

CIRCULAR GARDENS FOR FOOD SECURITY AND TO FIGHT AGAINST DESERTIFICATION IN SENEGAL

In Senegal, since 2020 the [Agence sénégalaise de la reforestation et de la grande muraille verte ASERGMV](#) is working with local communities to promote the implementation of the innovative agroecological practice of circular gardens, called *Tolou Keur*, to fight against desertification while boosting food security.

The *Tolou Keur*, fields of the house in Wolof language, hold plants and trees resistant to hot, dry climates, including papaya, mango, moringa and sage. Circular beds allow roots to grow inwards, trapping liquids and bacteria and improving water retention and composting.

The *Tolou Keur* gardens have been designed within the framework of the Green Wall initiative, launched in 2007, that aims to slow desertification across Africa's Sahel region, the arid belt south of the Sahara Desert, by planting an 8,000km (4,970 miles) line of trees from Senegal to Djibouti. To implement this innovative practice, the ASERGMV Agency has been advised by Ali Ndiaye, a Senegalese agricultural engineer trained at the Federal University of Brazil, who since 2005 applied the method of circular gardens within the framework of the Comprehensive and Sustainable Agroecological Production Program, with 12,000 units implemented throughout the country, which are still operating successfully.

The *Tolou Keur* are collective constructions and their surface can vary from 500 to 5,000 or more square meters, made available by the local authorities and populations. These circular gardens promote the restoration of soils and forests in addition to ensuring food sovereignty, by combining local traditional knowledge with that of agroecology. They are located near the places of living of the communities, which are directly in charge of their management and take advantage of the products from such fields. The ASERGMV Agency ensures support for their creation and advice for the operation.

The circular gardens integrate around 60 mixed species according to a precise design. The hardiest trees, such as acacias and cashews, are planted on the outside of the circle, while the more fragile plants, such as vegetables or medicinal plants that have high water needs are sown closer to the center. These gardens thus form a microclimate that allows reducing water consumption. In general, the circular gardens include the following types and quantities of species planted: Short cycle and vegetables (20%); Seeds for food (20%);



Legumes that fertilize the soil (10%); Fruit trees (20%); Trees for domestic use (10%); Native trees (20%).

Following these principles of the method, a specific Plan is prepared by the local communities with the support of the Agency to define the most appropriate plants for each garden. Each *Tolou Keur* evolves with its own variety that corresponds to the needs, the local plants available and traditional knowledge of the communities. They include plants such as papayas, lemons, different vegetables and more, in the inner curves there are medicinal plants such as artemisia or aloe vera, while in the outer row, lined with the most resistant trees, there are baobabs and *Khayas senegalensis*, whose wood is known as African mahogany.

The basic model of the circular garden can be built in ten days, with a very low investment. Each *Tolou Keur*, however, has become a place of experimentation for innovative solutions that improve its efficiency taking into account the specific local situation. In the village of Belvédère, for example, without water or electricity, the project includes solar panels to pump groundwater to irrigate the plantations. A small pond with fish and a small chicken coop built with local and recycled materials has been created in the garden. Fruit trees and around sixty assorted vegetables have been planted. In the circular garden of Kanel, local communities solved a water pump problem by digging traditional irrigation canals, while a concrete wall and watchdogs help keep out rodents that would eat the lush mint and hibiscus plants.

The first pilot projects of *Tolou Keur* gardens were designed and implemented in 2020 and the ASERGMV Agency reports that in 2021 they will number in more than twenty in different contexts, demonstrating their success. Besides helping to reduce soil erosion and desertification, these gardens contribute to the natural regeneration of forests, also contributing to create a national seed bank. Above all, considering that the productivity of a diversified crop is much higher than that of intensive agriculture, this system helps small producers to advance towards a sustainable agriculture that allows them to increase the availability of food and their income through the sale of the surplus. The ASERGMV Agency plan foresees training a hundred trainers to develop a thousand circular gardens in Senegal, creating 5,000 direct and 10,000 indirect jobs.

Based on the results achieved, the Agency's plan foresees taking advantage of this approach in the Louga, Matam and Tambacounda regions that are part of the Great Green Wall Initiative in Senegal, which covers 545 kilometres across the north of the country. The circular gardens, in fact, represent an innovation in the framework of the current methods of reforestation. Involving local communities in planning and management and generating direct benefits to improve their economy and quality of life, this practice ensures continuity and complementarity in the set of actions of recovering degraded soils, managing water resources and taking care of plants, which can contribute to face the great challenge of desertification and climate change.

In 2021 the United Nations launched the [2021-2030 Decade for Ecosystem Restoration](#) with the aim of preventing, stopping and reversing the degradation of ecosystems, for the benefit of people and



nature. [The Great Green Wall Initiative is one of the partners supporting this Decade](#) and the innovative practice of the *Tolou Keur* circular gardens can represent an important contribution for all countries involved, promoting its methods and highlighting the role of local communities as fundamental to achieve the ambitious objectives of ecosystem restoration.

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[Farmers-managed natural regeneration in nature.com](#)

[Guidance for successful tree planting initiatives - British Ecological Society](#)

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