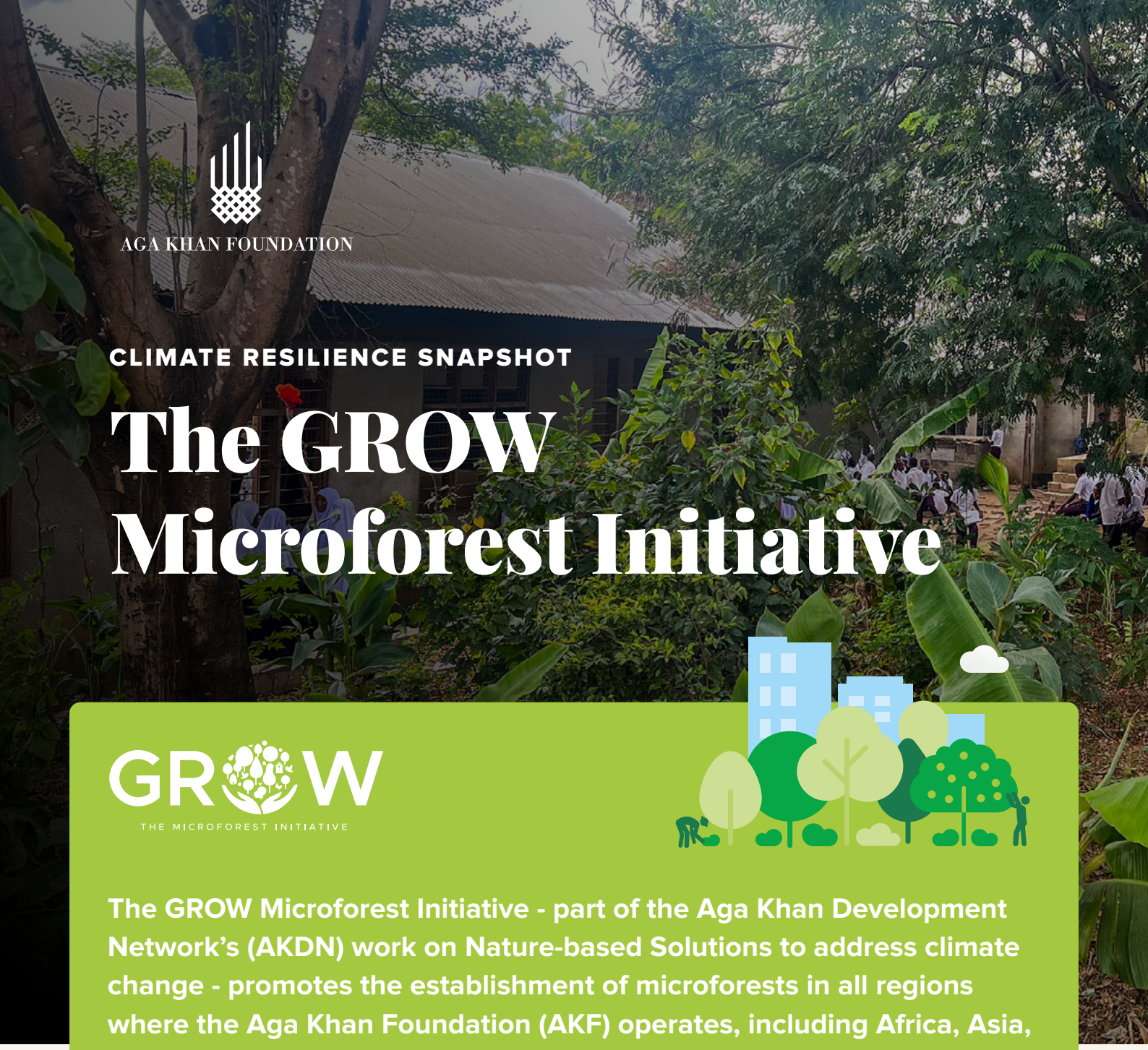


AGA KHAN FOUNDATION

CLIMATE RESILIENCE SNAPSHOT

The GROW Microforest Initiative

GROW
THE MICROFOREST INITIATIVE

The GROW Microforest Initiative - part of the Aga Khan Development Network's (AKDN) work on Nature-based Solutions to address climate change - promotes the establishment of microforests in all regions where the Aga Khan Foundation (AKF) operates, including Africa, Asia, Europe, and the Middle East.

Microforests are small, dense, and highly biodiverse forests that grow rapidly.

Pioneered in the 1970s by Japanese botanist Akira Miyawaki, the method was developed to establish forest cover at an accelerated pace by increasing tree density and replicating natural forest growth patterns. Miyawaki's plant selection method is based on the theory of *potential natural vegetation* (PNV), which identifies the types of vegetation that would naturally grow in an area without human interference.

The Miyawaki method plants multiple layers of native species very close together to create a vegetation structure that mimics natural forests. This method has been adapted and replicated in many countries, including by AKF.

The GROW microforest approach builds on the Miyawaki method, putting additional emphasis on community-driven and and community-owned microforests, and bringing a strong focus on empowering farmers, women, and young people.

To provide tangible benefits, such as improving livelihoods, food security, and overall quality of life for communities, GROW microforests include fruit trees, medicinal plants, and vegetables, which supplement diets and increase incomes.

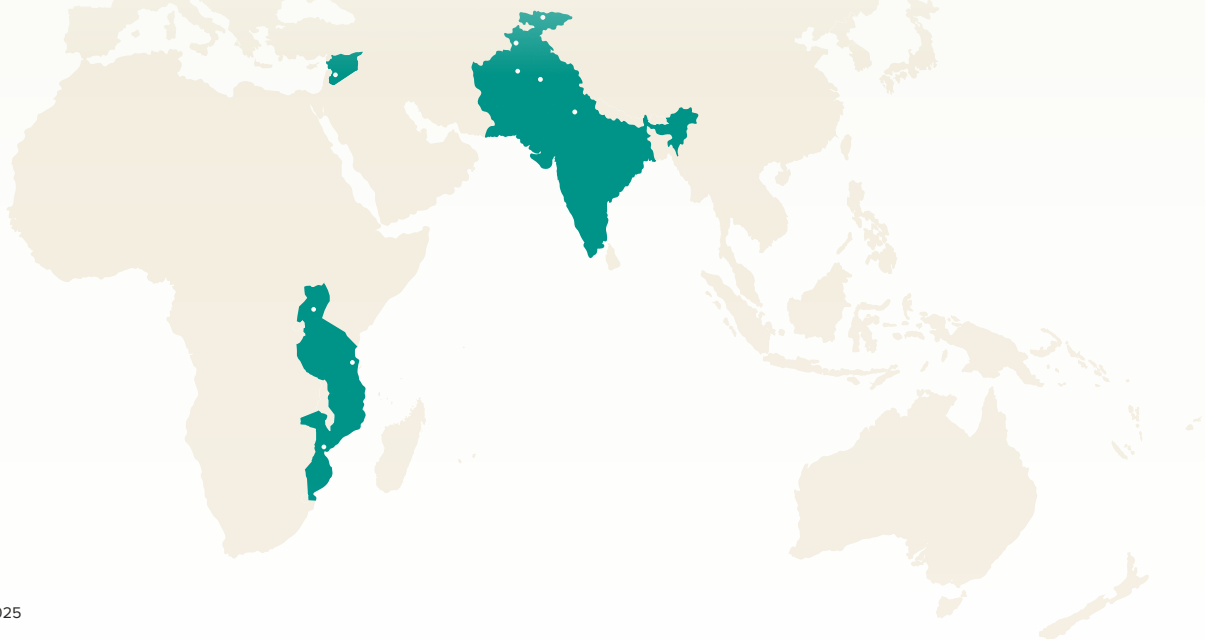
Resources

Available on the AKF Learning Hub:

How to plant a microforest in 10 steps?

To date*, AKF has successfully established more than 1,300 microforests across nine countries:

Afghanistan, India, Kenya, the Kyrgyz Republic, Pakistan, Syria, Tajikistan, Tanzania, and Uganda.



* Last update: May 2025

Growing from India
AKF's Microforest Journey

Driven by the Aga Khan Rural Support Programme - India's (AKRSPI) climate resilience efforts, AKF's microforest journey began in 2017, in the village of Khedi in Madhya Pradesh, India. Khedi relies on rain-fed agriculture but deforestation and shifting climate patterns have significantly reduced rainfall and altered the landscape, affecting livelihoods and quality of life.

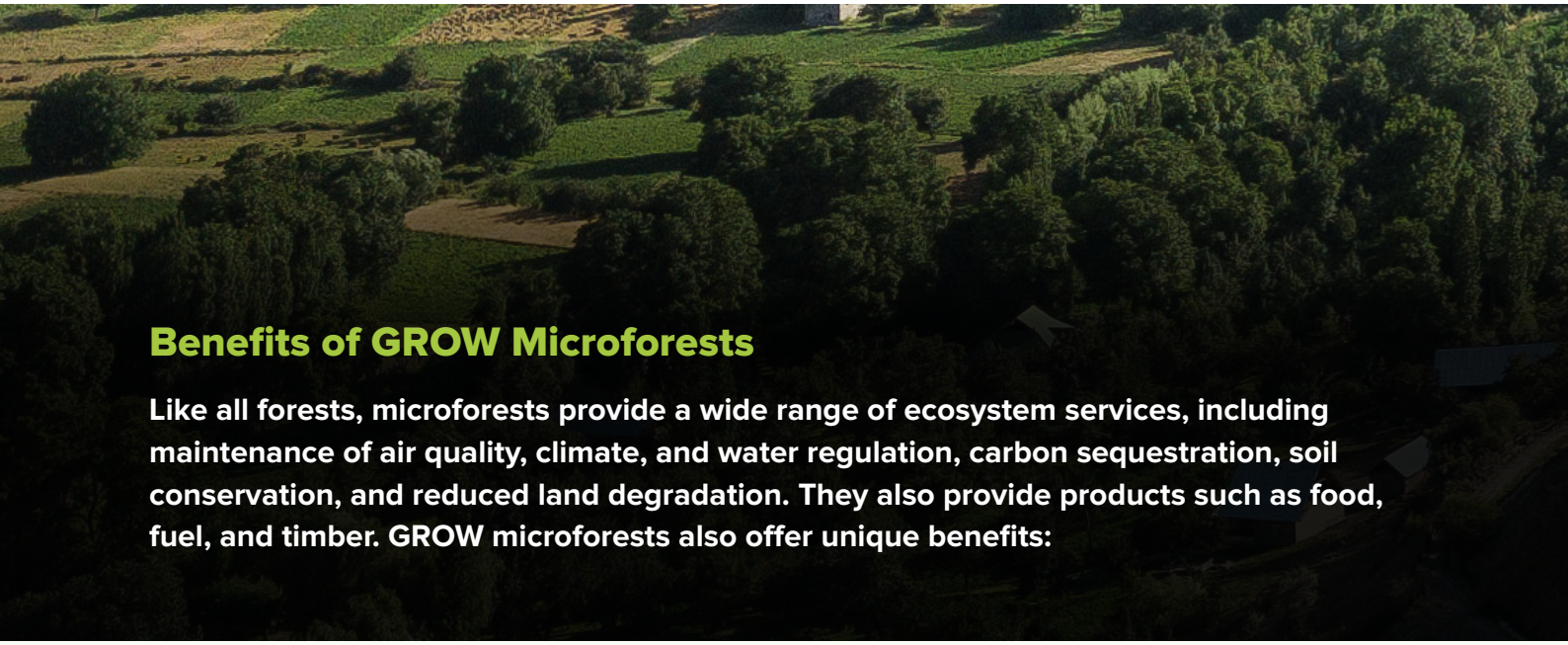
To help farmers respond to these challenges, AKRSPI initiated a pilot project, training four households to plant and maintain GROW microforests within their farms. Inspired by the Miyawaki method, these microforests mimicked natural vegetation and facilitated soil restoration. In contrast to earlier reforestation efforts in the area, which required farmers to sacrifice large portions of land and wait years for trees to mature, AKRSPI's initiative only required 100 square metres of land and offered tangible, faster benefits to the community.

Following the success of this pilot project, AKRSPI expanded its microforest efforts across India including in Bihar, Gujarat, Maharashtra and other parts of Madhya Pradesh. One example is a GROW microforest planted in October 2022 in the village of Juthal in Gujarat.

The microforest, consisting of 28 diverse species, was planted on degraded, unused land owned and managed by the local governing body known as a *Panchayat*.

Since its establishment, the microforest has flourished into a dense, vibrant green space, **with a survival rate exceeding 90%.** It has increased biodiversity, with community members noting an increase in birds and wildlife. The microforest also provides valuable ecosystem services, such as temperature regulation and nutrient cycling. The cooling effect of the microforest has reduced the community's exposure to extreme heat, and it has become a source of fruit-bearing trees.

The success of this first microforest in Juthal village inspired other community members to replicate the initiative.



Benefits of GROW Microforests

Like all forests, microforests provide a wide range of ecosystem services, including maintenance of air quality, climate, and water regulation, carbon sequestration, soil conservation, and reduced land degradation. They also provide products such as food, fuel, and timber. GROW microforests also offer unique benefits:

- **Enhanced livelihoods:** GROW microforests focus on providing tangible benefits to communities, whereby households can sell surplus produce from fruit trees, vegetables, medicinal plants and utilise the wood, to supplement their incomes.
- **Improved nutrition:** By planting a diverse range of vegetables and fruit trees that are both suited to the area and meet community needs, GROW microforests help communities enhance diet quality and improve nutrition.
- **Faster growth:** Due to their increased density, microforests can grow up to ten times times faster than traditional forests.[1]

- **Enhanced biodiversity:** GROW microforests are deliberately designed with a diverse range endemic and native species, creating new ecosystems and habitats for plants, animals, and microorganisms.
- **Climate regulation and carbon sequestration:** Microforests absorb high levels of carbon dioxide quickly due to their rapid growth. They also provide protection from extreme weather and create cooler micro-climates. They are especially effective in reducing heat stress in urban areas, where space is limited.
- **Rehabilitation of degraded land:** While microforests cannot replace natural forest ecosystems, they are particularly useful for restoring small, degraded, or unused land areas.

1 - https://earth.org/microforests/

Lessons from AKF's GROW Microforest Initiative

Several key lessons have emerged from AKF's experience working with communities of planting and maintaining microforests:

Training

Establishing microforests requires adherence to specific principles and technical guidelines, from spacing to species selection. Community members and practitioners need adequate training on how to establish and care for microforests to ensure their success. This may also include training for partner organisations supporting microforest initiatives.

Cost

While microforests offer numerous long-term benefits, they require initial investment. This includes costs for site preparation, sourcing a variety of seedlings, planting, watering, monitoring, and maintaining the trees, particularly in the early stages of growth. It's crucial to account for these costs when working with communities. The most successful initiatives are those that are community-driven, with practitioners collaborating closely with local communities to establish cost-sharing mechanisms. AKF has also supported women's groups in establishing tree nursery enterprises, providing additional income and ensuring the availability of locally sourced, high-quality indigenous species.

Water supply

A lack of adequate water supply, particularly during the early growth stages, can limit the microforest success. AKF practitioners, in collaboration with local communities, authorities, and organisations, continue to explore innovative solutions to address this challenge. For example, in Egypt, AKF is piloting the use of treated wastewater for microforest irrigation, a potential solution for arid and semi-arid areas.

Species selection and use

GROW microforests are designed to provide direct benefits to communities. Therefore, it's essential to work with community members to identify species that will be most useful to them, such as fruit trees, vegetables, and medicinal plants. AKF has found that microforest initiatives are more successful when the benefits are clearly communicated and understood by the community.

Women-led initiatives

Gender inclusivity has been central to the success of AKF's microforests, with women leading the GROW initiative in several countries where AKF works. In Afghanistan, for example, women were trained to establish and care for microforests in their homes and farms, enhancing their resilience to economic, environmental, and climatic challenges. They learned how to plant vegetables within the forest floor, improving food security. The involvement of other family members, including husbands and male family members, further strengthened these initiatives. These women-led microforests demonstrate the intersection of gender equity and climate action.

Microforests in mountain regions

Establishing microforests in mountainous regions presents unique challenges due to diverse ecosystems and climatic conditions. Piloting GROW microforests in Central Asia's mountainous regions, such as in Afghanistan, the Kyrgyz Republic, and Tajikistan, has revealed challenges such as sourcing indigenous seedlings and protecting trees from wildlife. AKF practitioners continue to adapt and refine practices to suit these mountain ecosystems. In 2023, AKF planted over 100 microforests in the region.

Microforests in schools

In East Africa, AKF has shown that microforests can play an important role in climate education and resilience in schools. AKF has helped establish teacher-led and student-led GROW microforests across schools in Kenya, Tanzania, and Uganda, with students taking the lead in caring for their microforests. These initiatives are part of broader climate resilience actions in schools, including environmental clubs, gender-inclusive climate action, vertical gardens, and eco-coolers.