

Beekeeping for poverty eradication: a reality or wishful thinking in drought-prone Botswana?

Beekeeping in many African countries is hampered by management and climate change problems, but in Botswana, these setbacks seem deeply entrenched, making it difficult for the sector to play a significant role in poverty eradication.



By Sharon Tshipa

When Kago Monggae tested honey for the first time at the age of 16, he could not understand how something that stung so painfully could produce something so sweet.

“This one time I almost swallowed a bee that had snuck into my fizzy drink can. It stung me.” A hearty laugh escapes the 29-year-old commercial beekeeper’s throat despite the covid-19 mask.

Bees stung him several times in his childhood before that life altering encounter with beekeeping and honey during a biology class high school trip when he was a student at Kingswood College in Grahamstown, South Africa. However, having grown up in an environment in which honey consumption was not popular, he had never been exposed.

“Out of curiosity and the desire to eat honey from my own backyard, when back in Botswana I started beekeeping as a hobby. 2011 was for avid reading, in 2012 I got my first beehive,” he says. We are perched on camp chairs not too far from his apiary. The scanty leafed tree in bloom towering over us can barely stop the noon sun from attempting to scorch us.

With no formal training, Monggae depended on a book on beekeeping in Botswana which was published by the Ministry of Agriculture. Now and then, he consulted with the Ministry's beekeeping extension officer in his home village of Ramotswa—located in the South East District. When the efforts paid off, he decided to increase his boxes to five. When he achieved his new goal, he thought to transform his hobby into a business, targeting 20 beehives which would become 600 in time.

“That is when I realised, I needed formal training. In 2017 I finally registered for a course on beekeeping offered by Bee Ware, run by a group of South African commercial beekeepers,” he shares.

Following his studies, in January 2018 Monggae officially turned his hobby into a business. What boosted it was his 2019 selection into the Tony Elumelu Foundation's 12-week program on business planning and modelling. The Nigerian initiative gave him a seed grant capital of USD5000 which he used to buy additional boxes and personal protective equipment (PPEs).

“I now bottle and supply novelty shops with seasonal honey on contract. Early this month I got my first fulltime employee.” His brown eyes are a wide smile. But of course, his success story did not come without any challenges.

/I have lost over 50 colonies – Kago Monggae.

“Since I started, I have lost over 50 colonies,” he says wistfully.

That's more colonies than the 25 he currently has.

“I almost quit three times too,” he reveals.

Why wouldn't he when his bees have absconded more times than can be counted, when the business was vandalised by thieves who stole honey, when the lack of adequate and suitable land for bee forage limits growth, and when he has invested over BWP70 000 from his own pocket to-date into a business that only became cash flow positive last year—not that its breaking even? To survive, he runs a management consultancy on the side.

What compounded Kago Monggae's problems was the fact that his business took off during the very time when Botswana was declared drought for consecutive years. [Between 2009 and 2019, Statistics Botswana posits that the country has had only one non-drought year, being the 2013-2014 period, and it has had one partial drought year, which was the 2016-2017 period.](#) Except for these two periods, the whole country was otherwise drought stricken. This means for almost a decade, Botswana battled the [economic, social and environmental effects](#) of recurring droughts [that further aggravate the water balance](#), as exacerbated by climate change.

For Monggae, climate change incensed problems came in the form of financial losses, absconding bees, longer dearth periods that encouraged loss of bee lives, the slow build up of bee populations due to delayed rains as bees rely on pollen and nectar from plants, bee pirates which are prevalent in hot weather conditions, and low honey production outputs due to extreme heat.



Photography by: Kago Monggae

| I experienced a reduction in honey harvests – Kago Monggae

“Over the last five years, I experienced a reduction in honey harvests. In 2017, I had an awfully bad output in crop,” says Monggae. During that [acute drought](#), as labelled by the World Bank, his honey harvests gave him BWP6000.

However, the 2018-2019 period saw his harvest triple, fuelling him with hope. “The rains were surprisingly decent,” he explains, elated at the thought of the BWP18 000 he made in sales from 13 hives. Following a good season, he usually harvests 15-20 kilograms of honey per hive.

When its too hot, Monggae says bees eat from their honey reserves as they need energy to fan the hive, keeping it cool. As a consequent, forage time he says is reduced. When its too cold, the bees eat the honey to stay warm. Either way, he does not reap much from the business at the end of the day.

If he was going to continue doing business, Monggae realised he had to mitigate, a decision he says upped production costs. “I ended up planting sunflowers and giving them borehole, diesel pumped water,” he shares. Covid-19 restrictions however killed that part of the business he started in Otse village early this year. In August, he found an alternative farm space to rent.

“I moved 9 of my boxes from my home village,” he informs me while pointing a finger at the apiary located at least 70 meters away from us. “Here at Crocodile Pools, they have better forage and I give them water to drink using a chicken drinker as surface water is scarce,” he

explains, gesturing towards the red and white container placed in the middle of the apiary we are now exploring.



Photography by: Sharon Tshipa – depicting Oadira Mmereki at her apiary

Another beekeeper who thought renting farm space to sustain her bees was a good idea is Oadira Mmereki. “I even planted tomatoes and green peppers so they have something to forage on, but my efforts were foiled by monkeys. They ate the plants and vandalised beehives,” the 29-year-old says staring at the bare part of the farm she had planted the crops. We are standing under the makeshift shade that is meant to protect her beehives from the full impacts of the sun, strong winds or unexpected heavy rains. But years of sun exposure and monkeys have shredded the green netting. It is discoloured, torn in the middle and hangs loose towards the rear of the classroom sized apiary.

“During the 2017 drought the bees absconded a lot,” she laments. But her fortune, like Kago Monggae’s around the 2018 period, improved.

Mmereki is a beneficiary of the [Youth Development Fund](#). A government initiative meant to encourage out of school, marginalized, unemployed and underemployed youth to venture into sustainable and viable income generating projects. Consequently, promoting active participation of youth in the socio-economic development of the country, while reducing poverty and rural-urban migration.

To get her started in 2016, the government gave her 12 empty boxes, four sets of PPEs and a BWP68 000 grant, 50% of which she had to pay back.

“I am struggling to pay the government back,” she says. Mmereki has not paid her BWP250 monthly instalments since June. “I pay rent as well as government instalments from my own

pocket. This forced me to get a job,” her eyes are solemn. She currently works as a shop assistant.

“I was excited when I started because I had chosen a business venture that wasn’t popular in the country. Quickly I dug up, and trapped swarms from various places and populated my beehives,” she shares. Mmereki had not foreseen the challenges she would contend with. Even 3 months of practical and theoretical beekeeping classes she received had not prepared her for what was to come. At one point she lost all her bees.

| I only have 3 boxes occupied – Oadira Mmereki

“Today I only have 3 boxes occupied. The empty ones are at home.” She does not sound defeated. The hands-on experience she says has taught her a lot, now she is committed to taking one step forward at a time. Beekeeping extension officers still visit her where her bees are housed—in the outskirts of Kanye, a town located south-west of the capital Gaborone—and give her nothing other than advice.

As [global temperatures are expected to continue rising unless mitigated](#), a scientific fact also reiterated recently by various presenters of the virtual Media and Journalism Days in Africa workshop like Vicente Paolo Yu, a Visiting Research Fellow for the United Nations Research Institute for Social Development (UNRISD). Melusi Rampart, a Senior Lecturer at the Botswana University of Agriculture and Natural Resources (BUAN) warns beekeepers to be wary of the potential increase in pests and disease outbreaks that will further result in the significant reduction of total honey produced, and increase numbers of bee deaths.

“Bees and plants have a very strong symbiotic relationship hence climate change can indirectly influence honeybees through its effects on their resource base, including flowering plants, pathogens, and predators,” he says. “Life cycles between bees and flowers may also change, potentially disrupting the mutually beneficial relationship,” he expounds.

Rampart views high temperatures, shifting seasons, veldfires and droughts as the most pressing threats to bee lives in Botswana. “I also worry about bees that fail to migrate to cooler areas as land has been developed for other functions,” he highlights.

For bees in [desert and semi-arid regions like Botswana](#) to survive, Rampart suggests planting of indigenous tree species as they are adapted to harsh climatic conditions.

“Consider modified hives with controlled environments and promote the use of environmentally friendly pesticides and safe use of chemicals,” he motivates. Adding that people should be thinking of the assisted breeding of bees that can survive the changing climate, as is done with crops, animals and plants.

“The assisted migration of bees from the far east to the southern parts of the country in line with changing patterns can be done too,” he counsels.

| In rural areas, bees are suffering – Boatametse Dimeku

The Ministry of Agriculture (MoA) shares Rampart's assertion, as climate change affects agricultural production differently across varied geographical areas.

"Bees in Gaborone for example do not struggle much as residents are into gardening, growing trees and flowers. In rural areas, bees are suffering," says Boatametse Dimeku, the Principal Technical Officer of the ministry. If flowering is delayed and heatwaves wilt the little that would have bloomed, he says the window for foraging is reduced while high temperatures also prevent bees from leaving the hive long enough.

"Extreme heat also affects the quality of honeycombs. In some cases, they melt and drop down, killing bees in the process," asserts Dimeku, his voice taut. The large desk that sits across his office ensures our social distance.

Though sub-Saharan Africa is a 'literal hotspot for heatwave activity' with dire impacts, the lack of scientific data on the suffering of Africans hinders action both by African governments and international leaders.

"Should we fail to act, we will be at a loss," cautions Dimeku. Bees, he says, will migrate. "A 200km migration is rife with threats such as birds that eat them while in transit," he opines.

To save this economic diversification strategy that the Botswana government has invested in since the 1980s in an effort eradicate poverty and promote food production, Dimeku says bee housing is key in evading heat, heavy rains, winds and robberies. An effort that will also make bees feel protected. He also encouraged farmers to do what Kago Monggae has done, which is migrating bees to different booming sessions in other environments by signing contracts with horticulture farmers, for example.

"Some beekeepers have lost colonies, because of that, they lost hope. While some are still struggling, others have quit," shares Dimeku. To try address challenges faced, his Ministry is currently working on a strategy to encourage inhouse beekeeping across the country, with the hope that the widespread hobbyist beekeepers will become commercial, ensuring that the sector contributes better to GDP.

| *We need to be proactive in food production – Boatametse Dimeku*

"If covid-19 has taught us anything, it is that we need to be proactive in food production," admits Dimeku, a man who strongly believes that Botswana's beekeeping industry has potential. Besides being at the mercy of international food prices, when covid-19 travel restrictions had to be implemented, Botswana had no choice but to keep its borders open to truck drivers despite the need to curb cross border transmissions, as it imports over 80% of its food requirements.

The potential of Botswana's beekeeping sector lies in the fact that there is a ready local market for honey as it imports over 50%, also, as of 2013, Botswana's total number of beekeepers stood at 1250 while the beehive count was 2678. Should beekeeping hindrances be overcome, the country can increase its honey production levels. Documentation on beekeeping practices is scarce, and research on the subject is at its infancy, nevertheless available statistics show that Botswana is producing incredibly low metric tonnes of honey compared to other African countries. Its highest metric tonnes on record are 14.2, produced in 2010. That same year,

Botswana imported 38.7 tonnes of honey. While honey is little, wax that is supposed to be processed to generate more income is wasted.



Photography by: Sharon Tshipa

The lack of bee management skills is one of the major problems in the sector that diversifies agriculture and provides employment opportunities in rural and urban areas. To redress this problem, the government of Botswana needs to come up with a clear policy that will develop the beekeeping industry, so honey and its products are adequately produced and efficiently managed. Not only that, a market development with specific guidelines on honey imports and exports, as well as clear quality standards and control should be devised and enforced.

Once all challenges are addressed, Botswana's bee products can better contribute to poverty eradication and create employment, as is the case in Southern African countries like Zambia, Zimbabwe, South Africa and Tanzania among other countries performing matchlessly compared to Botswana.

The interest in beekeeping by African countries emanates from the fact that beekeeping is not labour intensive, requires little capital, and minimal technology. With 52% of Africans living in rural areas, beekeeping is an ideal intervention for poverty eradication. This is because the African continent has insurmountable natural resources that can be easily harnessed to create livelihoods for many communities, as most rural communities have large tracks of natural forests, mountains and valleys that can be used for beekeeping.

“Currently Ethiopia is the highest exporter of honey in Africa with an annual output of more than 45 000 tonnes followed by Tanzania with around 36 000 tonnes,” says the President of Apimondia Regional Commission for Africa, David Mukomana, who also decried the lack of proper recordkeeping and accurate data on honey production in many African countries which

he says makes it difficult to provide statistics of the least honey producing country in Africa, as the data available relates to top producers.

Like Botswana, Mukomana says other African countries are battling climate change challenges such as extended droughts in Western Cape that have increased wildfires that decimate colonies, and [flooding resulting from devastating cyclones such as Idai that hit Mozambique, Malawi and Zimbabwe](#). Yet, many of them are producing better quantities.

Though the extent of losses in revenue caused by climate change has not been quantified as yet, as this phenomenon is becoming more evident now, Mukomana revealed that many communal and commercial beekeepers are opting to put their money where they feel it is safe, thus depriving the sector of further growth.

“On the other hand, Southern Africa has seen a steady increase in demand for honey resulting in importation from other continents,” says Mukomana. This is why his organisation is working round the clock to create awareness among publics, including government ministries, on the potential of effectively using beekeeping as a strategy to eradicate poverty and offer realistic job opportunities to the youths.

“Many industries are becoming heavily automated to the extent that more jobs are being lost even in cases where economies are growing. But, beekeeping is still a virgin sub-sector that can create as many jobs as natural resources can support,” he elucidates.

With [youth unemployment rates rising in Botswana, a 1.67% increase from 2018 to 37.35% in 2019](#), and [considering the fact that 55% of female headed households are affected by poverty in the country](#), beekeeping is seen as a realistic strategy to redress these problems.

|Botswana has the potential to meet its honey demand – David Mukomana

“Botswana has the potential to meet its honey demand rather than depend on imports,” he stresses.

To reverse the dependency, Apimondia, together with MoA and the Botswana Bee Farmers Association are planning to raise awareness, emphasizing the importance of beekeeping for sustainable development. This follows the release of Apimondia’s publication on how beekeeping can be used to meet United Nation’s Sustainable Development Goals (SDGs), [which highlights the effects of climate change and how beekeeping can be used to combat the phenomenon](#). To this effect, the partners have already invited local young beekeepers to represent Botswana in the Apimondia Regional Commission for Africa’s SADC Young Beekeepers Initiative.

Their participation will allow them to learn and exchange ideas with other young people across the region. Helping them become fulltime commercial beekeepers that can sustain their own lives, as opposed to doing beekeeping as a side project that one must sustain as is currently the case with Kago Mongagae and Oadira Mmereki. The two have since joined the regional youth apiculture initiative.