association
- Delineate watershed boundaries to estimate sedimentation effects on fish-bearing streams
- Predict vegetation types based on elevation, slope, and aspect
- Make communicative, colorful, and interesting maps

The training was provided to a total of 18 park staff (12 scouts and 6 experts) from Nech Sar National Park during 7 days and it was focused on the basic features and functionalities of a handheld GPS device, using a Garmin GPSMAP62s. GPS equipment was purchased and

provided to the park by GIZ-BFP.

After the general GPS training, 9 selected trainees received an additional course on the principles, methods, and application of GIS using the basic features and functionalities of Quantum GIS (QGIS) software V.2.2.0 and Google

Earth Pro. QGIS and Google Earth were installed on park's computers.

In addition to the theoretical and desktop based exercises, there were three field excursions to the park to demonstrate practical applications of the tools.

Currently, the park is using these monitoring tools to map and calculate areas of invasive plants infestation and to record their patrolling and wildlife monitoring efforts

#### Contribution:

Eyerusalem Akalu, ICT officer, and Kassahun Abera, Field Conservation Advisor

## Patrolling system establishment in Nech Sar National Park

Following the finalization of law enforcement and GIS/GPS training, and after the handover of equipment to Nech Sar National Park, it was then time to start implementing the acquired knowledges and skills. The park management has adjusted its patrolling system according to the recommendations of the law enforcement training (featured in our last Zena) in order to make it more efficient and also in order to spread the knowledge among its staff. The new patrolling teams are now composed by mixed groups of trained and untrained scouts.

The park has established five patrolling teams with seven scouts each. Each team was assigned a specific area, where they perform their activities with the help of handheld GPS. After one month, teams are rotated to a different area, using four campsites as base.

During patrolling, teams register and record habitat conditions (wildfire, water points, invasive species), human activities (grazing, poacher and fishermen camps, wood cutting, and settlement), and wildlife activities and condition. The registration and recording of ecological

condition, human activities and wildlife status was conducted using GPS waypoint recording as well as registration of each issue on standard data collection formats. All collected information as well as the performance of the patrolling system itself will be analyzed by the park management for decision making and also to get proper data of the ecological condition of the park.

**Nech Sar scouts are implementing new skills and knowledge for patrolling**



#### Contribution:

Dereje Abera, Nech Sar field staff



# Faces & stories

## The botanist scout

Asnake Zegeye is a self-tought botanist working as a scout in Nech Sar National Park



It is hard to define what characteristics make a good scout in Ethiopian national parks. Some scouts take their job as just a job. Others are really motivated and make the love for nature a part of their lives.

Asnake Zegeye is that kind of scout. He has become a self-tought botanist and he knows almost every plant in his duty station, Nech Sar National Park.

His interest for plants begun very early,

but when he was assigned to accompany a group of researchers from the Czech Republic for one month back in 2004, his interest became a passion and a hobby. He has also supported Wendo Genet College of Forestry researchers to collect data for over 5 years on 35 tree stands of Marula (*Sclerocarya birrea*) or Yebereha Lomi, in Amharic, 25 are for seed collection and 10 tree stands are meant to study their behavior throughout the years.

He has also observed over the years some tree species, like the indigenous *Cordia africana* or wanza, in Amharic, which has been almost destroyed in the area. He has become the botanic specialist in the park and he is usually assigned to support researchers in identifying plant species.

Asnake has made his own "botanical guide" to Nech Sar Park, a notebook where he registers all plants with a sample and scientific name.

### Contribution:

Eyerusalem Akalu, ICT officer





# News

Over 52 separate forests with a total size of 6450 ha (ranges from 2.5ha to 1800ha) in 16 woredas were delineated and inventoried.

## Inventory of plantation forests under AFE concession completed

**A**mhara Forest Enterprise (AFE) is a regional government in charge of the development of all commercial forests in Amhara Region. However since the standing stock and stumpage value have not been completely inventoried, it has become difficult to make decision on future investment and actions. AFE was facing the challenge of counting on reliable data based on a complete inventory of the plantation forests, including stumpage value.

With the support of BFP, in terms of equipment and technical advisory,

AFE has performed a full inventory of plantation forests in July. Therefore, AFE has established 3 teams and trained them on data collection and reporting.

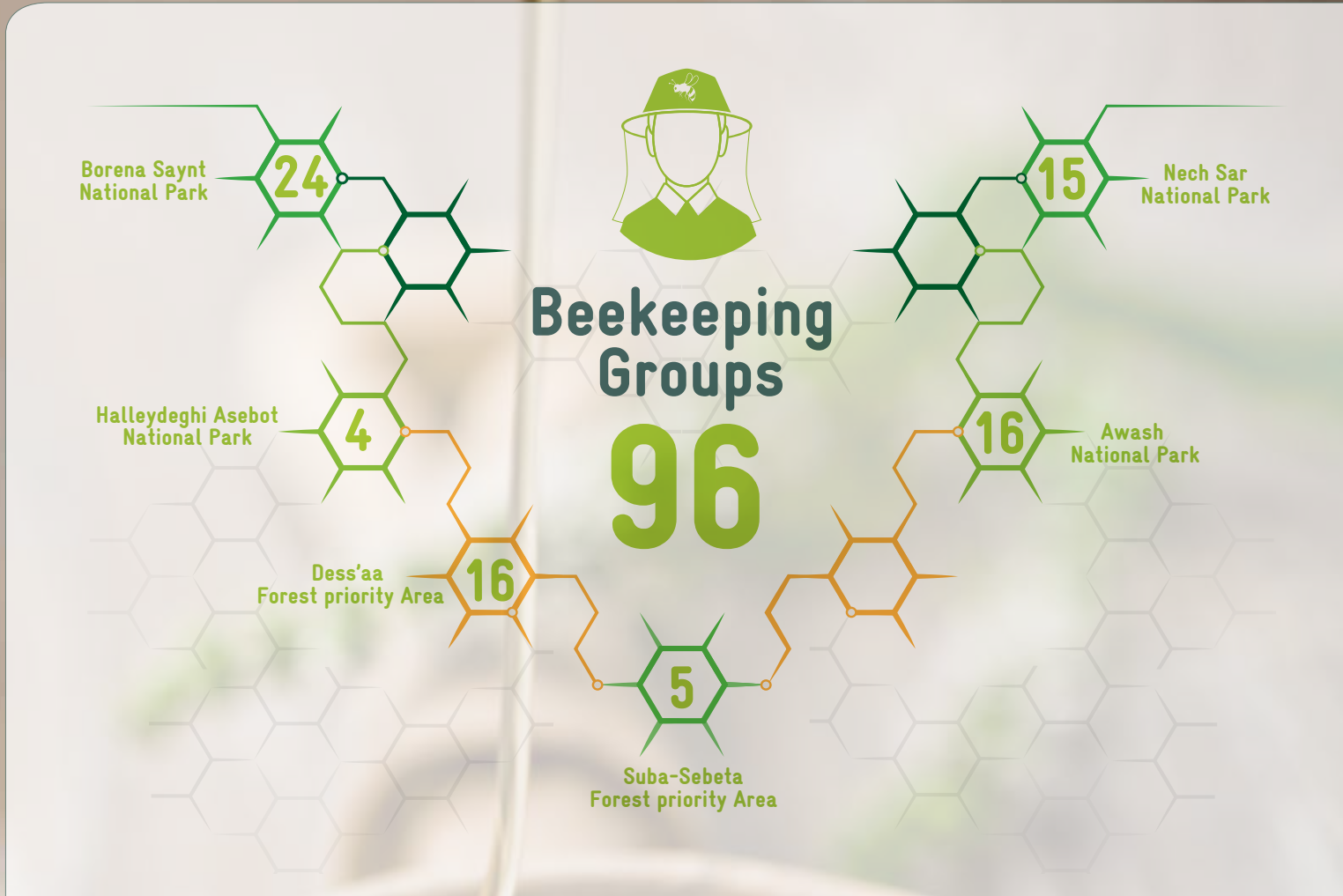
The results of the inventory are currently being compiled. The first raw data found that the majority of the forest is mature and ready for harvesting. The main commercial species are *Eucalyptus globulus*, *Cupressus lusitanica*, *Eucalyptus globulus*, *Acacia decurrens* and *Pinus patula*. There are also newly established plantations and naturally regenerated stands after harvest

The completion of this inventory is a corner stone for AFE and will allow to have accurate information of the standing capital and to fulfil the requirements from the International Finance Reporting System (IFRS). In the long term it will be used to prepare management plans, to develop strategic plans and to make informed decision on future investment, establishment of forest industries, among others.

### Contribution:

Dagnachew Alemayehu, forestry technical advisor at AFE

Apiculture groups in all intervention sites are being supported with equipment and training





## Microeconomic research on beekeeping

**B**eekeeping has a long standing tradition in Ethiopia and it is practiced almost in the whole country. It is one of the alternative forest-based non-timber income opportunities and it is compatible with forest conservation, since bees feed on a great variety of forest flowers.

GIZ-BFP is supporting bee keeping groups in all intervention sites with equipment and training. One element of the approach is to introduce modern beehive types, such as transitional hives (like Kenyan Top-Bar) and modern framed-hives, since they are more productive than the traditional ones and this will increase the income of beekeepers.

In order to get a deeper understanding of the current apiculture sector, BFP has undertaken a survey to better understand the beekeepers' side and to get more

detailed knowledge about their level of experience, motivation, preferred types of hives, and current market linkage.

For the survey, four selected sites were visited: Menagesha Suba Priority Forest, and Chebera Churchura, Nech Sar and Borena Saynt National Parks, where a total of 57 farmers (39 men and 18 women) from different Kabeles located in and around the forest areas were interviewed.

Every site is different in landscape, flora, climate and altitude, but there are still some similarities.

Beekeeping means an additional, and not a main, source of income for the most interviewed farmers, but the exact income is not known to them.

Traditional hives are the most used ones and farmers are, in general, not familiar

with other kinds of hives, like modern and transitional). Nevertheless, they would rather use the transitional hives, because of their easier management compared to the modern ones, with simple hive reproduction and adaptability to climate conditions and honey production.

The production of other bee products, besides honey, like bee wax is still not common in the visited sites. Even in areas like Chebera Churchura, where there is a high demand for wax, most beekeepers have little awareness of its marketability.

As a general conclusion, further and specific training, diversification of bee products, and improvement of marketing linkages are necessary for the future development of the beekeeping activity in every site.

### Contribution:

Henriette and Rita, beekeeping trainees



### Honey Price Range Per Site





Export of Turmeric can offer promising short-term benefits for local farmers

## Turmeric a promising spice crop for small-scale farmers in the Yayu Biosphere Reserve

**T**urmeric (*curcuma longa L.*) is a rhizomatous plant from the ginger family. The tubers are processed as a spice that is very much used in the Asian cuisine.

As confirmed and recommended by a recent study of options for local value chain support in Yayu Biosphere Reserve, the export of Turmeric can offer promising short-term benefits for local farmers as the spice crop finds ideal growing conditions in the transitional zones of the Yayu Biosphere Reserve in the Illubabor Zone, Oromia Region.

As part of the GIZ Biodiversity and Forestry Program (BFP), the UNIQUE/NABU Consortium is supporting the establishment of an out-grower scheme for the production of turmeric. The crop is fairly easy to grow with low input requirements in terms of fertilizer application and pest control and can be

harvested already after about 7–9 months with a hectare yield of 35 to 40 MT.

So far, however, the main obstacle for local smallholders to expand turmeric production has been the lack of access to overseas' markets. While the spice is of little interest domestically, there is a very high demand in Asian countries, especially in India, where the curcumin, oleoresin and essential oil components of the dried turmeric rhizomes are used for industrial, medicinal and culinary purposes.

Therefore, access to export markets is being facilitated based on a tri-party cooperation agreement between the Zonal Coffee and Tea Development and Marketing Authority, 60 local small-scale farmers and a private entrepreneur who is already exporting turmeric and seeks to increase export quantities through cooperation with local farmers.

This will be a contribution to the development function of the Yayu Biosphere Reserve and the diversification of agricultural production, so far dominated by coffee and honey. Increasing benefits from available farmland in the transitional areas will also reduce pressure on buffer and core zones of the biosphere reserve where forest and habitat conservation are critical. Growing turmeric as a dense ground cover and with proper site selection and management will minimize soil erosion and sustain soil fertility.

Through a local UNIQUE/NABU consultant, the BFP program is providing funding and technical support for the purchase and distribution of planting material, farming tools, technical training and on-farm coaching of farmers to meet the required quality requirements.

### Contribution:

Alemayehu Nigussie, Yayu BR advisor







## Supporting the adoption of water harvesting practices and production of forage and fruit trees at house hold level

**E**thiopian protected areas, like Awash National Park, with their ecologically fundamental resources are under severe threat from the increasing human population, which is associated to the need for land and increasing livestock. Impacts of climate change, especially drought, and expansion of invasive species are only worsening the situation. Creating alternative sources of livelihood for the neighboring communities has become a must for the park authorities.

In a recent integrated effort, Awash National Park, Agriculture and Pastoral Development Office of Fentale woreda and GIZ- Biodiversity and Forestry Programme have mobilized the local community of Deho kebele with the objective of securing forage for the cattle and planting trees with an economic value. About 10 household heads are currently engaged in water harvesting, fruit tree plantation (avocado, mango, papaya,

guava and banana), and production of forage in their small private plots of land (ranges from 0.15 to 0.2 ha). The Deho kebele of Awash Fentale woreda was selected for the implementation of the measure due to its high population of pastoralists, availability of water and the presence of technical extension offices.

Preparations of the measure included land clearing (removal of Prosopis species), land preparation, fencing of the plot and establishment of small ponds and diversion channels for each plot. Beneficiaries were encouraged to share their knowledge and experience to at least five neighbors. Each household will produce tree seedlings which will be sold to the neighbors they share their experiences with, creating a multiplier effect. To ensure the sustainability of this measure, the concerned technical extension office is also responsible for the knowledge transfer process. The

same practice is also undergoing in the compound of Farmer Training Center, close with the villages.

The existence of a situation that can be replicated and the support to champions who can change a land covered by Prosopis to a private forage and fruit production center were some of the lessons learned from the field. Cooperation among different stakeholders has also been a key to success. Great effort has been put by the head of Agriculture & Pastoral Development Office of Awash Fentale woreda, Ato Mussa, Natural Resource Process owner, Ato Abera, natural resource expert Ato Ermiyas and Ato Shiferaw Mengiste, chief warden of Awash National Park.

**New water harvesting structures enable plantations of forage and fruit trees around Awash NP**

### Contribution:

Teshale Atsebaha, GIZ-BFP, Awash National Park Advisor





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