

Climate Change in Mali and how we can help with Adaptation

On 17 September 2021, António Guterres, the UN Secretary-General, warned that we are on a catastrophic path to 2.7 degree warming and that we are already reaching ‘tipping point’.

The UN found that the Sahel is warming faster than anywhere else and will probably affect the greatest number of people.



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40 years ago, the Panos Institute reported that as little as 1.5 degree rise in temperature in the Sahel – the arid semi-desert area bordering the Sahara desert right across Africa – would make livelihoods in this marginal farming and livestock-raising area untenable for millions of people.

Indeed, this has been happening for the last 40 years.

In Mali, according to the Agricultural Advisory Service, 60% of productive soil has been lost in that period and 70% of pasture for livestock has been lost. This is an area where the vast majority of people live from the land and its natural resources. It has some of the most skilled and hard-working farming and livestock-raising communities in the world.



Our work began in this Dogon Village in Central Mali

Joliba Trust's work as a grassroots charity working to improve rural livelihoods began in 1992. We have seen vast amounts of fertile land disappear and turn to dust. Much of the tree cover, and pasture biodiversity has been lost. Mali is one of the 20 countries most vulnerable to climate change according to ND-Gain Index.



This has made it far more difficult to raise livestock, which is a mainstay of the economy in this area. Millions of cattle have died and the lives of cattle-herders in particular have been pushed to the margins of existence.



With the decimation of herds, most rural pastoralist children now go hungry



Large areas have become too poor to grow crops

In the last 30 years, over half the farming population in the Dogon area been forced to leave their villages in search of better land to grow crops. They have moved onto pasture areas used by herders. People are now competing for the resources to survive. Last year 5 million people – a quarter of Mali’s population – were in need of humanitarian aid.

Joliba’s work on Climate Change Adaptation

Joliba’s work began with microcredit, midwifery training and improving food security. Climate change and the loss of trees and natural resources have become everyone’s main preoccupation.

Tree Planting

We are restoring tree cover in three ways: through tree planting, promoting natural regeneration of tree cover, and thirdly managing existing tree resources.



We have set up a network of 80 nurseries and trained nursery managers in 15 districts. Each nursery is managed by four people. They grow and sell trees that people would like to plant.



The trees are planted out and enclosed where necessary. This is a baobab plantation. The leaves provide a staple food source, and can be dried and used all year round.

Hawa Barry

I really appreciate the baobab plantation. I've noticed that the trees grow quickly and we can start to eat the leaves after only two years.

Fatoumata Togo

Thanks to the two nurseries, we now have grafted buckthorn fruits that we all eat. We also have cinnamon apple, pomegranate, lemon, papaya and cashew. This year we have planted baobab and moringa. There used to be a lot of baobab trees. I witnessed the death of the old trees that I had contributed to myself. For the last 10 years baobab leaves have been a major part of our expenses



Aissata Barry 'During periods of poor harvest, it is the fruits of the boscia tree that help us a lot if we are all going to die of hunger. God had pity on us by growing a miraculous tree and in spite of this our men cut it down. With the awareness activities of Joliba this tree is protected and saplings are growing again.'



We are promoting arboretums in schools. Each child looks after two trees.



A productive millet field with 5-10 year old regenerated trees

Regeneration of tree cover is promoted during the rainy season. Each sapling that grows naturally in field areas is protected. People with acacia trees in their fields get much better crops. The leaves fall just at the right time of year to form compost so that crops can better withstand drought and gaps in rainfall, the branches slow the desiccating winds, and the roots are nitrogen fixing. The fruits are very nourishing to livestock.

Omar Guindo

I have two fields that are one hectare each. One of the fields has grown a lot of trees and people ask me questions. The field with more trees gives more millet than any other plot. I can harvest up to 40 sacks, while in the other field I have never harvested more than 25 sacks. In addition to millet, I have enough wood to provide cooking fuel and women can gather my Marula fruit to sell.

Tree management Communities are trained in tree management, sustainable harvesting of wood resources, management of wood markets and beekeeping. Valuable old trees and woodlands are protected and allowed to regenerate.

Rewilding

Communities have given vast areas to rewilding and it is exciting to see how quickly tree cover and pasture diversity is restored and that the land is recovering fast.



Grafted Jujube fruit tree

With just £10 we can plant 20 grafted fruit trees which would provide significant income resources to women and young people. They are grafted to be early-fruiting and to produce a better crop.

It costs us just 10p to plant and maintain a normal non-grafted tree from a nursery. So with just £10 you can plant 100 trees.

In the last 15 years, Joliba has planted several million trees in Mali and monitored the results. Our average long-term survival rate is 80.5%, which is much higher than the average in the UK. The trees we plant are locally sourced and grown, do not use peat or plastic tree guards, they create much-needed resources and income, and help to reduce searing temperatures and climate change.

We live in a single global climate and research has shown that carbon sequestration from tree planting in the Sahel is particularly high.



Wells

One of the most devastating effects of climate change has been on water supply. The increasingly violence of the monsoon rains in the last 5-10 years means that traditional earth-dug wells are often

flooded and this causes their walls to collapse.



A collapsed well

Most villages are still dependent on traditional earth wells (with unsafe water) for their water supply. Lack of water, which is so central to life and the economy, is forcing people to leave their villages.

Abraham Saye, Health Worker, Batourou

We had a traditional well to satisfy all our water needs (drinking water, washing, brick-making, house mud plaster, livestock watering) but unfortunately for us the mud walls collapsed 7 years ago. We have sad memories of the situation. Our women were walking 10 kms to collect water on difficult footpaths at night with all the associated dangers. In the 7 years more than 10 women were killed by snake bites. There were other accidents where women fell and broke bones in the night, Today, thanks to you we have our modern well which contains enough water for us and even for our neighbours.



A reinforced cement well with walls to prevent flooding

Fatouma Saye: Head of the women's association

We women of Batourou warmly thank you who have just freed us from the water chores. This water chore has caused us a lot of suffering, cases of loss of human life by snakebite, cases of fractures. For 7 years we have suffered, with not a single day of rest. Thanks to you we don't have to go through all this anymore. I can get up at 6am and go to sleep at 8pm, whereas before I got up at 5am to sleep at 11pm.

Afiétou Karembé : Dissoroly

We will never be able to thank you enough. We had to get up at 5am to prepare lunch for the family, then left at around 8am to Komoni (8 kms each way). It was a very bad path (through rocks) so we had to go slowly and we didn't get home until 5pm. Once the water was unloaded we had to pound the millet to prepare dinner.

Our life was limited to collecting water and other household chores. The water chores alone took 9 hours time. We did not know what it was to rest. Directly after dinner we went to bed to wake up again at 5am for the regiments of the next day. We were accompanied by the men because it was so hard to carry enough water.

No-one can imagine what we have endured during the 5 year water insufficiency. It is only now that we have clean water. We thank the grace of God for this beautiful gift which has saved everybody.

A village well costs just £3-6,000. The average cost of providing a clean water source to a family is just 4p per year.

Dune stabilisation



Sandstorms, which used to occur a couple of times a year, now happen dozens of times a year. Increasing winds carry away topsoil in the air. This means that the land is becoming much poorer as sand is deposited in the winds, and finer fertile soil particles are blown away. New dunes are forming and covering precious fertile fields.



Joliba has become well-known and won an award in Mali for its work on dune stabilisation. We have so far stabilised over 2000 acres of dunes, which has protected the farming livelihoods of over 40 villages.





Agro-ecology

Conserving water and restoring soil



By planting in half-moon basins more rainwater is conserved

Each half moon basin is filled with compost-rich soil into which crops are sown. Rainwater is held so that even if there is a 15-day gap in rainfall the soil remains humid. This is a means of growing crops in areas where even weeds will not grow.

Naomi Dara

"I never exceeding growing more than 8 cartloads, but with the half moons, this year I harvested 12 cartloads of millet and this can feed my family all year round. The millet heads harvested contain more seeds and the seeds are large." Bourema Ongoiba, Kendie



By planting seeds in pockets of compost, millet plants are more likely to thrive

"I made compost pockets on land that was unsuitable for agriculture. I was able to harvest 8 cartloads and people came to see my plot. Thanks to this additional production, the food for a whole year for my family is assured. I am very happy because this year I will not sell my animals to buy millet."



Compost-making restores soil fertility and greatly increases crop yields

I am a Farmer in Balaguina. We have poor and very degraded farmland. I do not have enough money to buy fertiliser so I used manure on my fields. Even in good years I never exceeded 5 cartloads of grain. In 2020 I prepared 100 loads of compost and I collected 8 cartloads of grain, which led me to build a new granary. My 2020 harvest will allow me to feed my family for 14 months. This means that I will not buy millet this year unlike other years when we sell 2 oxen to buy millet. Boukari Togo



Compost distributed on field areas

Using contours



In many areas, topsoil has disappeared leaving only gravel or rock



The use of stone contour walls helps to hold the soil and water run-off during torrential rains and restores soil depth.



Topsoil restored by the use of contour stone lines

More varied Seeds

In Mali people are dependent on a short rainy season of 3-4 months to grow their crops. The rainy season has become far less predictable. Last year the monsoon rains were so heavy that floods destroyed crops in a huge area of West and Central Africa. It got almost no news coverage. This year the rainy season was just 6 weeks long – too short for many crops to mature. Joliba is working on the introduction of more varied seed varieties of millet and sorghum that can support less rainfall and differing conditions. We are introducing old-fashioned and rare varieties of seeds from further north in Mali. There is a tremendous demand for these seeds, so a team of volunteers is propagating more of them. From an original collection 40 kilos, they have propagated 2 tons for farmers to trial and sow this year.



A faster-growing sorghum variety

Forest Fires

We are training people in surveillance and prevention of the increasing number of forest fires



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