Forest Landscape Restoration in Quang Tri, Vietnam

Transition from quantity to quality

INTERNATIONAL UNION FOR CONSERVATION OF NATURE

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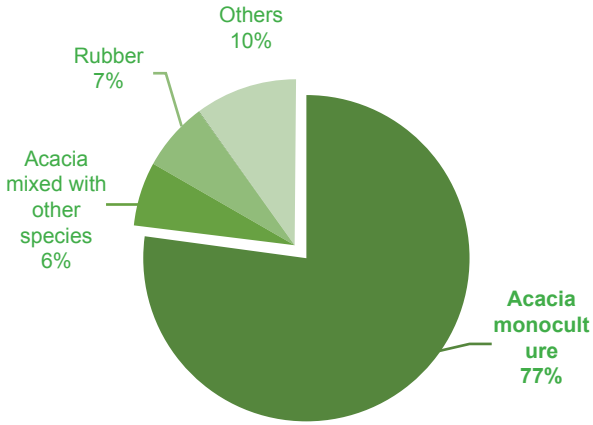
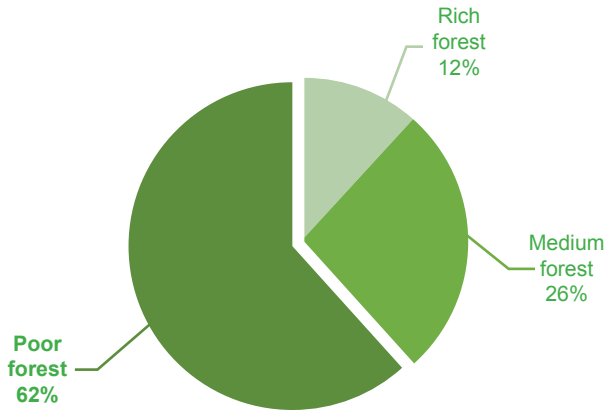
Challenges of forestry in Quang Tri

Located on the Demilitarized Zone in the Central Highlands of Vietnam, Quang Tri Province was devastated during the American War. Starting in the 1980s, the province started to plant fast growing eucalyptus and acacia tree species (77% of plantations are acacia monoculture). Forest cover quickly increased from 98,000 hectares in 1989 to 235,000 hectares in 2016. However, forest quality is generally low (62% poor or very poor), and plantations are geared toward low-value wood chips. Meanwhile, natural forest has declined. Quang Tri also faces increased pressure on its forests from the expansion of cassava cultivation on steep slopes.

77% of plantation area is acacia monoculture



62% of natural forest is poor and extremely poor (<100 m3/ha)



The expected increase in droughts, high-intensity rainfall, storms and pests outbreaks in north-central Vietnam as a result of climate change further undermines the resilience of forest landscapes and forest-dependent communities, demanding a strategic approach to cope with these challenges. In collaboration with Quang Tri Province, IUCN conducted a Restoration Opportunities Assessment Methodology (ROAM) to develop practical solutions to address these challenges through forest landscape restoration.

What is Forest Landscape Restoration?

Forest Landscape Restoration (FLR) is the process of restoring ecological function and enhacing human well-being across deforested or degraded forest landscapes. FLR is more than planting trees – it is restoring a landscape to provide multiple benefits and land uses over time, now and in the future. From consultations with stakeholders, FLR goals in Quang Tri were:

Increase forest biodiversity and quality

Conserve and enhance ecosystem services

Improve livelihoods to reduce deforestation incentives

What FLR options are feasible?

Four FLR options were identified to meet these goals: (1) enrichment planting (EP) and assisted natural regeneration (ANR) in degraded natural forest, (2) extended rotation (ER) and (3) native species introduction (NSI) in plantations, and (4) soil and water conservation (SWC) in rainfed agriculture.

Natural Forest	**Enrichment Planting and Assisted Natural Regeneration** • Improve forest and water quality and biodiversity • More resilient to drought • Provide alternative source of income (Payment for Ecosystem Services - PES)	**Extended Rotation** • Erosion control by reducing time land is bare • Improve water quality • Increase incomes through high-quality timber	Plantations
Agriculture	**Soil and Water Conservation** • Prevent erosion by conserving high-quality soil on farm plots • Prevent water runoff and improve water retention • Increase yields	**Native Species Introduction** • Adapt to the local climate, more tolerant to weather changes • Improve water quality • Increase biodiversity • Increase incomes through high-quality timber	

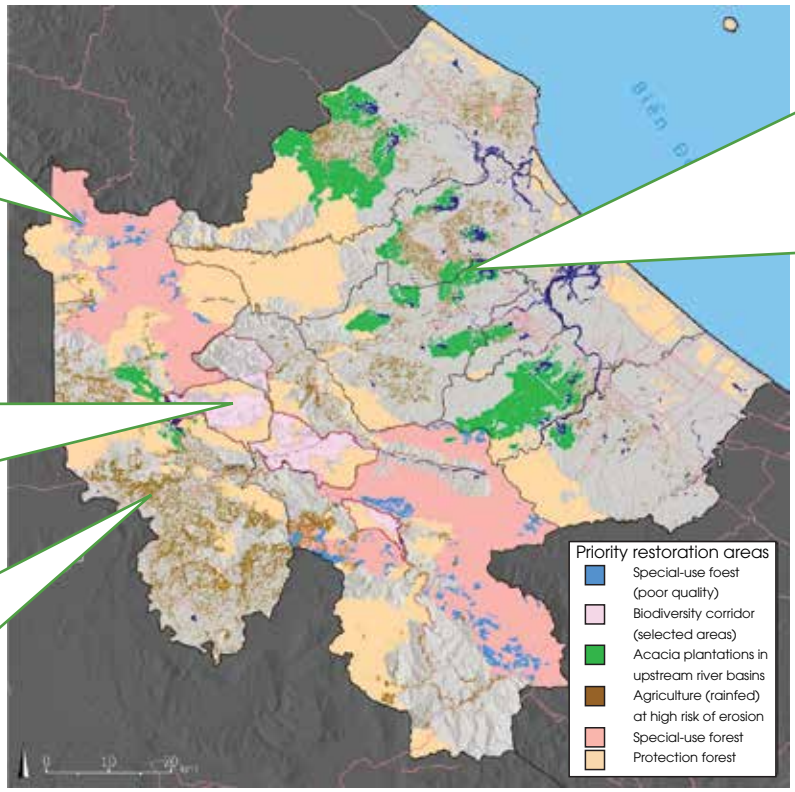
Where are the opportunities?

Four FLR priority areas were identified based on the three assessment criteria: forest biodiversity and quality, water quality in key river basins, and erosion on sloping land. The main priority areas are: i) poor quality forest within special-use forests (SUFs); ii) biodiversity corridor connecting SUFs; iii) acacia monoculture plantations (> 3 hectares) upstream of key river basins and iv) rainfed agriculture at high risk of erosion.

EP-ANR of poor quality forest in Special-use Forest, with support of PES (6,303 ha)

EP-ANR of poor quality forest and other (to be converted) land in biodiversity corridor (9,879 ha)

SWC in (rainfed) agriculture at high risk of erosion, special attention for cassava areas (24,975 ha)



ER & NSI and forest certification for acacia plantations (>10 ha) (10,873 ha)

ER with support of forest certification for acacia plantations (3-10 ha) (2,660 ha)

Total: 54,000 ha (11% of province)

What are the costs and benefits?

FLR options	Costs and benefits	Barriers
1.Enrichment Planting & Assisted Natural Regeneration	• Costs vary greatly (US$50-300/ha) depending ondegree of degradation and intervention required • Better water retention capacity; reduced risk of erosion, landslides • Carbon gain: +97 tCO2e/ha (vs. poor-forest); +32 tCO2e/ha (vs. natural regeneration) • Significantly increases both flora and fauna biodiversity	• Costs are upfront while benefits are long-term, diffuse, and difficult to translate into monetary values • Lack of funding for maintenance and follow-up • Low incentive for landowners
2.Extended rotation	• IRR: 19.1% (vs. 15.8% BAU) (over 23 years; 2 rotations) • Reduced time that land is bare and exposed to intensive rain events and wind • Carbon gain: +49 tCO2e/ha (vs. BAU)	• Delayed income; limited technical capacity • Increased risk of income loss due to storms, fires • Requires land and capital • Value chains adapted to short rotation
3.Native species introduction	• IRR: 18.6% (vs. 15.8% BAU) (over 30 years) • Native species more tolerant to climatic change; diversity reduces impact of storms, pests, diseases • Carbon gain: +81 tCO2e/ha (vs. BAU) • Increases biodiversity	• Delayed income; limited technical capacity • Increased risk of income loss due to storms, fires • Requires land/capital • Value Chains adapted to acacia
4.Soil and water conservation	• Fertilizer can increase cassava yield by 50-110%; return 1-2 year • Intercropping can double or triple profits; costs increase • Cross-slope barriers reduce soil loss by 50%; yield impact modest • Carbon storage: varies from 1 to 6 tCO2e/ha/ year	• Limited access to fertilizer and improved cassava varieties • Intercropping requires labor and capital • Cross-slope barriers labor intensive; benefits long-term

What are the enabling and constraining factors?

The key barriers to FLR are not only technical but also financial, policy, and institutional. This is where government can alleviate financial bottlenecks that would allow the forestry sector to achieve its full potential.

Key success factors for FLR in Quang Tri
(facilitating: green, constraining: red, neutral: yellow)

Condition	Current situation	Status
Motivation	• Security of forest tenure allows farmers and landholders to invest in FLR	
	• Farmers face difficulties getting loans; government can play key role, as shown by the Vietnam Bank for Social Policies in boosting rural credit	
	• Logging bans (including harvesting regenerated trees) serve as disincentive for sustainable forest management and native species recovery	
	• PES can encourage FLR, but payments are low and fixed regardless of performance, reducing farmer incentives to protect forests	
Implementation	• Proven FLR models exist, several have strong income generating potential; benefits of longer rotations and agricultural options are well understood	
	• Farmers have basic skills but need technical assistance with longer rotations and sustainable agriculture; scepticism about feasibility native species model	
	• Enrichment planting often fails because of the inadequacy of post-planting care and maintenance	
	• Costs and low availability of good planting material/native species seedlings and appropriate fertilisers limit FLR options	
Policy and enforcement	• Provincial REDD+ Action Plan (PRAP) includes specific measures to curb deforestation and degradation, and promote sustainable forest management	
	• Laws and institutions are well developed but rules are often not enforced because perpetrators are seen as poor and deserving	
	• Growing emphasis on sustainability and forest conservation (Vietnam is a pioneer in REDD+, FLEGT), but national policies focused on quantity	
Markets and value chains	• International demand for legal timber and heavy dependence on imports are driving the expansion of FSC-certified timber	
	• Smallholder FSC has been implemented in several provinces, in some cases with financing provided by the timber processor	
	• As cassava factories can source from any region there is no market incentive to promote more sustainable practices	

What will it take to shift from quantity to quality?

Transitioning from forest quantity to quality would take 20-30 years to complete and requires reforms at the highest level of government starting off with a vision for the forestry sector that explicitly and unequivocally embraces forest quality as the key measure of performance. The government The government also has a key role to play to play in engaging business and supporting new timber value chains, strictly protecting the remaining natural forest, assisting farmers with group certification, insuring farmers against natural disasters, and through improved extension services and infrastructure development.

New vision and policy

- Prepare a FLR vision that adopts a landscape approach based on this ROAM assessment
- Strict protection of the remaining natural forest
- Reorient plantations to produce certified timber over longer rotations and export market
- Transition from acacia monocultures into native species forests
- Set quality targets in forestry monitoring and evaluation programs and provincial performance appraisal

Innovative financing

- Work with banks to provide long-term credit with favorable interest rate to households willing to invest in ER plantations and NSI and sustabable agriculture
- Targeting and monitoring of PES to provide sufficient incentives to avoid deforestation and degradation
- Set-up insurance schemes to reduce the risk of natural disasters and fires in case of longer rotations (ER and NSI)
- Facilitate communication along value chains to assist farmers to overcome technical and financial barriers to achieve sustainable forest management certification

Improved extension and infrastructure development

- More research & development needed to improve seedling quality for long-rotation timber plantation and silviculture techniques
- Better extension services to sustainably intensify rainfed agriculture to reduce pressure on forest
- More investment in road and storage facilities to ensure that high value timber can be transported efficiently
- Help famers with less than 3 hectares of land secure group forest certification and well document best practices and lessons from landscape restoration projects

Additional support from international donors is crucial but donors require strong government commitment to FLR. By making a pledge to the **Bonn Challenge**, a global effort to bring 150 million hectares of deforested and degraded land into restoration by 2020 and 350 million hectares by 2030, Vietnam can demonstrate its regional leadership in Southeast Asia to achieve this ambitious FLR goal and attract more donor support.

About the Bonn Challenge

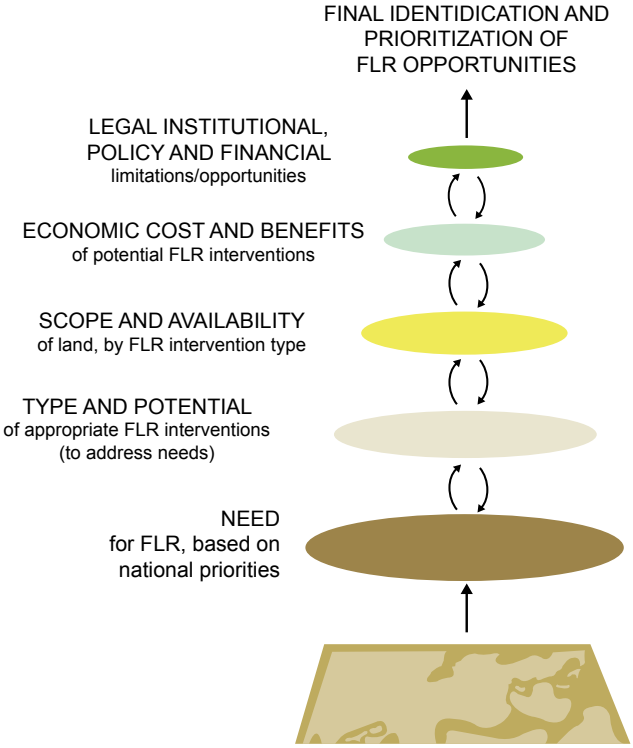
The Bonn Challenge is a global effort to bring 150 million hectares of the world's deforested and degraded land into restoration by 2020, and 350 million hectares by 2030. It was launched in 2011 by the Government of Germany and IUCN, and endorsed and extended by the New York Declaration on Forests at the 2014 UN Climate Summit. Underlying the Bonn Challenge is the forest landscape restoration (FLR) approach, which aims to restore ecological integrity at the same time as improving human well-being through multifunctional landscapes. To date, almost 50 national governments, sub-national governments and private organizations have announced pledges to the Bonn Challenge and committed to restore 160.2 million hectares of forest by 2030.

For further information, please visit: http://www.bonnchallenge.org/

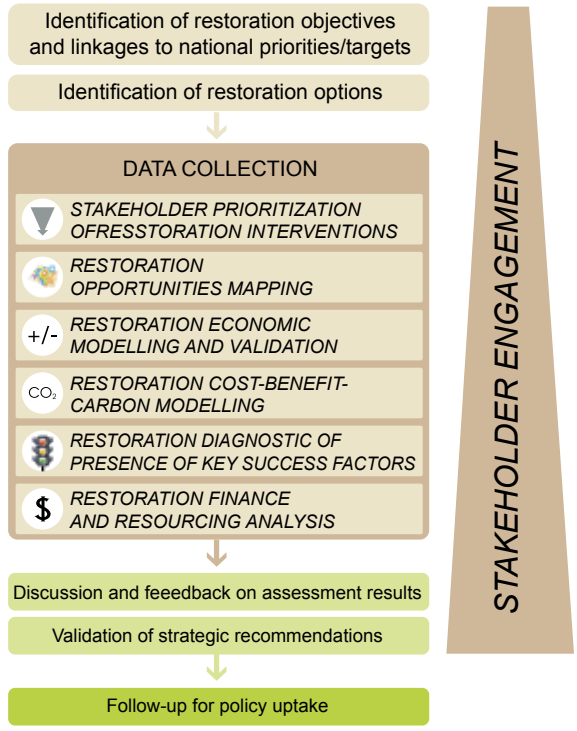
About the Restoration Opportunities Assessment Methodology (ROAM)

Developed by IUCN and the World Resources Institute (WRI), ROAM provides a flexible and affordable framework for countries to rapidly identify and analyse areas that are primed for forest landscape restoration (FLR) and to identify specific priority areas at a national or sub-national level.

Conceptualization of ROAM



Key steps in a typical ROAM process



Source: IUCN/WRI 2014

For further information about ROAM, please visit: https://www.iucn.org/theme/forests/our-work/forest-landscape-restoration/restoration-opportunities-assessment-methodology-roam

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