

# Biovision

Newsletter December 2015

**Healthy animals for healthy people**  
Local knowledge against animal diseases



A future for all, naturally

**Dr Douglas Machuchu**

Veterinary surgeon with Vétérinaires sans Frontières Suisse (VSF)



“These projects are creating a framework that will help future generations cope with the effects of climate change.”



- Camels for drought areas (started 2010)
- Local knowledge against animal diseases (started 2014)

The re-introduction of camels provides the semi-nomads living in Arid and Semi-Arid Lands (ASAL for short) with an opportunity to try a viable alternative that can help them cope with the effects of climate change.

- **Activities for the coming year:**
  - Additional 50 disadvantaged people each provided with a camel at favourable rates
  - More livestock farmers trained in how to store, process and sell camel milk
  - Training given in disease prevention and the treatment of the main animal diseases.

• Project Budget 2015 – 2016: USD 318'000

• Account for donations PC 87-193093-4

# Healthy animals for healthy people

The life of those living in pastoral communities is largely dependent upon the wellbeing of their animals. The situation is particularly acute in East Africa where Biovision is helping to improve the health of humans and animals in the north east of Kenya.

Goats are either healthy or dead – according to the rather sober statement by those rearing small animals; this is because goats often die quickly if disease is not identified promptly and treatment started immediately. As a way of coping with such losses, animal farmers in the Arid and Semi-Arid Lands of East Africa (ASAL for short) often keep large herds in the hope that as many as possible will survive.

In recent years, the region has suffered regular droughts. Entire herds have been decimated and this in turn has pushed communities into poverty. In ASAL areas, weather extremes are becoming ever more frequent. Erosion is increasing and the amount of grazing land is dwindling. The pastures that remain are subject to growing pressure and are often overgrazed.

### Disease prevention and treatment

In North East Kenya, Biovision is working with Vétérinaires sans Frontières Suisse (VSF) and local people on two projects that are seeking to find a way out of this vicious circle. The project “Local knowledge against animal diseases” is focussing on species-specific animal husbandry, disease prevention and the early diagnosis and treatment of the

main livestock diseases. It seeks to ensure that animals are healthy and also improves human health as people become more resistant to the harsh living conditions. In the last 1 ½ years, the project has benefited some 2'000 livestock farmers and their families.

### Camels instead of cattle

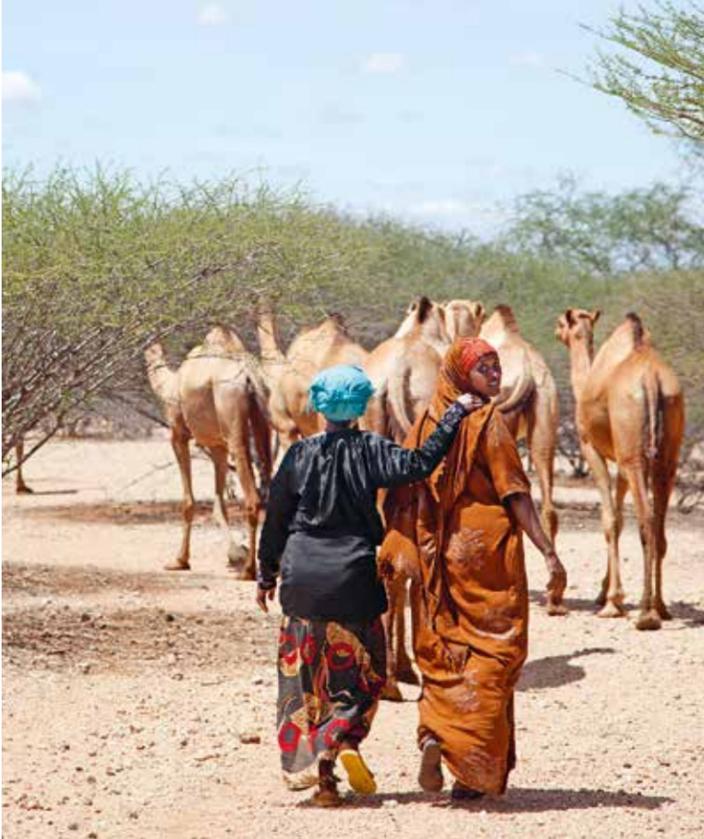
In Isiolo County, there is a growing realisation that camels can be a viable alternative. This is due in part to the success of a second project in the same area where Biovision and VSF are working on “Camels for drought areas”. Camel husbandry has declined significantly in East Africa in the last 100 years as cattle were considered more profitable. However, camels are better able to survive periods of extreme drought than cattle, sheep and goats. They can live for up to two weeks without water and their main source of food – Acacia leaves – remains available during periods of drought.

### Resistant to the effects of climate change

Since 2013, the project has been raising local awareness of the benefits of camel husbandry and 50 pregnant camels have already been sold at favourable prices to those in particular need, e.g. single mothers. The women are trained in camel husbandry, animal welfare and the hygienic processing of camel milk. The training has also covered the need to manage livestock numbers and introduce sustainable grazing systems in the fragile ASAL areas. Specific training has been given to regional vets and local assistants.

Both projects also act as pilots allowing Biovision to feed into the development of strategies designed to mitigate the effects of climate change. | pl

For more information: [www.biovision.ch/ASAL-en](http://www.biovision.ch/ASAL-en)



Wila Mohamed, a veterinary assistant in Merti explains to the owner of an injured billy goat that open wounds are prone to infection if left untreated (top picture). Biovision has made it possible for 50 disadvantaged people to buy a pregnant camel at a favourable price and receive training in camel husbandry, animal welfare and milk processing (bottom left). The camel owners cherish their new livestock as they provide them with a better and more secure life (bottom right).

I first learned about global climate change in the early 1990s as a geography student. The International Panel on Climate Change (IPCC) was forecasting a dire future for the planet. My studies had also taught me that two-thirds of Africa consists of areas where annual rainfall is insufficient for permanent crop production. Climate change would only exacerbate that situation; for example lower rainfall would seriously reduce the reliability of the rains on which people depended.

Today, those IPCC forecasts are largely accepted. In many parts of Africa, man-made changes are making a difficult situation even worse.

The signs are extremely worrying; what is needed is immediate investment in suitable cultivation systems together with their more widespread use. Biovision is supporting these objectives in East Africa: It is working with partners and local people to introduce measures that will help alleviate the grave consequences of climate change. These include, for example, agro-ecological methods that increase the fertility of the soil and its water-retention capacity, which in turn improves the resilience to climate change.

However, such measures are not enough on their own. To curb the effects of climate change, we need robust decisions at the political level. Policymakers must act without delay to introduce effective measures that limit the expected rise in temperatures. The ball is clearly in the court of the forthcoming Conference on Climate Change in Paris.



**Andreas Sicks**  
Head of Programmes and Partnerships



In Africa, weather-related disasters such as droughts and floods have doubled in the last 20 years (photo left).

# Climate change threatens agriculture in Africa

In the debate on climate change, the main polluters and the main victims are not on an equal footing. This is particularly true in Africa: The African continent causes just 3 % of global greenhouse emissions but is already suffering most from the dramatic consequences.

Africa is already painfully aware of the effects of climate change. During the 20<sup>th</sup> century, temperatures in Africa as a whole increased on average by half a degree and in East Africa the rate of increase was even higher. A study of individual datasets from monitoring sites in Kenya, Uganda, Ruanda and Burundi revealed a rise of 1.54°C just between 1966 and 2006.

This rise was accompanied by an increase in extreme weather events. In the last 25 years, the number of weather-related disasters such as floods and droughts doubled. In 2006, Somalia, Ethiopia, Kenya and Tanzania were stricken by devastating floods and in 2011/2012, East Africa experienced its worst drought for 60 years.

And that is just the beginning: According to recent forecasts by IPCC, the International Panel on Climate Change, temperatures in Africa will increase by a further 1.5°C to 4°C between now and 2100 depending upon which emission scenario is applied.

**Africa and South Asia will suffer most**  
Despite contributing almost nothing to the causes of climate change, Africa is now paying a heavy price. This was made clear in a recent report by the British company Maplecroft, who specialise in risk assessments. The report identifies 32 countries at “extreme risk” of massive damage from climate change and almost all of them are in Africa and South Asia.

Agriculture is particularly vulnerable because global warming is linked to drastic changes in rainfall patterns. As a result of modelling by CSC, the Climate Service Center, it is forecast that winter rainfall will decline by 20 % in South and North of Africa whereas in East Africa annual rainfall will increase overall by almost 10 %.

Some 90 % of agricultural production in Africa is dependent upon rain and so is at particular risk from reductions in rainfall. However, even an increase can be problematic, as it is expected that much will fall as heavy rain. This will cause flooding, destroy crops and erode soils.

**Decline in output in Africa**  
In cool and moderate climatic zones, agricultural output potential is likely to increase slightly on 1980 – 1990 levels, assuming an average rise in temperatures of 1 – 3°C. However, in Africa, the IPCC expects that a rise of just 1 – 2 °C in Africa would trigger an overall decline in output.

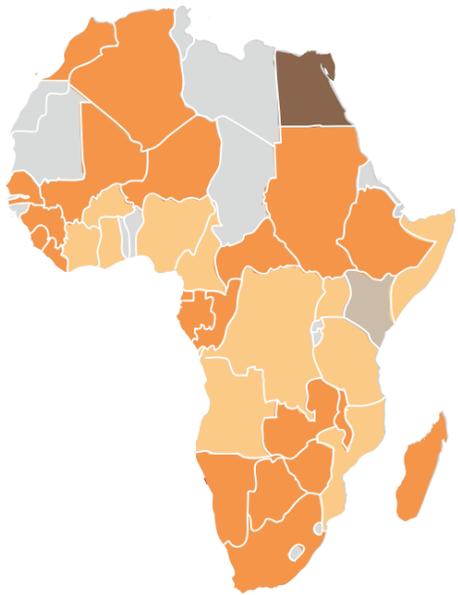
In 2007, the Center for Global Development in Washington, D.C. published the results of research into the likely global changes in agricultural output potential based on a temperature rise of 4.4°C; it forecast that average output in Africa would drop by 16 % to 27 % by 2080. In some countries the decline would be as much as 60 %.

According to the latest IPCC report, drought and heavy rainfall could cause a significant decline in production as early as 2030 – 2040. Its longer-term prognosis is based on two scenarios: in the more optimistic case, emissions would be reduced in time to limit increases in temperature by 2080 to 2°C compared with pre-industrial levels – the avowed target of international climate policy. Even then, agriculture in Africa would still face serious risks although measures to adapt to the new climatic conditions would reduce them to a tolerable level. In contrast, if average temperatures increased by 4°C – the second and currently the more likely scenario – the effect on agriculture would be catastrophic. In that case, measures to adapt to the changes would have little or no effect.

**Hope for binding climate targets**  
Even if industrialised and emerging countries started work in earnest on reducing their emissions after the UN Climate Change Conference in Paris, climate change would still present agriculture in Africa with immense challenges. Irrigation techniques must be improved so that water can be used more efficiently. We need drought-resistant varieties that protect soils from drying out and erosion together with integrated systems for livestock and arable crops that are better able to cope with the new climatic realities. In addition, such innovations must be affordable and useable by small farmers. Small-scale agriculture based on ecological principles, such as those supported by Biovision in Africa, could help in this respect. | Hansjakob Baumgartner



**Hansjakob Baumgartner**  
Biologist and freelance journalist in Bern.



**Projected changes in agricultural production to 2080 as a result of climate change – the figures take account of potential increases in fertility from CO<sub>2</sub> uptake (based on Cline’s 2007 map).**  
■ 0 – 15 % reduction in output  
■ 15 – 50 % reduction in output  
■ 0 – 15 % increase in output  
■ 15 – 35 % increase in output  
■ No data

## Vanilla's a money spinner

Courage and organisational skills hide behind the natural reserve of Zaddock Kitomary. She grows a wide variety of vegetables in her 3-acre (1.2 ha) garden on the outskirts of Arusha in Tanzania, all nurtured with care. Mama Kitomary learned about ecological farming from training courses and the Tanzanian magazine for farmers "Mkulima Mbunifu" (The Clever Farmer), known as MkM for short. Just over four years ago, the innovative farmer ventured into new territory and started to grow vanilla. In September 2011, she harvested the first pods and set about processing them. She first placed the freshly picked vanilla pods in boiling water for five minutes, then wrapped them in a cloth and allowed them to dry for three days in a cool place. She then placed the pods in the sun for 2 days to dry. Finally, she filled plastic bags – each containing five black-brown vanilla pods – and headed off to market full of anticipation. The vanilla pods were a runaway success.

Her vanilla business is now her main source of income and during the season she earns some 250'000 Tanzanian shillings (about CHF 110) per month; 40 % of her harvest is sold at the market and 60 % direct from the farm.

When the MkM editorial team heard about Mama Kitomary's success, it published her story. | pl

[www.biovision.ch/mkm](http://www.biovision.ch/mkm)



## Upturn for Push-Pull

The first Biovision project in Kenya was Push-Pull. We supported this biological control method and were convinced that its use would spread quickly. We were wrong! However, at long last its hour seems to have come.

Push-Pull is an ingenious method using two auxiliary plants; one repels insects and the other attracts them (Push and Pull); it also eliminates a devastating weed. The system doubles or even triples maize and sorghum yields, improves soil fertility and aids erosion control. It also provides farmers with additional animal feed which in turn increases their income from milk and in the medium to long term reduces labour input.

However, problems arose during implementation of the system. It was found that one of the auxiliary plants was not resistant to dry conditions and in addition, its seeds were in short supply and expensive. The introduction of Push-Pull demanded high levels of knowledge and more weeding during the initial phase.

### Rocky road from laboratory to field

Biovision and the researchers did not give up. Scientists at the International Centre of Insect Physiology and Ecology (icipe) in Nairobi identified drought and pest resistant auxiliary plants. They worked together to develop ways to disseminate the informa-

tion, particularly to women. This made it possible to publicise the system at a political level – with success!

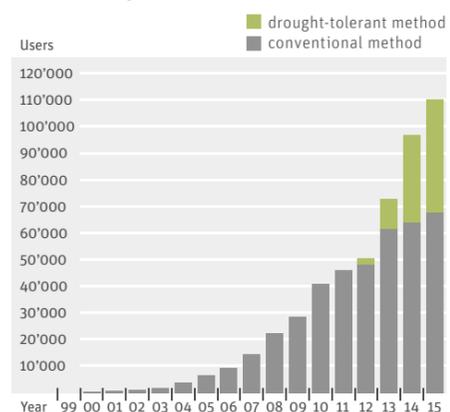
Push-Pull now enjoys broad acceptance: Greenpeace recommends this important agro-ecological method as does the latest agriculture report from UN Secretary General Ban Ki-moon! The EU currently invests in Push-Pull research and is encouraging its greater use. The Ethiopian government is planning the widespread introduction of the method.

Biovision has been supporting the Push-Pull project since 2006 and is very pleased that the method is finally taking off. | pl

For more information see: [www.biovision.ch/push-pull-en](http://www.biovision.ch/push-pull-en)

The Push-Pull method doubles or even triples maize yields – without the use of chemicals (top photo). In East Africa some 80'500 farmers are using conventional Push-Pull and about 29'780 the drought-tolerant method (graph at bottom).

Number using Push-Pull



## Congratulations to the radish champions!

The final winners of the radish competition run jointly with Andermatt Biogarten AG have been announced: First prize, a digital camera sponsored by brack.ch, goes to **Norbert Stocker** from **Freienbach**.

The four gift vouchers of CHF 100 from Andermatt Biogarten AG go to: **Judith Hasler, Lisa Bischofberger, Alice Gut** and **Elisabeth Bohler**.

Many congratulations to the winners and may they enjoy their prizes!



Successful seed production: Winning photo from Norbert Stocker of Freienbach

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Photo: Peter Lüthi/Biovision

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## First prize for Biovision Project

"Nane Nane" is an agricultural exhibition held each year in a different town in Tanzania. This year, the exhibition included two of the projects supported by Biovision. The Tanzanian organisation "Sustainable Agriculture Tanzania" (SAT) presented innovative solutions for sustainable, ecological farming.

The editorial team of *Mkulima Mbunifu* (The Clever Farmer), Biovision's farmer magazine in Tanzania with a readership of more than 110'000, won first prize in the "Knowledge Dissemination and Technology Development" category in the Ideas Competition. We are proud of our innovative partners in Tanzania and send them our hearty congratulations!



The editorial team of the Tanzanian farmer magazine "Mkulima Mbunifu" celebrate their first prize in the Ideas Competition at Arusha.

## Short-sighted response from Federal Councillor!

The President of Biovision Foundation, Dr Hans Rudolf Herren, used an article in the magazine "Schweizer Familie" (Swiss Family) Edition No. 31/32/2015 to ask Federal Councillor Alain Berset the following question: "The health of the environment is the basis of human health: Should Switzerland not be setting a good example by switching to organic farming?"

In response, Federal Councillor Alain Berset said: "Sustainable and organic methods will become an increasing element of Swiss agriculture. That will not only be good for the people but it also makes sense in terms of our positioning in international markets. However, it is well known that organic products are more expensive. They need a society where almost everyone is doing well economically".



Zaddock Kitomary now acts as part-time vanilla adviser for MKM, the Biovision farmer magazine.



A story from the life of Elizabeth Ngina Maive

## Hyenas were a danger to us children

“I was not that frightened of lions. It was the hyenas who were dangerous,” says Elizabeth Ngina Maive as she recalls her childhood and lifts Wavinya, her 1½ year old great-granddaughter onto her lap. Four generations of the same family live on the farm in the Kenyan village of Kianjugu. Elizabeth’s grandson Patrick is part of Biovision’s project “Long-term system comparison” and Patrick maintains that she is already 107 years of age. Whether that is strictly true is unclear, but Elizabeth says she was already an adult at the time of World War I. She must therefore have been born at the beginning of the 20<sup>th</sup> century in what is now Machakos. Back then, there were still many wild animals

such as elephants, wild dogs and cats and hyenas. “We had to be on our guard at all times. The lions did not eat humans but they took our cattle,” she explains. The men then

went out into the bush to hunt the lions and some of them were killed.

Despite that she was not afraid to go out in the bush. “Most wild animals fled when they became aware of our scent”. Leopards occasionally killed humans, but usually they left us alone. In contrast, hyenas regularly killed humans.

Wild animals were an important source of food, she adds. “We liked buffalo meat best of all. They were shot with poisoned arrows. The men hunted in groups, all targeting the same animal. The poisoned arrows paralysed the animal and the hunters were then

able to kill it”. However the staple foods were “ukuko”, a type of grass and the roots of the makuala tree, which were eaten raw. When times were good they kept herds of

goats and cows and so had meat, blood and milk. “We poured the milk into a large pot both for our use and that of our neighbours,” says Elizabeth.

However during her long life, there were frequent periods of hunger. “Worst were the dry periods,” says the old lady. “People died during the periods of droughts and the plagues of locusts”. Three of her eight sisters died from hunger. When people died, the bodies were taken out into the bush where they were eaten by wild animals. “At that time, we did not bury them,” says the old woman, They had no tools for chopping wood and no cloth. “Our clothes and bedding were made of leather and our houses from tree branches and grass,” she recalls. “When the white man came, many things started to change.” | pl

In our next Newsletter, Elizabeth Ngina Maive will tell us more about her long life.

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“Clothes and bedding were made of leather and our houses from tree branches and grass.”

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