Introduction

Located at the Rwanda’s capital city, Kigali, the regional Hub for forest landscape restoration is a Center of Excellence (CoE) committed to providing forward-looking technical support on Forest landscape Restoration (FLR) and effective measurement mechanisms for restoration activities. By providing technical support to undertake assessments and feasibility studies, countries are able to generate timely and accurate information on restoration opportunities, priorities and trade-offs. With a highly skilled team of experts drawn from across the world, the hub’s expertise and extensive knowledge-base provides a solid foundation for undertaking large and diverse conservation projects in the region and beyond. Priding on strong geospatial mapping and monitoring skills, a command in FLR extension and value chain expertise, a mastery on natural resource accounting and a solid regional experience on natural resource governance, the hub has been supporting governments in the region to not only commit to initiatives such as Bonn Challenge (BC) and AFR100 but also carry out restoration feasibility studies and assessments. The hub has also been supporting countries to implement high priority projects aimed at instituting best practices, establishing models and inginiting key restoration enablers. Some of the countries which have received technical support in undertaking restoration assessment include: Rwanda, Burundi, Uganda, Malawi, Kenya, Mozambique, Ethiopia, Madagascar and Tanzania.

1. Geo-spatial Mapping & Modelling

The hub carries a breadth of experience in the capture, visualization, validation, management and manipulation of geospatial data. With a mastery of a spatial based Multi-Criteria Analysis (MCA) the team is able to determine restoration priorities and trade-offs where more than one social-ecological demands exists thus supporting governments in making critical decision on matters of conservation.

Geographic information/data such as water, soil quality, slope, irrigated areas, population, biodiversity, food security, etc) is collected, visualized and analyzed to come up with compelling scientific inferences. The data is analyzed through a Multi-Criteria Analysis approach where several parameters are stacked to determine the levels of degradation, opportunities and priorities. In essence, degradation maps are usually combined with land use and land cover maps to analyze the restoration options and to determine the priority areas for restoration.

Most importantly, the approach generates information needed to develop restoration strategies and technological FLR packages based on FLR interventions. Critical ecosystems services such as water yield, carbon and soil formation are modelled using tools such as InVEST and are carefully integrated into the MCA to map priority sites for restoration. The Restoration Opportunity Optimization Tool (ROOT) - a restoration optimization tool developed by IUCN and NatCap team - is also used to determine areas where restoration would yield the right benefits especially where two or more competing social-ecological needs.

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**ROAM-Based Multi-Criteria Analysis (MCA) Model**

1. Identify rational for restoration goal and drivers of degradation
2. Categorize spatial data on drivers of degradation
3. Based on the rational goal and objectives for restoration, map the degradation priorities on biodiversity improvement, energy production etc.
4. Make an enable to produce restoration opportunity maps

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**ROAM-Based MCA Model**
2. Forest Landscape Restoration Monitoring

With the understanding that monitoring is key in measuring restoration successes and impacts, the hub has continued to develop different tools and methods for data collection, processing and communication. Sampling approaches such as number of tree per square units have been used by the extension officers to determine tree seedlings survival rates while tree seedling transplantation has been being monitoring based on number of farmers and the unique parcel identification system. The Bonn Barometer tool developed by is another breath-taking approach in restoration monitoring where actual social-economic restoration are measured and monitored over time based on a number of biophysical changes. The hub has also been supporting countries in developing central monitoring systems that are capable of receiving restoration monitoring data remotely from the ground and transmitting the information thereof to various actors. Such example include the Rwanda’s Forest Information Monitoring System.

3. Forest Landscape Restoration Extension

Extension work plays an important role in restoration where landowners/farmers are able to receive valuable technical support in their day to day activities. The hub has heavily built this capacity to ensure real landscape challenges are communicated and their solutions crafted through an infusion of local and scientific knowledge. In Rwanda for example, the hub has deployed a number of forest extension experts in the project areas to ensure restoration projects are implemented according to the recommended guidelines and best practices are documented for scaling up. The extension team is also tasked with responsibility of gathering monitoring data during the tree nursery establishment and seedling transplant occasions.

Building on the already existing models such as Farmer, Field School (FFS) the hub is able to intensify restoration project awareness and develop project ownership at the household level thus ensuring projects sustainability.

4. Forest Landscape Restoration Financing

Funding restoration projects is with no doubt a big challenge for many countries in the region. Conventionally, restoration projects have only been funded by donors. With increased demand for such funding across the globe, donor’s have been forced to place stringent and competitive technical requirements locking out many countries out of the much needed FLR financing. With rich experience in FLR financing mechanisms the hub, in support from other global offices, has been supporting a number ESAROs countries to develop proposals for funding thus increasing their chances of getting the awards. Moreover, to further close the gap in restoration financing the hub has been spearheading the development of country-specific innovative financing mechanisms/models that are embedded on FLR based value chains and busihness cases. Such mechanisms include the famous Community Environmental Conservation Fund (CECF) that was launched in Uganda allowing farmers to borrow funds with a condition that they would restore their degraded lands. From its initial application in Uganda, the model has since then been adopted in Malawi and Kenya. Similar mechanisms in the region includes the Mali Verde and the Community Smart-Lending Platform (CSLP).

5. The Economic of Forest Landscape Restoration

More often than not, African countries grapple to understand the benefits that comes with injecting funds into restoration. This has clearly been reflected in the country’s annual budgets where restoration or conservation budgets are negligible compared to other budgetary allocations. The hub through its expertise in natural resource accounting has been supporting relevant government institutions in undertaking FLR and Ecosystem Services (ES) valuation to demonstrate to the decision makers that restoration indeed has benefits and contribution to the countries GDP. In all cases, the analysis has indicated value for money and countries are beginning to improve their funding in conservation sector. Mainstreaming ecosystem valuation into the country’s development agenda is undoubtedly the only way actors can influence more funding in restoration. Linking restoration multiple benefits to viable business models can incredibly increase funding in restoration. The hubs capacity in developing investment models based on FLR based value chains and local/community-based financing options has seen countries across the region develop their own restoration investments models that has consequently increased funding.

IUCN FLR extension officers interacting with farmers in Rwanda
6. Influencing Policy and Governance

Policy and institutional framework plays a great role in shaping the country’s restoration agenda. Cross-cutting issues around FLR requires multi-sectoral approach which is difficult to realize without FLR-friendly policies. During the decade ending 2020, more countries have realized the need to increase their efforts in restoring their degraded ecosystems. Equally, the hub has been intensifying its efforts in supporting countries to commits to different restoration vehicles and providing compelling data/information (for example through policy briefs/review) that have been instrumental in repealing policies and improving institutional coordination.

7. Capacity building

Site level analysis is key in ensuring informed restoration. Countries rely heavily on local capacities in actual project implementation. The hub has therefore been partnering with national governments in developing local capacities through workshop training and field simulations particularly in ROAM and other assessment tools such as Integrated Wetland Assessment Toolkit (IWAT) and the Red-list Ecosystems (RLE) toolkit. Similar trainings have been carried out on FLR monitoring using tools such as barometer and Forest Community Finger Print (FCF).

Bottom-line

In summary, the FLR hub has been of enormous help to the region in establishing or strengthening the necessary restoration enablers key among them the technical capacity in ROAM and the ability ability for the countries to incubate and share best practices. By providing support in policy reviews, in establishing FLR marketplace places and partnerships and developing community based innovative financing mechanisms, the hub has indeed transformed restoration perceptive in the region. In preparation for another decade of accelerated efforts restoration, the hubs aims at deepening and broadening its capacity which key in ensuring on-ground action and transformation of landscapes and livelihoods.

ROAM training in Malawi