The three principle practices for scaling dryland restoration

Farmer managed natural regeneration, simple water harvesting techniques and area exclosures have led to the regreening of millions of hectares across the Sahel and Greater Horn of Africa. And these three have proven more effective and much cheaper per hectare than conventional tree planting projects.

On farmers' fields

Farmer managed natural regeneration

This low cost technique involves the selection, protection, pruning and management of trees and shrubs that regenerate naturally from stumps and soil seedbanks. The regreening of five million hectares in central Niger this way is well documented, less so the significant transformations in Senegal, Burkina Faso and Mali where tree densities have increased to more than 200/hectare in some areas, also improving soil fertility and crop yields. FMNR can cost less than US$50/ha for training and learning exchanges, which is much less than reforestation prgrammes that are also limited by low seedling survival [ETFRN news 60: Restoring African Drylands - Tropenbos International].

Planting pits and half-moons

These collect runoff to where crops are sown. Farmers also add manure to exactly where it is needed, which contains native tree seeds that sprout, and farmers select, protect and prune those they want. It has been adapted and widely shared in the western Sahel, especially through the work of innovative farmer Yacouba Sawadogo.

- Planting pits: usually 15-20 cm diameter, 10-15 cm deep and about 80 cm apart (ca. 16,000/hectare)
- Half-moons: soil/stone bunds in arcs, 2-4 m across, with central pits 3-8 m apart (usually 300-1000/hectare)

Land preparation requires 40-120 person-days per hectare, dug by the farming family during the dry season, or by traditional work parties or hired labourers.

On communal grazing land

Area exclosures

This is land that is protected by 'social fencing', with local bylaws that restrict grazing and tree cutting enforced by social sanctions. It has been a model for dryland restoration in Ethiopia where several million hectares have been restored this way, where the only allowable harvests are annual grass cutting and collection of deadwood, medicinal plants and honey. Water harvesting structures are dug where communities offer their labour for about 40 days a year, with significant increases to water availability on sloping land and in valleys downstream. Restoration of degraded pastoral land through exclosure is a traditional practice in communal grazing areas.

Common considerations

These are related to governance, techniques and communication, and all must be addressed.

Governance – decentralization of power

In all forms of restoration, it is essential to have true inclusion through dialogue and decentralization of decision making to local level for sustainable community-based natural resource management to be possible. This must also be supported by organizational as well as technical capacity building, allowing local institutions to be able to set their own bylaws and enforce them.

Techniques – planting, reseeding, and uprooting

- All land can be 'enriched' by planting trees that farmers want, where they want them, raised in community-managed nurseries or supplied by projects. Farmers can also transplant wild seedlings.
- Many pastoral areas would benefit from reseeding with perennial grasses, and the reapplication of traditional grazing management or other inclusive decentralized governance structures.
- Millions of hectares are also invaded by exotic and native trees that need to be converted to silvopastoral systems by thinning and uprooting, leaving only selected trees at wide spacing.

Improved varieties of many tree and grass species, and information on best practices, are available form research institutes and other organizations, that should be more proactive in providing seeds, cuttings and training adapted to local needs.

Communication – debunking dryland restoration myths...

These techniques alone or combination are proven to lead to higher yields of food, fuel and fodder...

- But won't benefits take many years to be realised? No. Where land is restored with water harvesting techniques, sown crops will yield a harvest in the first year, with fuel, fodder and soil organic matter in the first few years already from thinning and pruning regenerating trees and bushes.
- And if these practices are so good, why haven't they already spread everywhere? They have. This is seen from sites where they were promoted, but we need more sharing of experiences by land users through radio programs and farmer-to-farmer exchanges within and between regions. Practice often precedes policy, but it is obvious that enabling policy and legal environments will help motivate millions of land users to invest in sustainable land management practices.

Information in this brief is taken from articles in ETFRN news 60: Restoring African Drylands - Tropenbos International

For comments or requests for further information, contact: nick.pasiecznik@tropenbos.org and chris.reij@wri.org

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Photo:s FMNR in Zinder, Niger (Robert Winterbottom); planting pits (Abdou Hassane); millet growing in half-moons (Chris Reij); area exclosures in Tigray, Ethiopia (Dawit Gebregziabher).

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