Biovision

Newsletter December 2016

Trees produce black gold

Rich harvest from Jane Migao's garden

Christmas coffee from Rongo

In Rongo near Lake Victoria in Kenya, a group of farmers are risking a return to coffee growing. Supported by Biovision, they are using ecological methods to grow high-quality coffee beans.

Mirjam Moser and Peter Lüthi, Biovision

Jane Migao (Cover) and her husband Caleb are a calm and cheerful couple with a neat and well-tended garden. The garden's flourishing tree canopy provides shade for the coffee plants. Each plant is carefully nurtured and has a dark layer of compost around it. "The production of organic compost was one of the most useful things I learned from the courses on ecological coffee growing," says Mrs Migao. Her compost comes from her own cow. "This natural fertiliser provides plants with important nutrients such as potassium, sodium and nitrogen," she explains, adding that it also increases the fertility and moisture content of the soil. The plants are clearly healthy and productive as the branches of the coffee plants bend under the weight of the plump berries. Jane points out with pride that their coffee has been awarded the top AA rating.

Black gold

"Coffee is black gold," say Caleb and Jane. It is four times as profitable as sugar cane. Since they started to grow organic coffee, they have doubled their income. However, the business is dependent upon market prices and these are unpredictable. In the past, this unpredictability caused major problems for farmers in Rongo and many abandoned coffee growing in favour of sugar cane. However, the sugar factories paid very badly and let the producers down. So Jane and her farming group went on the offensive and switched to organic coffee production. A total of 10 women and 25 men were trained as part of a project supported by Biovision and run by the "Permaculture Research Institute of Kenya" and the local association "Sustainable Village Resources". Further courses are planned, including one in the near future on the right way to prune the coffee bushes.

The project uses cultivation methods based on the principles of permaculture that seek to encourage ecological and socially-responsible agriculture. The project aims to produce high-yielding, high-quality crops on small plots and diverse land types whilst at the same time maintaining biodiversity. It does this by using closed cycles, mixed cropping, ground cover, wind breaks and shade-grown crops.

Stable market and fair prices

The farmers participating in the project want to improve their economic security by accessing stable markets that pay fair prices for their AA organic coffee. The farmers have already identified a promising option: "Safari Lounge, a Kenyan roaster" is now buying their coffee. The beans are attractively packaged and then sold in Kenyan supermarkets as "Christmas Coffee from Rongo".

For more information see:
www.biovision.ch/rongo-en

Caleb Omolo Odondi
"Sustainable Village Resources", Rongo (Kenya)

"I want even more farmers to grow organic coffee and so earn a good living."

Project "Ecological Coffee Production in Rongo"
(started 2016)

The project aims to help small-scale coffee farmers achieve long-term improvements in income and food security. Using permaculture-based production techniques, it seeks to regenerate the environment and strengthen community resilience.

- **Aims of current project phase:**
  - Increase the organic production of high-quality coffee
  - Develop local marketing opportunities for organic coffee
  - Increase incomes and improve food security through crop diversification
- **Project budget:** CHF 73000
- **Account for donations:** PC 87-193093-4
- **Sustainable Development Goals:** Biovision is contributing to the switch to sustainable development in accordance with the UN 2030 Agenda. The project in Rongo focusses primarily on three of the 17 Sustainable Development Goals (SDGs):

Small-scale coffee farmers in Rongo learn how to grow coffee using permaculture-based techniques, including mulching with compost, charcoal, wood shavings and banana leaves (top photo). Ripe coffee berries in the garden of Jane and Caleb Migao: The couple have achieved significant increases in yields with ecological methods as well as a top “AA” rating for their coffee (photo middle left). After picking, the ripe coffee berries are shelled and washed. The coffee beans are then laid out to dry (photo bottom left). The Rongo coffee farmers work with mulch, compost, mixed crops or trees to provide shade or wind protection (photo right).

We'll keep at it!

In less than one year from completion of the negotiations on the Paris Climate Agreement, conditions were surprisingly fast met and the agreement is now in force. That's good news but it is merely one minute step on the path towards implementing the far-reaching climate measures. By 2020, countries plan to agree the mechanisms for enacting the agreement. Such slow progress is something that Africa for example cannot afford. The people living there are already suffering from the effects of changes to climate. For example, the UN estimates that more than 10 million people in the Horn of Africa are already suffering from malnutrition and a lack of drinking water because of reductions in rainfall! In addition, climate experts agree that changes in weather patterns are on the increase.

If we are to achieve the aims of the Climate Agreement, we need speedy, effective and decisive action. As one of the major contributors to the problem, agriculture is an important element. Changing to sustainable food systems would strengthen the resilience of habitats and humans to the effects of global warming. At the same time, the use of agro-ecological methods that deposit CO_2 in ecosystems would help to alleviate the effects of climate change.

Biovision is lobbying hard for the potential of agro-ecology to be both recognised and exploited. We'll keep at it – at the political level and with concrete grassroots projects in East Africa and Switzerland.

Martin Herren
Biovision Project Manager
"Changing Course in Global Agriculture"

Climate Change and Agriculture in Eastern Africa

Climate change exacerbates the already low food security in East Africa. In dry areas, careful attention to changing trends is called for. Efforts to enhance resilience by diversification and good local adaptation will help to cope with a changing climate.

By Andreas Fischlin

The latest report of the Intergovernmental Panel on Climate Change (IPCC) states "there is robust evidence, high agreement that sub-Saharan Africa has the highest proportion of food-insecure people, with an estimated regional average of 26.8 % of the population undernourished in 2010–2012, and where rates higher than 50 % can be found". Moreover, the report finds that "It is likely that land temperatures over Africa will rise faster than the global land average, particularly in the more arid regions".

East Africa has a complex topography, where neither recent climate change nor anticipated climate change affect this part of the continent in a homogeneous manner. The range of climates vary from tropical along the coast to temperate inland to arid and relative cool highlands. Thus, both temperature as well as precipitation regimes vary strongly with some combinations of changes having the potential to be beneficial for agriculture while others are clearly negative.

Barley in Ethiopia...

Ethiopia is one of the largest grain producers in Africa, yet recent developments have exacerbated the fact that Ethiopia needs to import food to meet demand. The plan of the government to double grain production raises the challenge to Ethiopia's agriculture. Recent studies show that barley is the most sensitive crop to climate change among Ethiopia's main crops, such as teff, maize, sorghum, barley, wheat, and millet. While there are a few areas in which the productivity improves thanks to climate change, the areas in which the productivity suffers are considerably larger.

Climate change is creating gains and losses

The example of Ethiopia, showing gains as well as losses in the productivity of some major crops, is not atypical for many other East African countries.

What causes the gains? If the current climate is below optimal growing conditions, due to cooler temperatures or a suboptimal water supply, climate change can be a benefit. This can be the case at higher altitudes where a crop is growing only marginally. With warming such zones may increase their productivity.

In consequences of climate change are clearly visible in Ethiopia (left picture).

The melting of the ice on Kilimanjaro is a unique development after 11700 years (the period of the Holocene). Climate change seems to eliminate the white cap of the peak (right picture).

What causes the losses? There are obvious limits to such adaptation to climate change. First, high altitude areas are limited and neither soils nor slopes may be suitable for agricultural purposes or the specific crop one would like to grow. Secondly, warming also affects the water regime, since glaciers and snow packs at the top of mountains retreat. Today clear trends of retreating and thinning glaciers plus thawing permafrost can be observed worldwide.

The famous white peak of Mount Kilimanjaro appears an example of such changes. However warming is not the only reason for the dwindling ice cap at Kilimanjaro's top during the last century, since its peaks have experienced little warming, but changes in precipitation are clearly having an impact. However, the exact nature of what caused the Kilimanjaro's ice to dwindle is poorly understood. One reason is a lack of meteorological observations, a general and serious problem in Africa, to understand as well as to cope with risks of climate change. Recent losses of Kilimanjaro's ice fields are unique within the Holocene, the period going back 11700 years from today.

Less productivity in a changing climate

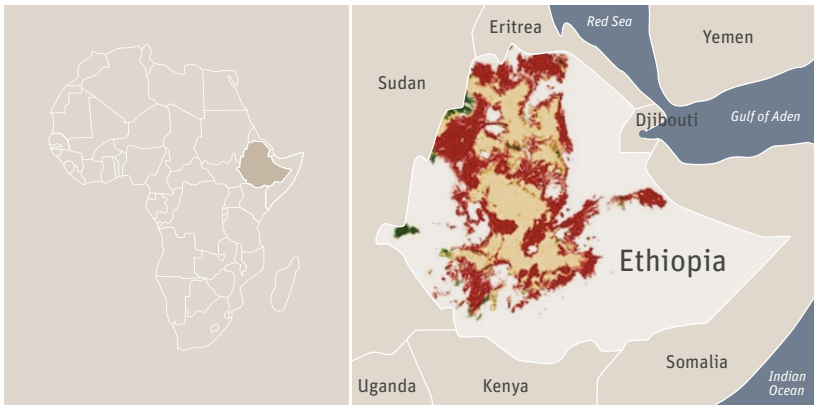
The consequences are potentially a changed water regime. However, in tropical areas with little seasonality, melting glaciers matter much less than in temperate mid-latitude zones where large effects onto the hydrology of lowlands are very likely. The water regime of East Africa is more affected by changes in precipitation and/or changes in the evapotranspiration as caused by higher temperatures. This means a negative impact in all drier areas of East Africa, where a worsening of growing conditions are to be expected due to warming alone, and an exacerbation of such trends due to decreasing precipitation. The majority of East African areas will experience a decrease in agricultural productivity due to climate change

Coping means enhancing resilience

How to cope? Adaptation measures will be necessary. One of them is diversification and efforts to track local changes as flexibly as possible. This requires improved understanding, including more observations such as measuring local temperatures, to detect changing trends in order to anticipate adaptive measures. Resilience to climate change may also be enhanced by searching among traditional crops for more drought resistant varieties. What is generally needed in a changing climate is a strengthened, locally well adapted resilience to ever changing growing conditions. I trust Biovision will contribute towards such goals.

More information:
www.biovision.ch/ipcc

CHANGE OF PRODUCTIVITY FOR BARLEY IN ETHIOPIA



Unsuitable · Increasing suitability · Decreasing suitability · Suitable/No change

Changes in the productivity of Barley in Ethiopia in 2050 due to climate change according to a business-as-usual climate change scenario (Source: SRES A2a).

Andreas Fischlin
Terrestrial Systems Ecology
IPCC Vice-chair WG II

Active in climate protection

Since 2012, Biovision has engaged in political lobbying on behalf of sustainable agriculture through its project "Changing Course in Global Agriculture" (CCGA) – with success. Through targeted cooperation with policymakers and active participation in international negotiations, the CCGA team and their associates were able to anchor into the UN 2030 Agenda the issue of sustainable food systems and therefore a greening of the food production, processing, distribution and consumption systems.

The experienced team is now turning its advocacy work to climate protection. "We want to make sure that the signatories to the Paris climate agreement keep their word. We will provide them with advice and active support in planning and implementing their promises," says CCGA Project Manager Martin Herren. Governments should recognise and strongly promote sustainable farming systems that are beneficial to the climate. In this way, we can avoid the enormous quantities of greenhouse gas emissions produced by existing food systems. "Agriculture, a sector that is currently a major contributor to the climate problem, should also be a part of the solution," stresses Herren. Equally, the ability of agriculture to adapt to the effects of climate change must be strengthened. | kwl

www.biovision.ch/ccga

The Biovision advocacy team is active globally promoting sustainable, climate-friendly agriculture. From left: Sonja Tschirren, Martin Herren, Stefanie Keller, Michael Bergöö, Azadeh Jassemi.

"Knowledge is knowledge!"

Last summer, Biovision Trustee Dr Barbara Frei Haller, pharmacist and ethnobiologist imitated a seminar in Kampala on generating income from ethnobotanical plants and products.

Loredana Sorg,
Biovision Project Coordinator

The seminar was held last August during the Congress of the International Society of Ethnobiology at the University of Makerere in the Ugandan capital Kampala.

Dr Wilber Lwande from icipe, the international insect research institute in Nairobi, gave a presentation on the project "Protecting Biodiversity", which is supported by Biovision. He explained how researchers are working on new receptors as well as the marketing of traditional herbal products. "Apicure" is a new product for the biological control of honey bee pests such as the Varroa mite. It contains extracts from plants that are grown on land outside the boundary of the protected Kakamega Forest. These plants not only open up new income opportunities for local people but reduce the pressure on threatened rain forests.

Help for humans and forests

Dr Yahaya Sekagya, qualified dentist and traditional healer from Uganda spoke about the Forest School Buyijja. With support from Biovision, her team has been training traditional healers for many years and is raising awareness amongst local people of the need to protect the forests.

"Knowledge is knowledge! We should not, therefore make a distinction between traditional and modern knowledge", explained the Ethiopian Professor of Chemistry Ermias Dagne. He gave congress delegates an opportunity to test for themselves the efficacy of both traditional herbal mixes and the biological insect repellents developed in the laboratory.

More information:
www.biovision.ch/biodiversity
www.biovision.ch/forestschool

Which is the more effective insect repellent – traditional herbal mixes or laboratory products? Ermias Dagne, a 72-year old Professor of Chemistry from Ethiopia conducted the test on an improvised outdoor stand (top photo). Barbara Frei Haller, Biovision Trustee, the course initiator, during a forest trip in Uganda (bottom photo).

A sweet commute home

"May I sweeten your journey with an organic honey sweet?" These or similar were the words heard during one rush hour in mid-October at Zurich's main railway station. Beekeepers, accompanied by oversized honeybees handed out surprise sweets to commuters on their way home. They also handed out a leaflet explaining the background to the campaign.

The bee costumes were worn by staff from the Biovision Project who used the opportunity to explain the bee project in Ethiopia. The campaign attracted much support and the results were encouraging for all involved.

More information on our Autumn Campaign:
www.biovision.ch/pioneers

Biovision staff are distributing honey sweets and project information at Zurich's main station.

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Cover photo Smallholder Jane Migao from Rongo (Kenya) participates in the coffee project supported by Biovision. Photo: Biovision/Noor Khamis

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Senegal as pioneer

The Senegalese government is a firm believer in the Biovision project "Changing Course in Global Agriculture". It wishes to position the country as a pioneer in Africa of sustainable development.

The government is supporting an intensive course in system dynamics and the "T21 modelling tool" being offered for the first time at the Senegalese university "École Nationale de la Statistique et de l'Analyse Économique". The T21 Model facilitates the simulation of sustainable development strategies based on social, economic and ecological factors. It is a valuable tool for countries pursuing sustainable development. This new course is just one of several welcome outcomes from the Biovision project "Changing Course in Global Agriculture". | aj

Alain Mbaye (Initiative Prospective Agricole et Rurale, Senegal) and Azadeh Jassemi (Biovision).

www.biovision.ch/ccga-senegal

MONSANTO Tribunal

Ecocide – the destruction of basic human resources – should be recognised as a crime under international criminal law and actionable before the International Court of Justice.

That was one of the aims of the MONSANTO Tribunal in mid-October in The Hague, which is the seat of the International Court of Justice. There is currently no legal mechanism that allows a criminal prosecution against companies for crimes against the integrity of the environment and so against human health. In The Hague, five high-ranking judges from Senegal, Belgium, Mexico, Canada and Argentina presided over a symbolic court hearing and heard 30 charges from America, Europe, Asia and Africa presented by victims, scientists and lawyers. The verdicts will be announced on 10 December.

At a workshop that was part of the supporting programme for the Tribunal, Biovision demonstrated proven, environmentally-friendly alternatives to industrial agriculture with its widespread use of dangerous chemicals.

www.biovision.ch/monsanto-tribunal-en

At the Monsanto Tribunal five internationally renowned judges listened to thirty charges.

Story from the life of Lucy and Joseph Njeru, Embu (Kenya)

We share the work – and the income

Peter Lüthi, Biovision Project Reporter

"At my age, I should not be climbing trees," laughs Joseph Njeru. So some time ago he started to prune his mango trees so that the shoots would grow outwards rather than upwards. "Now the fruit almost grows into my mouth," says the 66-year old with an impish smile.

The retired teacher lives with his wife Lucy in the hamlet of Embu on the East side of Mount Kenya. The couple seem to make a good team. "We share the work and the income," stresses Lucy and adds that in many marriages it is the men who have the money and this causes friction and tension. In contrast, in their business both contribute their respective strengths. Lucy oversees the maize, bean and mango production. She is also in charge of the negotiations with the dealers who buy their fruit. "Sometimes the dealers get angry and try to distract me by quoting old sayings," she says. However, she is not put off her stride and counts every single mango. Her husband laughs. "Lucy is the key to our success," he reveals. "Every day she inspects the crops and checks that the plants are healthy. If something is not right, we take action immediately," he says. In the past, that meant immediate spraying of the mango grove with insecticide, sometimes up to 12 times a year. However, five years ago all those expensive chemicals were to no avail. In 2011/2012, there was a massive invasion of fruit flies. The worm-ridden mangoes dropped from the trees before they were ripe.

> "Lucy is the key to our success"

Lucy and Joseph, with other members of their farming group, joined a project supported by Biovision seeking to encourage the ecological control of fruit flies. Under the guidance of insect specialist *icipe**, they released parasitic wasps that attacked the young of the fruit fly. They collected any rotting mangoes on a regular basis and disposed of them in small-mesh nets that allowed the small wasps to escape but trapped the larger fruit flies and their larvae. They erected fly traps containing an attractant that lured the male flies into the trap where they were eliminated. Trees are only sprayed on a selective basis using an environmentally-friendly insecticide. Fungal spores are used to attack the fly larvae.

After one year, Lucy and Joseph had the problem under control. That made them careless and they continued to use selective spraying and traps until a wake-up call from icipe. The insect researchers warned that the fruit flies could gain the upper hand unless they religiously applied every single measure. The warning fell on willing ears. "It would only need one farmer in our group to offer the worm-ridden mangoes and the dealers would draw a line around our village and would not buy from us," says Joseph Njeru with insight.

** icipe: International insect research institute in Nairobi*