World Agroforestry Centre

Area Closures and Reserves

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What Is Area Closure?

- **‘Area closure’** is defined as area delineated to exclude human and livestock interferences. The importance of area closure to improve vegetation cover, composition, density, richness, diversity, and providing economic and ecological benefits to local communities around (Yosef 2015).
- The aim of area closures is **to prevent further degradation** of the ecosystems, advance re-vegetation / forest regeneration, and restore the overall ecological conditions of the area. This is done by closing off areas from interference and damage by both humans and animals to allow for natural regeneration of the land (Mengistu et al 2016).
- Area closure is known to **improve ground vegetation cover**, which in turn enhance better soil conditions, microclimate conditions and water percolation (Emiru et al 2006).

https://www.researchgate.net/publication/293332078

Area Closure and Carbon Benefit

- CO2 sequestration due to improved vegetation.
- **Area closure can qualify for carbon credit programs**

https://nrmdblog.files.wordpress.com/2016/12/area-closure-ethiopia-good-practice.pdf

Area Closure: Case of Ethiopia

The area closures in the Central Rift Valley (a total of 60 circular sample plots of each 314 m^2 area) in Ethiopia in 2012 brought changes by rehabilitating degraded lands and eventually brought economic, social and ecological benefits to the local communities.

Which Areas of Africa Are Most Suitable for Area Closure?

- The practice of area closure can be used and is suitable for all areas where land degradation has taken place.

https://nrmdblog.files.wordpress.com/2016/12/area-closure-ethiopia-good-practice.pdf

How Is Area Closure Implemented?

- Degraded land is closed from human and animal interferences for at least 3 -5 years in order to ensure rehabilitation of the land.
- Longer time kept area closures can facilitate large numbers of woody species to grow in to higher height.
- Additional Sustainable Land Management (SLM) measures such as terracing, enrichment plantation and over-sowing of grass are among the activities that are often undertaken along with the area closure.
- Maintenance activities

https://nrmdblog.files.wordpress.com/2016/12/area-closure-ethiopia-good-practice.pdf

If on community lands, participatory approaches are required

1. The area to be closed is first identified in **participation with development agents, community leaders and community members.**

2. Awareness activities are undertaken to make local communities understand the methods and benefits of area enclosures. Development agents in collaboration with community leaders call a general community meeting and discuss the plan and its implementation on degraded land and community members have an opportunity to voice their concerns and opinions. Both men and women are involved in the community consultations and awareness raising activities.

Area Closure in Ethiopia

https://nrmdblog.files.wordpress.com/2016/12/area-closure-ethiopia-good-practice.pdf

https://www.slideshare.net/ILRI/integrated-watershed

Two Types of Area Closures

1. Only closing the area from interferences of human interventions (leaving it to natural regeneration), and
2. Closing off degraded land while simultaneously implementing additional measures such as planting of tree seedlings, mulching and establishing water harvesting structures to enhance and speed up the regeneration process.

Mid Atlantic Climbers

https://nrmdblog.files.wordpress.com/2016/12/area-closure-ethiopia-good-practice.pdf

Economics of Area Closure

- A cost benefit analysis conducted on area closure showed that the practice has a **positive net present value** (NPV) and that **its benefit-cost ratio (BCR) varied between 4.6 to 54.3**; i.e. a dollar investment will bring at least 4 dollars through carbon credit (PWA 2014).

- These economic benefits are in addition to the CO2 sequestration benefits that accrue as the land fills with vegetation.

Apiculture in Area Closure, Ethiopia

https://nrmdblog.files.wordpress.com/2016/12/area-closure-ethiopia-good-practice.pdf

What Needs to Be Considered?

1. **Supporting households and communities to practice beekeeping and small-scale irrigation can help offset potential short term losses of income** from closed off land while at the same time making households more resilient to climate change.
2. **Good community engagement** and awareness raising on the value of area closures both for the environment and for their livelihoods is crucial for success of the practice.
3. The key issue for sustainability of the approach is **involvement and ownership by people of the process and the results.**

https://nrmdblog.files.wordpress.com/2016/12/area-closure-ethiopia-good-practice.pdf

Challenges of Area Closure in Ethiopia

Problem

The concept of benefit sharing for different community members and groups can be a challenge as one group/person may realize tangible benefits of area closure while another group/person may not and hence will not see the value.

Solution

To address this, **participatory approaches i**n the identification of land for area closure as part of **a broader watershed management plan** are used, while sensitization and awareness raising on the short and long term benefits of area closures are conducted by development agents.

https://nrmdblog.files.wordpress.com/2016/12/area-closure-ethiopia-good-practice.pdf

Challenges of Area Closure in Ethiopia

Problem

Low survival rate of some trees and shrubs

Solution

- Communities are now realizing the value of caring for the trees and shrubs as a long term investment in their livelihoods and resilience and not just as a land conservation measure.

- The use of locally appropriate trees and shrubs and investments in water harvesting structures also help to increase the survival rates.

https://nrmdblog.files.wordpress.com/2016/12/area-closure-ethiopia-good-practice.pdf

Further Learning Resources

- Abenet Mengistu Sebastian Grey & Koen Joosten (2016) Climate Smart Initiative: Area Closure. FAO Sub-regional Office for Eastern Africa, Available online: https://nrmdblog.files.wordpress.com/2016/12/area-closure-ethiopia-good-practice.pdf [accessed Nov 19 2018].
- Yosef, M.(2015) The role of area closure in the recovery of woody species composition in degraded land and its socio-economic importance in Central Rift Valley area, Ethiopia. International Journal of Development Research 5(2):11. Available from: https://www.researchgate.net/publication/293332078_The_role_of_area_closure_in_the_recovery_of_woody_species_composition_in_degraded_land_and_its_socio-economic_importance_in_Central_Rift_Valley_area_Ethiopia [accessed Nov 19 2018].

Nature Reserves

What is Nature Reserve?

Nature reserve is a protected area of importance for wildlife, flora, fauna or features of geological or other special interest, which is reserved and managed for conservation and to provide special opportunities for study, and research.

Wildlife South Africa

HolidayMe

Nature Reserve and Carbon Benefit

- Carbon sequestration due to improved vegetation.
- Nature reserves can **qualify for carbon credit programs**

thinglink.com

Other Benefits of Nature Reserves

- Income from **Ecotourism**
- Payments for ecosystem services

Direct payment schemes, whereby non-governmental organizations (NGOs) or government agencies directly pay local communities or private landowners for conservation of ecosystems, their services or species… or though investment in alternative livelihoods

- **Strengthened land tenure** and protection from external threats. The legal provisions related to protected area designation can often provide local communities with formal protection that would otherwise be unavailable.

https://www.povertyandconservation.info/docs/20081110-Coad_et_al_2008_Working_Paper.pdf

Protecting Wildlife

Preserving the region's vast tropical forests can also protect wildlife by helping to mitigate global warming.

Kenya Wildlife Service (KWS)

A new nature reserve in the Congo Basin will help protect the endangered bonobo.
Photo courtesy of Kabir Bakie

http://www.worldwatch.org/node/5504

Where Are Natural Reserves Practiced?

Australia, South/Latin America, EU countries, UK, Central Asia, USA, Many African countries

Tarvasjõgi at Põhja-Kõrvemaa Nature Reserve in Estonia

Aoraki/Mount Cook National Park in New Zealand

Eastern Cape Nature Reserves

Charles Waterton established the first nature reserve in 1821.

How Is It Implemented?

- **Nature reserves** can be public, private and community-based, depending on land tenure
- Nature reserves may be designated by government institutions in some countries, or by private landowners, such as charities and research institutions

How to Create a Community Nature Reserve: Case of UK

Step 1: Talk With People and Leaders in Your Community

Step 2: Get Active on Social Media

Step 3: Turn to Local Media

Step 4: Involve Young People

Step 5: Celebrate Your Successes

Step 6: Continue to Engage Your Community

Step 7: Help Other Community Reserves

▲ A couple walk their dog at Denso Marston Nature Reserve in Bradford, West Yorkshire. Photograph: Sam Atkins

Cooper, 2017

https://nonviolencemag.org/how-to-create-a-community-nature-reserve-f0a58e4c989d

Costs of Nature Reserves

Displacement can be the costs of protected areas to local livelihoods

Implications of displacement:

- Landlessness (expropriation of land assets and loss of access to land)
- Joblessness (even when the resettlement creates some temporary jobs)
- Homelessness (loss of physical houses, family homes and cultural space)
- Marginalization (social, psychological and economic downward mobility)
- Food insecurity (malnourishment etc.)
- Increased morbidity and mortality
- Loss of access to common property (forests, water, wasteland, cultural sites)
- Social disarticulation (disempowerment, disruption to social institutions)

Solution: **Alternative Livelihoods**

https://www.povertyandconservation.info/docs/20081110-Coad_et_al_2008_Working_Paper.pdf

What Needs to Be Considered?

- Livelihoods options as a result of changing access to resources
- Competing demands for land
- Land tenure, policies, incentives

https://www.povertyandconservation.info/docs/20081110-Coad_et_al_2008_Working_Paper.pdf

Problems with Current Protected Areas

- **Poor representation of habitats**. Many habitats are not well represented in the current network of protected areas.
- **Lack of connectivity between protected areas.** Some species, especially large animals like cats and bears, need large areas of natural habitat in order to feed and find mates. Few protected areas are large enough to support more than a few individuals of these species, and many are isolated from other areas of natural habitat. To address this, corridors must be put in place between protected areas to allow species to move from one protected habitat to another.
- **Lack of funds**
- **Poor management**. Management activities include monitoring the health of habitats, ensuring that the rules of the protected area are respected, and working with local people to balance nature protection with their needs and aspirations.

Martin HARVEY / WWF

Human activities. Poorly managed or illegal human activities. These include logging, poaching of protected animals, mining, and encroachment by human settlements and agriculture

http://wwf.panda.org/our_work/biodiversity/protected_areas/protected_area_problems/

Further Learning Resources

- Cooper, A. (2008) How to Create a Community Nature Reserve. Available online: https://www.povertyandconservation.info/docs/20081110-Coad_et_al_2008_Working_Paper.pdf [accessed Nov 20 2018].
- Kadulin, M., Smirnova, I., Koptsyk, G. (2017) The emission of carbon dioxide from soils of the Pasvik nature reserve in the Kola Subarctic. Eurasian Soil Science 50(9):1055-1068. Available online: https://www.researchgate.net/publication/319908351_The_emission_of_carbon_dioxide_from_soils_of_the_Pasvik_nature_reserve_in_the_Kola_Subarctic [accessed Nov 21 2018].
- WWF (2018) Protected area problems. Available online: http://wwf.panda.org/our_work/biodiversity/protected_areas/protected_area_problems/[accessed Nov 20 2018].

Thank you!

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