

Partner : Fifty-One International

In July 1993, our small team of the University of Ghent (Belgium) participated in the reforestation and community garden project of the FIFTY ONE Service Club in Northern Ivory Coast (close to the city of Ferkessedougou). Besides installing a community garden in the villages of Sokoro II and Yara-bele and planting hundreds of saplings in Sokoro II, we were confronted with severe soil erosion problems close to this village.

During the rainy season tons of fertile soil are washed away in a small river running from the village plateau to a close-by depression. Thus, the villagers gradually lose a fine opportunity to install some kitchen gardens close to their houses.

As it was practically impossible for us, within the framework of this project, to envisage the construction of a small stone or earthen dam on the river, we returned to Belgium with a plan to install, at our return in December, a live dam consisting of a resistant plant species growing across the river bed.

For this, a hard leafed *Sansevieria* species seemed to offer a lot of advantages.

Sansevieria is a genus of many species, whose common names are mother-in-law's tongue, devil's tongue, bowstring hemp and snake plant. There is great variation within the *Sansevierias*: from hard-leaved succulent desert plants from the arid regions, such as *Sansevieria pinguicula*, to softer-leaved plants, such as *Sansevieria trifasciata* from the tropical regions.

Hard-leaved *Sansevierias* are adapted for surviving in dry regions: they have thick, sometimes cylindrical, succulent, water storing leaves, with a thick cuticle for reducing transpiration. Some of their softer-leaved tropical counterparts are well-known ornamental plants, generally called mother-in-law's tongue.

Sansevierias often form dense clumps from a spreading rhizome or stolon.

The interesting characteristic of a *Sansevieria*'s growth is that these rhizomes, once covered with sediments or a layer of soil, are curving upwards to take the growing point again to the surface, where new leaves can be developed. Our hypothesis was that, when planting numerous *Sansevierias* across the riverbed, this "live dam" would slow down the running water and create some sedimentation around the plants. These would then curb their rhizomes to the surface of the sediments and form additional new leaves, making the clumps denser, thicker and more resistant. Should the plants also resist a temporary submersion after each rain, the live dam would then continue to grow and still more dense clumps would be formed, thus limiting more and more the transport of sediments, slowing down erosion.

In December 1993, our experimental "live dam" was created. In 1994, this dam was still in excellent condition: a layer of sediments had been deposited around the plants during the rainy season and numerous new leaves were densifying the young clumps. Unfortunately, we did not find an opportunity to visit this experimental spot later on. We were informed that years later, the live dam still existed.

We hope that this first experiment will motivate other people to set up similar trials, possibly with *Sansevierias* or with other resistant plant species.

