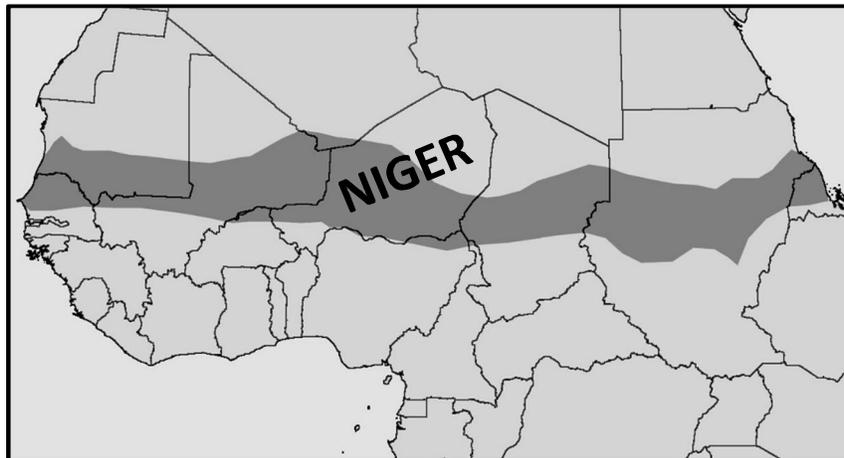


# Trees and Crops Turn Back the Desert

Adapted from the New York Times, February 11, 2007

by Lydia Polgreen

<http://www.nanduti.com.py/v/1/noticias-mas.php?id=48562&cat=Internacionales>



GUIDAN BAKOYE, Niger ô This town in the **Sahel** lies in a dust-choked region, a region most people think of as a dry land turning into desert. Now, millions of trees are growing, thanks to poor farmers who used simple methods that cost little or nothing at all. The **Sahel** is home to some of the poorest people on earth. Better land preservation and more rainfall have helped create

at least 7.4 million acres of trees in Niger. The trees are stopping the **desertification** of land. The trees are also improving Niger's quality of life.

Looking at satellite images and on-the-ground counting of trees, one can see that Niger has recently added millions of new trees. It is now far greener than it was 30 years ago. Better times are developing in a place known for its hunger and poverty.

These better times have come as the population of Niger has doubled. Usually, however, population growth leads to the loss of trees. Trees are cut because people need to clear land for farming and to use as firewood for cooking.

About 20 years ago, farmers like Ibrahim Danjimo realized something terrible was happening to their fields. "We look around, all the trees were far from the village," said Mr. Danjimo, a farmer in his 40s who has been working the rocky, sandy soil of this tiny village since he was a child. "Suddenly, the trees were all gone."

Strong winds were carrying off the topsoil. Land that used to be **arable** and fertile was becoming too dry for farming. Sand dunes threatened to swallow huts. Wells ran dry. A disaster was beginning.



*reforestation work in Niger*

<http://www.thecoca-colacompany.com/citizenship/img/rain5.jpg>

Three problems damaged farming in the **Sahel**. First, severe **drought** (lack of rainfall) in the 1970s and 80s harmed farming in Niger. Second, a growing population needed more land cleared and more firewood. Third, **slash-and-burn** farming and **overgrazing** livestock meant that the land was

completely left bare. The desert seemed determined to swallow everything. So Mr. Danjimo and other farmers in Guidan Bakoye took a small but radical step. They would no longer cut down the young trees from their fields before planting. Instead, they would carefully plow around them when planting their crops of millet, sorghum, peanuts and beans.

Today, the success in growing new trees suggests that the harm to the Sahel may not have been permanent. The land seemingly suffered only a temporary loss of **fertility** (ability to support plant growth). The evidence, scientists say, demonstrates how relatively small changes in human behavior can transform the regional environment. In Niger's case, farmers began protecting trees just as rainfall levels began to rise again after the droughts in the 1970s and 80s.

## Governmental Laws for Trees

Another change was the way trees were treated by Niger's laws. From colonial times, all trees in Niger had been the property of the government. Because of this, farmers could not own trees and did not bother to protect them. Trees were chopped for firewood or construction. Government forester rangers were supposed to make sure the trees were properly managed. There simply were not enough foresters to police a country nearly twice the size of Texas.

But over time, farmers began to think of the trees in their fields as their property. In recent years the government has allowed individuals to own trees. Farmers make money from the trees by selling branches, pods, fruit and bark. Because they discovered that selling these tree products earns more money than simply chopping down the tree for firewood (and earns money for many years), the farmers started protecting their trees.

Mahamane Larwanou, a forestry expert at the University of Niamey in Niger's capital, said the growth of more trees had positively changed **rural** (countryside) life in Niger.

“The benefits are so many it is really astonishing,” Dr. Larwanou said. “The farmers can sell the branches for money. They can feed the pods as food to their animals. They can sell or eat the leaves. They can sell and eat the fruits. Trees are so valuable to farmers, so they protect them.”



*gao tree*

<http://hannatu.blogspot.com/2011/11/30-day-photo-challenge-day-19-something.html>

They also have environmental benefits. Their roots hold the soil in place, stopping **erosion**. This keeps the soil from being carried off with the fierce winds of the Sahel and preserves farm land. The roots also help hold water in the ground, rather than letting it run off across rocky, barren fields.

One tree in particular, the gao tree, is particularly helpful. The tree puts nitrogen into the soil which makes it more fertile. Its leaves fall off during the rainy season. This means it does not compete with the farm

crops for water, sun or soil nutrients during the growing period. The leaves can even be used to fertilize the crops.

“This tree is perfectly adapted for farming in the Sahel,” said Dr. Larwanou. “Yet it had all but disappeared from the region.”

For generations local farmers had simply cut down all trees and bushes from their fields before planting their crops. When a field became less productive, the farmer would just move to another piece of land.

## Farming in Niger

Only 12 percent of Niger’s land can be farmed, but 90 percent of Niger’s people live off of agriculture. They are **subsistence farmers** living in the Sahel.

Farmers here have few tools and no machinery, so surviving is hard even in the best of times. But when the rains and harvest fall short, hunger becomes a terrible problem. The drought in 2005 caused a severe food crisis.

Making matters worse, Niger’s population has doubled in the last 20 years. Each woman has about seven children, giving the country one of the highest growth rates in the world.



*Thanks to tree-planting, this market is filled with food. The trees have helped prevent erosion and have helped the soil hold water.*

The growth of trees increases the income of rural farmers and herders. Ibrahim Idy, a farmer in Dahirou, a village in the Zinder region, has 20 baobab trees in his fields. Selling the leaves and fruit brings him about \$300 a year in additional income. He has used that money to buy a gas pump to irrigate his cabbage and lettuce fields. While his neighbors make their children stay home and work in their fields, he can send his own children to school.



*Baobab tree with fruit*

<http://www.fruitipedia.com/Baobab6.jpg>

In the village of Koloma Baba, just south of the desert’s edge, a group of widows have restored fields where they thought it would never be possible to grow crops again. The women dig small pits in hard, dry land. They place a shovelful of manure in the pits, then wait for rain. The pits help the water and manure stay in the soil so it can become **arable** again. Using this method, more than 600,000 acres of land has become fertile again.

Still, disaster is always one missed rainfall away. Most young men of Niger **migrate** move south to Nigeria to find work. They support their families by sending money home. The women struggle to grow crops.

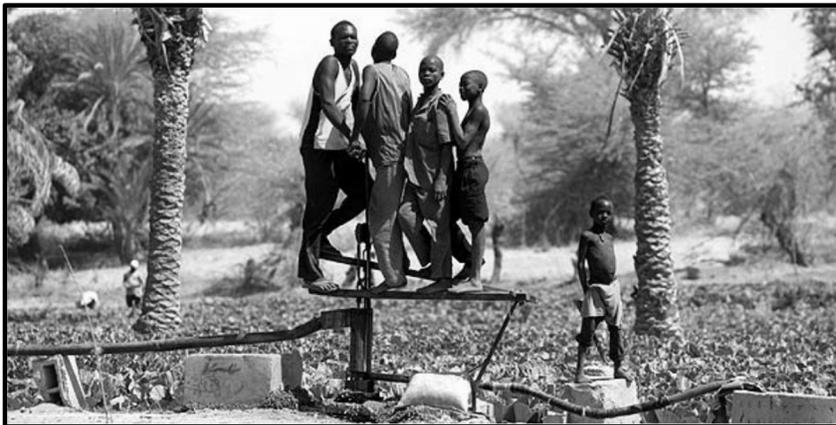
“I produce enough to eat, but nothing more,” said Hadijatou Moussa, a widow and **subsistence farmer** in Koloma Baba.

These women have grown trees on their fields, but have not seen much **profit** from their trees. People come and chop their branches without permission. The branches can be sold in the market, which is why they are being stolen. The women are upset because the village committee that is supposed to protect their rights does not punish the people stealing the branches.

## **Niger and the Sahel’s Future**

Can Niger’s success with the gao tree be repeated in other Sahel countries? While Niger’s tree growth on a scale of millions of acres is unique, scientists say, smaller areas of land have been planted in other countries. “It really requires the effort of the whole community,” said Dr. Larwanou. The farmers have to want to plant and care for trees, and the community has to support the work.

Moussa Bara is the chief of Dansaga, a village in Niger. The trees here have been a huge success and the village has benefited a great deal from it. He said not one single child died of hunger in the **drought** of 2005.



*Boys operate a foot pump to draw water for irrigation.*  
(photo Michael Kamber for The New York Times)

The Sahel, like other parts of Africa, has experienced big swings in rainfall in recent years. Severe **droughts** have led to serious hunger crises in recent years. Scientists predict that the Sahel will have more and longer periods of drought, caused by rising temperatures in the Gulf of Guinea.

Still, more trees mean that Niger’s people are better prepared to deal with whatever

changes the climate may bring. “This is something the farmer’s control, and something they do for themselves,” said Dr. Larwanou. “It shows that with a little effort and foresight, you can reduce poverty in the Sahel. It is not impossible or hopeless, and does not have to cost a lot of money. It can be done.”

Name: \_\_\_\_\_ Hour: \_\_\_\_\_

## I HAVE LEARNED . . .

As you read "Trees and Crops Turn Back the Desert," complete the following statements based on what you learn. Write the page where you learned the info.

### BY MYSELF

◆ I have learned that \_\_\_\_\_  
\_\_\_\_\_ (page: \_\_\_\_\_)

that \_\_\_\_\_  
\_\_\_\_\_ (page: \_\_\_\_\_)

that \_\_\_\_\_  
\_\_\_\_\_ (page: \_\_\_\_\_)

and that \_\_\_\_\_  
\_\_\_\_\_ (page: \_\_\_\_\_)

◆ Now I wonder \_\_\_\_\_  
\_\_\_\_\_.



**WITH MY GROUP** (Write the names of the different people in your group. Also write one thing each person learned. Make sure you write a **DIFFERENT** thing for each person – and it should be different from what **YOU** learned.)

\_\_\_\_\_ learned that \_\_\_\_\_  
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