



## Caucasus and Central Asia



# FOREST LANDSCAPE RESTORATION: TRANSFORMING LANDSCAPES AND LIVELIHOODS IN THE CAUCASUS AND CENTRAL ASIA

Globally, the restoration of degraded and deforested landscapes using the forest landscape restoration (FLR) approach has gained recognition as a way for countries to achieve multiple national and international priorities on mitigating climate change, enhancing the resilience of vulnerable communities, improving livelihoods, reducing desertification and conserving biodiversity.

## The Bonn Challenge and forest landscape restoration

The Caucasus and Central Asia (CCA) region – which includes Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan – has been severely impacted by climate change and land degradation. The annual cost of land degradation in the Central Asia region is estimated to be 6 billion USD. While resulting losses due to land degradation is estimated to cost the Central Asia 288 billion USD in 30 years, investing in restoration and sustainable land management will cost only 53 billion USD during the same period.<sup>1</sup>



In order to enhance initiatives on landscape restoration and improve human well-being worldwide, the government of Germany and IUCN launched the Bonn Challenge in 2011. The Bonn Challenge is a global effort to bring 150 million hectares of degraded and deforested land into restoration by 2020 and 350 million hectares by 2030 and is underpinned by the FLR approach described below. Joining the Bonn Challenge and applying the FLR approach across landscapes will immensely benefit the countries in the CCA.

## What is forest landscape restoration?

FLR is the ongoing process of regaining ecological functionality and enhancing human well-being across deforested or degraded forest landscapes. FLR is more than just planting trees – it is restoring a whole landscape to meet present and future needs and to offer multiple benefits and land uses over time. It is about:

### Forests

because it involves increasing the number and/or health of trees in an area;

### Landscapes

because it involves entire watersheds, jurisdictions, communities or even countries in which many land uses interact; and

### Restoration

because it involves bringing back the biological productivity of an area in order to achieve any number of benefits for people and the planet.

It is long-term because it requires a multi-year vision of the ecological functions and benefits to human well-being that restoration will produce although tangible deliverables such as jobs, income and carbon sequestration begin to flow right away.

While the majority of restoration opportunities are found on or adjacent to agricultural or pastoral land, FLR sometimes involves the opportunity to restore large contiguous tracts of degraded or fragmented forestland. In these situations, restoration must complement and not displace existing forests (natural, secondary, or degraded). This results in a patchwork or mosaic of different land uses including: agriculture, agroforestry, improved fallow and silvopastoral systems, ecological corridors, areas of forests and woodlands, and river or lakeside plantings to protect waterways.

Successful FLR is forward-looking, participatory and dynamic, focussing on strengthening the resilience of landscapes and creating future options to adjust and further optimise ecosystem goods and services as societal needs change or new challenges arise.

## What can FLR do for national priorities and what does it look like in the CCA?

Forest loss and degradation in the CCA is driven by intensive agricultural production and a heavy dependence on forests for fuel wood. Countries in the CCA have emphasised their commitment to sustainable development and climate change mitigation in their national priorities and domestic objectives on rural development, land restoration, disaster risk reduction, enhancing the adaptive capacity of communities to climate change, transboundary water management, food and energy security.

The FLR approach addresses the drivers of deforestation and degradation in a comprehensive manner – through restoration of landscapes, it is possible to generate alternative livelihoods and income sources while increasing forests and trees in the landscape, to improve agricultural systems and reduce its impact on landscapes and restoring the integrity of already degraded areas. By focusing on the cause, not only the symptoms, the FLR approach can reduce threats to forests and avoid further deforestation and degradation.

Figure 1 illustrates the diversity of FLR interventions that countries can apply to specific land types and land use patterns. This set of interventions are then tailored to the landscape context, where ecological, economical, and societal considerations help determine more specific interventions that are beneficial for the landscape.

Forest types in the CCA region suitable for restoration include broadleaf, juniper, conifer, walnut and wild fruit, tugai and saxaul forests. Given the major drivers of deforestation and degradation in the CCA, a suitable package of FLR interventions could include: planted forests and woodlots, enrichment planting, agroforestry, the rehabilitation of saxaul rangelands, riparian forests and natural regeneration in key watersheds. Additionally, it would be beneficial to create green belts around cities, reforest landslide prone areas, use silviculture to aid recovery from wildfires and plant sand-binding tree species to control desertification.

The ongoing efforts on restoring the dry bed of the Aral Sea, restoration and regeneration of riparian Tugai forests in Kyrgyzstan and Uzbekistan, or large-scale programmes on the creation of green belts around the capitals of Kazakhstan and Turkmenistan, may not be seen as FLR initiatives yet have the potential of becoming landscape restoration programmes should the criteria of FLR be met.



Landscape in Tusheti, Georgia

Photo: Salome Idoidze / ENPI-FLEG

Land Use	Land sub-type	General category of FLR option	Description
<p><b>Forest land</b></p> <p>Land where forest is, or is planned to become the dominant land use</p> <p><b>Suitable for wide-scale restoration</b></p>	<p>If the land is without trees, there are two options:</p>	<p>1. Planted forests and woodlots</p> 	<p>Planting of trees on formerly forested land. Native species or exotics and for various purposes, fuelwood, timber, building, poles, fruit production, etc.</p>
		<p>2. Natural regeneration</p> 	<p>Natural regeneration of formerly forested land. Often the site is highly degraded and no longer able to fulfil its past function – e.g. agriculture. If the site is heavily degraded and no longer has seed sources, some planting will probably be required.</p>
	<p>If the land is degraded forests:</p>	<p>3. Silviculture</p> 	<p>Enhancement of existing forests and woodlands of diminished quality and stocking, e.g., by reducing fire and grazing and by liberation thinning, enrichment planting, etc.</p>
<p><b>Agricultural land</b></p> <p>Land which is being managed to produce food</p> <p><b>Suitable for mosaic restoration</b></p>	<p>If the land is under permanent management:</p>	<p>4. Agroforestry</p> 	<p>Establishment and management of trees on active agricultural land (under shifting agriculture), either through planting or regeneration, to improve crop productivity, provide dry season fodder, increase soil fertility, enhance water retention, etc.</p>
	<p>If it is under intermittent management:</p>	<p>5. Improved fallow</p> 	<p>Establishment and management of trees on fallow agricultural land to improve productivity, e.g. through fire control, extending the fallow period, etc., with the knowledge and intention that eventually this land will revert back to active agriculture.</p>
<p><b>Protective land and buffers</b></p> <p>Land that is vulnerable to, or critical in safeguarding against, catastrophic events</p> <p><b>Suitable for mangrove restoration, watershed protection and erosion control</b></p>	<p>If degraded mangrove:</p>	<p>6. Mangrove restoration</p> 	<p>Establishment or enhancement of mangroves along coastal areas and in estuaries.</p>
	<p>If other protective land or buffer:</p>	<p>7. Watershed protection and erosion control</p> 	<p>Establishment and enhancement of forests on very steep sloping land, along water courses, in areas that naturally flood and around critical water bodies.</p>

Figure 1. FLR typologies extracted from IUCN and WRI's Restoration Opportunities Assessment Methodology (ROAM)



## Implementing FLR can also support countries in achieving international climate change, biodiversity, land degradation neutrality and sustainable development commitments

Since 2011, the Bonn Challenge has emerged as a unifying mechanism to help countries to implement FLR at scale in support of the Convention on Biological Diversity (CBD) Aichi Targets, United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement, Land Degradation Neutrality (LDN) goal and Sustainable Development Goals (SDGs).

Countries in the CCA have demonstrated their commitment to the Paris Agreement through their Nationally Determined Contributions (NDCs). IUCN conducted a rapid analysis of these NDCs and forests emerged as a strong theme through all with 5 out of 8 countries referencing FLR activities (e.g. reforestation, plantation, afforestation, silviculture and regeneration). However, only Georgia included a quantifiable FLR target in its NDC. In addition, 50% of countries included targets expressed in tons of CO<sub>2</sub> and all countries, except Armenia, indicated the % reduction in the level of greenhouse gases. In 2020, countries will be submitting revised NDCs to the UNFCCC and this is an opportune moment for countries in the CCA to enhance their NDCs by incorporating forest and land-use targets related to FLR.

All 8 countries in the CCA have expressed goals in their National Biodiversity Strategies and Action Plans (NBSAPs) as a contribution to the **Aichi Biodiversity Targets** that can be advanced through the application of the FLR approach. For example, Armenia's NBSAP calls for the restoration of degraded habitats with a focus on reducing biodiversity loss and enhancing ecosystem resilience. In Uzbekistan's NBSAP, restoration was highlighted as essential to improving water resources and public health. Kyrgyzstan's NBSAP focuses on restoring the vulnerable ecosystems to reduce the rate of species loss, while Tajikistan calls for the regeneration of mountain ecosystems.

There is also scope for further integration between FLR and the **Land Degradation Neutrality** target in the CCA. The annual cost of land degradation in Central Asia is estimated to be about 6 billion USD mostly associated with rangeland degradation, desertification, deforestation and abandonment of croplands.<sup>2</sup> This has economic repercussions, for example, the annual cost of land degradation in Kyrgyzstan is estimated at 601 million USD<sup>3</sup> and in Armenia 71 million USD.<sup>4</sup> Armenia and Kyrgyzstan are the only countries out of 8 in CCA that have committed to set national voluntary LDN targets and Kyrgyzstan has already formulated its action plan and established an LDN baseline.

The countries in Caucasus – Armenia, Azerbaijan and Georgia – have some success stories of restoring degraded areas to increase resilience of forest ecosystems covering dryland mountain forest, mid-attitude forests and floodplain forests, where a total area of 1,415 hectares was restored.<sup>5</sup> Importance should be given to a stock-take of successful FLR practices, which can assist countries to scale up these strategies. Natural regeneration, silviculture, reforestation, and planting of new forests with native and economically viable species are the practical FLR options in the fight against climate change as well as the best resilience/adaptation option in dryland areas. The FLR approach provides countries in the region with cost-effective opportunities for fostering and achieving national LDN targets while advancing climate and other objectives.

The FLR approach also contributes to several **Sustainable Development Goals**: SDGs 1 (no poverty), 2 (zero hunger), 5 (gender equality), 6 (clean water and sanitation) and 7 (affordable and clean energy) all which have been identified as country priorities.

FLR in the CCA can contribute to **SDG 1** by spurring low carbon development and creating green jobs. For example, using a collaborative forest management system, the U.S. has produced more than 94 million cubic feet of timber sales and created 6,000 new restoration jobs.<sup>6</sup> By enhancing food security systems through watershed protection, erosion control, agroforestry and conservation agriculture, FLR can contribute to **SDG 2**. The restoration of degraded and fragmented forests can increase the supply of non-timber forest products that are an important source of income for rural communities in the CCA. Global analysis has shown that including productive landscapes in restoration can reduce the number of malnourished children from 3-6 million and increase yields and productivity of maize, rice, wheat from 2-10%.<sup>7</sup>

For **SDG 5**, FLR provides a framework for enhanced gender equality and empowerment and engages wide variety of stakeholders. IUCN has proven this in Armenia where FLR interventions increased income opportunities and fuel wood for forest dependent communities, particularly vulnerable sections including women-headed households and the elderly.<sup>8</sup>

Water resources and energy are scarce in Central Asia, often resulting in disputes. Enhancing water security is therefore imperative to the stability of the region. Forests play a vital role in the hydrological cycle that supplies water and by applying the FLR approach, the CCA can contribute to **SDG 6**. There are already powerful examples of this – Uzbekistan’s Trust Fund for the Aral Sea and the Aral Sea zone is bringing together countries to restore these landscapes and conserve native flora and fauna, many of which are at risk of extinction.<sup>9</sup> Fuel wood is a leading cause of deforestation in the CCA and by increasing the availability of fuel wood, FLR can contribute to **SDG 7**.

It is also important to note the role of FLR in **disaster risk reduction** for the region. Mountainous regions, specifically in Caucasus and lowland areas of Central Asia countries, would benefit from restored watersheds and high altitude landscapes, thus, limiting risks of floods and landslides. Loss of infrastructure and economic costs caused by landslides and severe flooding can be minimised by restoring forests and wetlands in lowland areas.

## Why the Bonn Challenge?

Globally, 47 countries, private associations and other organisations have signaled their desire to be leaders on restoration by joining the Bonn Challenge. Pledgers receive international exposure and recognition for their efforts and gain access to expert technical knowledge and support. The Bonn Challenge can play a key role in mobilising finance for FLR. Countries and jurisdictions that commit to it send a strong signal to donors and investors that there is political will to implement restoration and create an enabling environment for FLR. Bonn Challenge commitments also provide a platform for countries and jurisdictions to raise awareness of in-country restoration opportunities and needs among donors, investors and other stakeholders.

International institutions mobilising resources such as the Green Climate Fund (GCF) and the Global Environment Facility (GEF) have included FLR as a priority in their investment portfolios. For example, the GEF currently supports an IUCN-led 10-country programme on FLR and the Bonn Challenge, which is being jointly implemented with the Food and Agriculture Organization of the United Nations (FAO) and UN Environment. The GEF has included a new impact programme on food systems, land use and restoration in plans for the GEF7 replenishment while under the GCF, restoration projects are being submitted towards both the mitigation and adaptation windows. A recent analysis by the GEF Secretariat found restoration and reforestation to be the most frequently occurring theme among GEF country NDCs, NBSAPs, and National Action Plans (NAPs) – present in 98 per cent of GEF-eligible countries’ policy frameworks. FLR therefore represents a major opportunity for CCA countries to mobilise necessary resources for their national priorities and international commitments on sustainable development.



# Making a pledge to the **Bonn Challenge**

Pledges represent national aspirations and commitments that are voluntarily registered with the Bonn Challenge. Contributions may be new forest landscape restoration initiatives over a specified number of hectares. Contributions may also be enhancements of existing national or sub-national initiatives covering specified numbers of hectares if these are explicitly being:

- Aligned with the FLR principles
- Brought under the Bonn Challenge umbrella

## Process for contributing to the Bonn Challenge

- 1 Express interest** – Consult with IUCN, the Secretariat of the Bonn Challenge, through its global and regional offices to define a pledge and identify synergies with existing national and sub-national restoration programmes.
- 2 Sign an expression of interest**
- 3 Prepare and confirm a contribution** – Provide information about: status of the contributor(s), location and number of hectares, stakeholder support, anticipated types of restoration strategies. Some contributors prefer to carry out **FLR assessments** to confirm the nature of the restoration potential and strategies before confirming.
- 4 Confirm the contribution**
- 5 Publicise the contribution** – Identify, organise or agree to participate in a high-profile event. Notify the media.
- 6 Announce the target at a high-profile event**
- 7 Prepare to restore** – Map the potential using an FLR assessment; assess the economic benefits, presence of success factors, and carbon mitigation potential; define the restoration strategies; build capacity; develop or reinforce policies, institutions and programmes; and identify and mobilise investment opportunities.
- 8 Restore** – Initiate a suite of restoration strategies; disseminate best practices; and scale up successful models.
- 9 Track progress** – The **Bonn Challenge Barometer of Progress**, under development by IUCN and partners, will help countries track progress on their restoration interventions, publicise progress on commitments and unlock international support to address bottlenecks.



IUCN has worked closely with partners around the world to guide countries in defining their restoration targets and moving from pledge to implementation. For example, using its Restoration Opportunities Assessment Methodology (ROAM), IUCN has helped 26 countries identify which areas require restoration and the most suitable interventions for the landscape and land-use patterns, as well as which types of quantified economic and other benefits will flow from restoration. It includes working with countries in Caucasus on identifying their needs and priorities for FLR.

IUCN is well-positioned to support the countries in defining their Bonn Challenge pledges and applying ROAM as it has a long history of working closely with governments in the region. Georgia and Azerbaijan are State Members and IUCN membership includes some of the most prominent NGOs in all these countries. In Georgia, IUCN has long-standing partnership with the National Forest Agency (NFA) and the Agency for Protected Areas (APA). In Armenia, IUCN works with the Armenian Forest Agency (Hayantar) of the Ministry of Agriculture and in Azerbaijan with the Forestry Department of the Ministry of Ecology.

Countries in the CCA have already leveraged international climate financing with Armenia<sup>10</sup> receiving approximately USD 200 million per year; USD 63 million for Azerbaijan<sup>11</sup> and USD 260 million per year in Tajikistan<sup>12</sup> in 2013-14. Most of the funding was invested in energy, agriculture and water – three sectors that can be greatly enhanced by alignment with the FLR approach.

IUCN can also support countries in the CCA region in monitoring the progress of FLR programmes and identifying hurdles to implementation by applying the Bonn Challenge Barometer of Progress, a flexible framework to track the implementation of Bonn Challenge commitments. The data collected by the Barometer is going to be used by donors to pinpoint areas where their investments will yield maximum returns, by NGOs and technical partners to zero in on where they need to provide additional support and will also help government report on their NDCs and NBSAPs.

## Footnotes

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