



Request for Proposal - LKR land degradation impact consultancy

Summary of procurement

World Resources Institute intends to award a fixed term consultancy contract to individuals or organizational consultants to (1) analyze the socioeconomic impacts of land degradation on food security, income, poverty and labor productivity; (2) to develop a land use land cover analysis and identify potential restoration opportunities in the Lake Kivu & Rusizi River Landscape, building on initial data baseline developed by WRI.

About the World Resources Institute

Founded in 1982, The World Resources Institute (WRI) is a global environmental think tank that goes beyond research to put ideas into action. We work with governments, companies, and civil society to build solutions to urgent environmental challenges. WRI's transformative ideas protect the earth and promote development because sustainability is essential to meeting human needs and fulfilling human aspirations in the future.

Background

The Lake Kivu and Rusizi River (LKR) landscape, covering Rwanda, Burundi, and the Democratic Republic of Congo (DRC), is a critical ecological and economic zone with over 11 million population as of 2020 across a total area of 13,449 km², divided into 2,706 km² (20.2%) in Burundi, 6,227 km² (46.5%) in DRC, and 4,452 km² (33.3%) in Rwanda (ABAKIR, 2020). This landscape includes Rwanda's Western province, DRC's North and South Kivu provinces, and Burundi's districts of Bujumbura Mairie, Bujumbura Rural, Cibitoke, Bubanza, Rumonge, and Bururi (figure 1).

The LKR landscape provides essential ecosystem services such as food, water, and biodiversity; and supports energy generation through hydropower plants. Its rich biodiversity, fertile soils, and freshwater resources sustain vibrant fishing, agriculture, and energy industries, making it indispensable for regional economies. However, rapid population growth, unsustainable agricultural expansion, unregulated charcoal production, and natural resource extraction have contributed to serious environmental challenges, including land degradation, deforestation, and soil erosion on steep, hilly terrain. These pressures not only threaten local ecosystems but also jeopardize the food and water security and the resilience of local communities (GIZ, 2021).

In the Lake Kivu and Rusizi River basin, historical records suggest that the mid-1980s marked a period of significant land cover changes in western Rwanda, which contributed to substantial landscape

degradation. During this time, the region experienced deforestation, soil erosion, and unsustainable land-use practices, which disrupted ecological balance and led to severe environmental issues. The degradation has exacerbated natural disasters, with landslides and flooding becoming more frequent and severe, particularly in areas with steep slopes and deforested hills. These events have had lasting impacts on local communities, agriculture, and infrastructure, creating a cycle of vulnerability and degradation in the landscape (Nsengimana et al., 2016).

Despite some records on land use changes in specific parts of western Rwanda, there remains a gap in comprehensive historical data across the entire Lake Kivu and Rusizi River basin. This lack

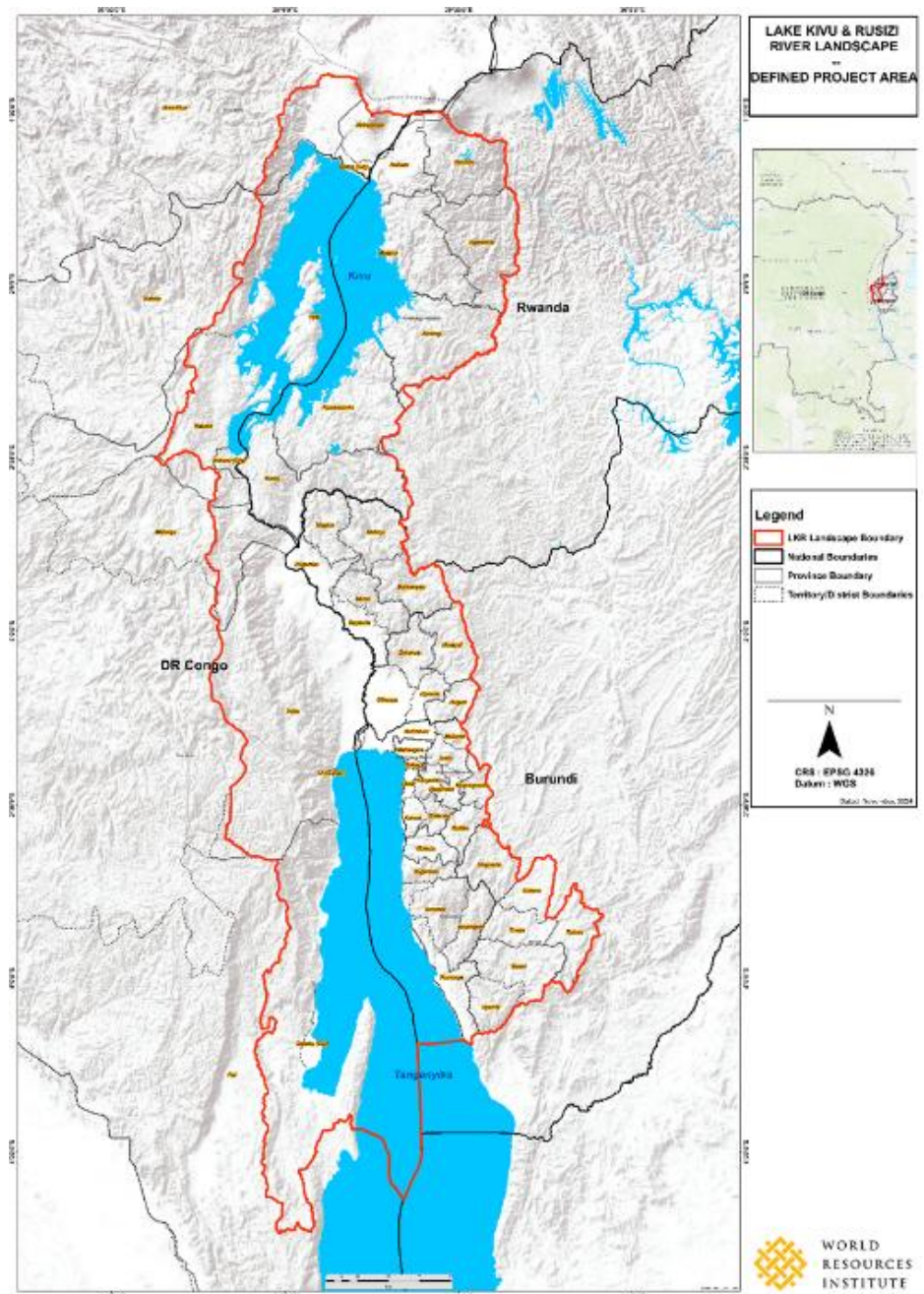


Figure 1: Geographical Extent of the LKR Landscape

of data complicates efforts to understand the full extent and causes of degradation across the landscape, which is essential for designing effective restoration strategies. Restoration interventions that do not fully address the primary drivers of land degradation might struggle to achieve lasting impact, as they risk overlooking root causes like population pressure, agricultural expansion, and inadequate land management practices. Without a holistic understanding of these drivers, interventions may only offer temporary relief rather than long-term solutions for ecosystem recovery and resilience.

Furthermore, a feasibility study for landscape restoration conducted around the Rusizi River provides initial mapping of parts of the landscape. While additional mapping and geospatial analyses exist, there is inconsistency in target years and land cover classes, making data aggregation a challenge. To create impactful restoration interventions in the Lake Kivu and Rusizi River basin, it is therefore critical to address the landscape's unique historical context. Comprehensive baseline data, incorporating both historical land use land cover changes and current socio-economic conditions, will be instrumental in guiding strategic and effective restoration efforts that directly mitigate the underlying causes of degradation, enhancing resilience against future environmental challenges (FAO & UNEP, 2020).

WRI is looking for a comprehensive land use and land cover map analysis that provides historical and contextual information about the LKR landscape, forming a critical basis for identifying degraded areas and guiding restoration efforts. This mapping will establish a baseline that captures historical land degradation trends in LKR, along with their biophysical and socio-economic impacts at both local and national levels. Such a foundation is crucial for assessing the severity of degradation and planning effective interventions. Alongside this mapping, gaining insights into farmers' knowledge, preferences, and perceptions of sustainable agronomic practices, particularly agroecology and regenerative agriculture, will be vital to identify gaps and opportunities for adoption. The baseline data from this study will also serve as a foundation for monitoring and evaluating the long-term impacts of restoration initiatives.

Scope of work

The objective of this 5-month consultancy, spread over 120 days is to (1) analyze the socioeconomic impacts of land degradation on food and nutrition security, income, poverty and labor productivity; (2) to produce a land use land cover change and degradation analysis and potential restoration opportunities in LKR.

First, the consultant will develop an inventory of potential restoration interventions that could reverse the trends of land degradation, particularly those impacting food production and agricultural livelihoods. These interventions will also address the key degradation drivers of affecting food systems.

The consultant will lead primary socioeconomic data collection in the 3 countries of the landscape which will allow the establishment of a socioeconomic baseline for analyzing the impacts of land degradation on the key livelihood aspects of the local communities, including food security, agricultural income, and labor productivity in the LKR.

Second, in line with the second objective, the consultant will begin with developing an inventory of relevant LULC datasets and conducting a thorough desk review to identify key land degradation and land cover change events across LKR, highlighting significant dates. The aim is to establish a foundational understanding of past landscape changes that can inform current and future interventions. Following this review, the consultant will create new geospatial LULC datasets for LKR from 2015 to 2023/2024, capturing data at 3-year intervals. The consultant will integrate the datasets with other information to identify and map out land degradation hotspot across the LKR landscape. Additionally, the consultant will produce maps indicating areas suitable for restoration interventions, distinguishing between tree-based and non-tree-based approaches. This work will provide valuable guidance for targeted restoration strategies within the LKR.

The consultant is expected to:

1. Deliver an inception report outlining the consultant(s)' understanding of this assignment as discussed during the inception meeting. It should clearly define the proposed methodology, tools, and analysis methods for the assignment. Additionally, the report should address any adjustments to the deliverable timeline that may be necessary based on insights gained during the inception meeting.
2. Deliver an analysis report detailing the best-bet practices related to interventions that promote food security, as informed by data that WRI should take up food intervention with restoration champions. Key questions to be addressed are – what best-bet practices were implemented? Where and why, they were implemented?
3. Develop an inventory of potential LULC datasets and conduct a desk review to identify significant land degradation and land cover change events in the LKR landscape, pinpointing key dates.
4. Generate new geospatial LULC datasets for the LKR from 2015 to 2023/2024 at a 3-year interval.
5. Perform land use land cover change analysis from 2015 and integrate other dataset (such as soil, erosion, slope, etc) to identify degradation hotspot.
6. Identify potential areas for restoration across the LKR landscape distinguishing between areas suitable for tree-based restoration interventions and other restoration interventions.

It is important to note that while the design of the questionnaire and sample protocols will be led by the WRI technical team, the consultant will be responsible for carrying out field data collection activities and day-to-day management of the enumerators. Importantly, the socioeconomic analysis will take into consideration a social gender equity lens.

Finally, the consultant will also be responsible for the writeup of the detailed methodology, data used, and model results. The draft report of the consultancy will be incorporated into the project progress report that WRI core team is developing.

The consultant will report to the **LKR Food Systems Specialist and the Quality Data Analyst at WRI** and collaborate with other members of the LKR landscape team as needed.

More specifically, the consultant will complete the following activities:

Activity 1: Collect primary socioeconomic data for establishing the baseline and submit preliminary draft report on agronomic and restoration practices for food

- *Validate the data collection methods and protocols with WRI technical team.*
- *Lead field data collection activities for establishing a socioeconomic baseline in the current situation of land degradation, based on the socioeconomic data collection method and sample protocol developed by WRI technical team; the survey instrument and sample frame will be provided by WRI, while communities within the established frame are to be selected and engaged by the consultant.*
- *Responsible for day-to-day management of the enumerators and carrying out household survey to collect disaggregated primary data from a total number of 2000 households in selected geographies. This comprises all hiring and logistic support as required, including providing tablets for data collection.*
- *Submit raw data from primary household survey to WRI technical team for analyzing the causality between land degradation and socioeconomic impacts in terms of food insecurity, poverty, labor productivity and household income in the LKR, with a particular focus on historically marginalized and vulnerable communities.*
- *Submit preliminary draft report on best bet practices for integrating food in restoration.*

Activity 2: Data analysis and drafting technical report

- *Produce summary statistics to synthesize key insights from initial analysis of the socioeconomic datasets, including affected areas, impacts on land productivity, food security, income and other livelihoods, and draw recommendations on priority areas for restoration, suitable and cost-effective restoration interventions, expected improvement of ecosystem services, etc.*
- *Draft a summary report of the designated research, which should include, but not limited to, the model description, key assumptions, data used, as well as the findings of the analysis.*
- *Provide technical backstopping support and technical guidance to ensure the database is appropriately installed in the LKR infrastructure and regular database updates are planned.*
- *Contribute to the progress report of the project that is currently being developed by the WRI core team.*

Activity 3: Review and Analysis of Existing Geospatial Layers

- *In collaboration with LKR team members conduct a desk review to identify significant land degradation and land cover change events in the LKR landscape, pinpointing key dates.*
- *In the context of LKR, explain land degradation highlighting key elements contributing to it, such as population growth, resource overexploitation, increasing food demand, and climate change. Additionally, highlight the relevant geospatial layers linked to these factors.*
- *Analyze existing map products from key institutions, including WRI's Land and Carbon Lab datasets and other published data.*

- *Identify data requirements and compile a list of the information needed for the baseline assessment, restoration opportunity mapping, and scenario development.*
- *Lead discussions and validate data and information under this part with the LKR delivery team to present existing data and assess its suitability for our purposes.*

Activity 4: Generating New Geospatial LULC Layers

- *Download cloud-free imagery (e.g., Landsat, Sentinel) for classification for the following periods 2015, 2018, 2021, 2023/2024.*
- *Conduct image pre-processing to correct geometric and atmospheric errors.*
- *Collaborate with the LKR delivery team to develop a list of land cover classes (Classification Scheme).*
- *Gather high quality training data for imagery classification. (on screen or in the field).*
- *Run image classification using training data.*
- *Conduct accuracy assessments on classified images for all periods with an accuracy of not less than 75%.*
- *Perform land cover change analysis across different years.*
- *Validate results with the LKR team and a sample of stakeholders.*
- *Derive key statistics about land cover and associated changes.*
- *Combine land use land cover datasets generated with other datasets (such as soil, rainfall, erosion, etc) to produce a land degradation hotspot map of the LKR landscape*
- *Present the results in a PowerPoint presentation.*

Activity 5: Identifying potential areas for Restoration

- *Create maps that identify land degradation hotspots and highlight areas with potential for restoration, based on insights gained from scenario modeling.*
- *Draw up a preliminary list of FLR interventions that, on first analysis, would appear to be the most appropriate for the LKR landscape situation.*
- *Identify a broader set of assessment criteria that can be used to analyze FLR potential within each sub-area.*
- *Gather and analyze relevant datasets based on the criteria identified above. These datasets should be agreed upon with the LKR team and other relevant stakeholders.*
- *Map out and distinguish between potential areas suitable for tree-based restoration interventions and non-tree-based interventions such as terracing.*
- *Ensure that the LKR team and other relevant stakeholders within the landscape are kept informed and their opinions and suggestions are considered before decision making.*

Activity 6: Engage in technical discussions and support other project staff as needed

- *Make recommendations for replicating the research and methodology in other anchor landscapes.*

Deliverables

DELIVERABLE NUMBER	DELIVERABLE NAME	DELIVERABLE DESCRIPTION/ ACCEPTANCE CRITERIA	DELIVERY DATE	PAYMENT UPON ACCEPTATION OF THE DELIVERABLE BY WRI
1.	1.1. Inception Report	The report should outline the consultant(s)' understanding of this assignment as discussed during the inception meeting. It should clearly define the proposed methodology, tools, and analysis methods for the assignment. Additionally, the report should address any adjustments to the deliverable timeline that may be necessary based on insights gained during the inception meeting.	Mid-January 2025	20%
	1.2 Developed a list of data required to complete this assignment.	Once the list of data is reviewed and agreed upon with WRI, the consultant then can go ahead and start Activity 1 and corresponding deliverables. Completed means meetings to review the content have occurred and content has been approved by WRI.	Mid-January 2025	
	1.3 A document detailing analysis of existing geospatial datasets identified, reviewed and gaps identified.	This deliverable should provide a brief overview of the purpose of the document, key findings from the analysis, and highlights of identified gaps and drivers of degradation. It should capture the existing datasets identified, main insights of the analysis, how the findings relate to the project objectives, and a concise summary of recommendations for addressing the gaps. Completion of this deliverable means meetings held and findings communicated through power point presentation and approved by WRI.		
2.	2.1 Conduct primary data collection for analyzing the socioeconomic situations, and farmers context – status, agronomic and restoration practices and their impact on food 2.2 Preliminary draft report for implementing food-restoration integration		End of January 2025	

3	Maps showing land use land cover change from 2015 to 2023/2024	This deliverable should have maps for the years stated and corresponding change maps between the years. It should be accompanied by a document that provides details of methodology, classification scheme, visual and analytical representation of changes in land use and land cover (LULC) over the period from 2015 to 2023/24. It should also detail statistical summaries, to depict the spatial and temporal changes in various land cover types and land uses as well as key observations and recommendations. The deliverable will be deemed complete when meetings have been held with the LKR team and findings from the LULC assessment shared and approved by WRI.	February 2025	20%
4	Completed maps and documents showing key restoration opportunities and interventions distinguishing between tree based and non-tree-based suitable areas.	The deliverable should present a compilation of maps and supporting documents that identify key restoration opportunities and proposed interventions within the LKR landscape. It should detail the methodology, and the criteria used for identifying the potential areas. The deliverable will be deemed completed when meetings have been held and findings communicated through power point presentation and approved by LKR team	Mid-March 2025	
5	Data analysis and drafting technical report	<p>5.1 Completed means meetings to review the content have occurred and content has been approved by WRI</p> <p>5.2 This report outlines all activities carried out under the defined Terms of Reference (ToR). It should include an executive summary, comprehensive overview of the objectives, methodologies, key activities, findings, outcomes, and recommendations. The activity will be deemed completed when the final report has been submitted, final presentation done for WRI team and key stakeholders in the LKR landscape</p>	End March 2025	60%

Timeline

4 months consultancy (spread over 90 days), starting upon the signature of the contract. However, deliverable 1 must be completed by Mid-January 2025 and deliverable 2.1, 2.2 and 3 by 28 February 2025.

Financial support

Compensation will be based on a total fixed fee for delivery of the Blue Paper. Therefore, WRI will not reimburse for miscellaneous costs (e.g., travel, office supplies). Rather, these costs should be built into the total cost of the contract. If the consultant sub-contracts other individuals or organizations to assist in the performance of the services, the consultant shall be responsible for any payments to such individuals or organizations. Each payment will be based on the receipt and acceptance by WRI of a product/deliverable and invoice.

Please note that WRI is an IRS-registered 501(c)3, tax-exempt organization. WRI is not VAT exempt. All prices or quotes should include VAT and tax, as applicable.

GUIDELINES FOR PROPOSAL SUBMISSION

Required Qualifications

The Lead consultant:

- Must have a PhD degree in Environmental Science, Natural Resources Management, Social Sciences, Economics, or Agricultural Sciences. A PhD in any of these fields is an advantage.
- Should have at least 5 years of experiences and a proven track record in leading a team (s) in conducting multidisciplinary research and engaging several stakeholders.
- Excellent working knowledge in French and English.

The Consulting team:

- Must hold a MSc degree in the fields mentioned above
- Should have at least 3 years for relevant work experience
- Excellent knowledge of African Great Lakes landscapes or similar landscapes in other countries in East Africa.
- Expertise and experience in research on complex drivers of land use and land use change, the impacts on land degradation, climate change impact, and ecosystem services modelling, etc.
- Expertise and experience in research on landscape restoration opportunities and potential restoration techniques, including soil and water conservation
- Expertise and experience in socioeconomic research in Rwanda, DRC, and Burundi, including the design of household survey, field data collection, and the management of enumerators
- Strong analytical and research skills, with the ability to synthesize complex information into actionable recommendations.

- Experience in using GIS and other statistical tools
- Experience in publishing in peer-reviewed journal articles and technical reports

Proposal content and grading

Prospective vendors should submit:

1. Technical Proposal (60%)

- The methodology and understanding of the ToR (35 points)
- Team composition, qualification, and experience (25 points)
 - Team Leader: 15 points
 - Experts: 10 points

2. Financial Proposal (40%)

- Value for money (15 points)
- Cost breakdown and clarity (15 points)
- Risk management (10 points)

Expression of Interest, Deadline for Questions, and Proposal

All expressions of interest and questions about this RFP must be received via email to the contacts below by **22 November 2024, 11pm (Rwandan time)**. Answers to the questions will be shared with all parties who have asked questions or otherwise expressed interest.

1. Name: Nicole Ihirwe
 Title: Food Systems Specialist/LKR
 Email: nicole.ihirwe@wri.org

2. Name: Moise Niyotwagira
 Title: Data Quality Analyst for LKR
 Email: moise.niyotwagira@wri.org

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3. Name: Alvin Adu-Asare
 Title: GIS Research Associate, AFR100
 Email: alvin.adu-asare@wri.org

4. Name: Peter Ntaganda
 Title: Landscape Manager/LKR
 Email : peter.ntaganda@wri.org

5. Name: Edwin Mkabane
 Title: Grants & Finance Specialist- Vital Landscapes
 Email: edwin.mkabane@wri.org

All proposals must be sent by **29 November 2024, 11pm (Rwandan time)** in electronic format to the same contact listed above.

EVALUATION AND SELECTION

Evaluation Criteria

The following elements will be the primary considerations in evaluating all proposals submitted in response to this RFP:

- Completion of all required elements;
- The extent to which the vendor's/organization's/consultant's, etc. proposal fulfills WRI's stated requirements as set out in the RFP;
- Experience with similar projects;
- Overall cost of the vendor's/organization's/consultant's, etc. proposal;
- Debarment and sanctions – WRI will not consider proposals from vendors/ organizations/ consultants, etc. that are presently debarred by the U.S. government or named on any restricted parties lists;
- Sustainability – WRI values sustainability and all other factors being equal, will favor a proposal to more sustainably perform the work.

The bidder offering the best overall value will be selected. For this procurement, price and non-price aspects are of approximately equal importance.

Selection Process

The preselected consultants will be interviewed about the content of their proposals.

No proposal development costs shall be charged to WRI / all expenses are to be borne by the bidders. WRI may award the bidder offering best value without discussion. However, WRI reserves the right to seek bidder clarifications and to negotiate with those bidders deemed to be within a competitive range.

WRI may, at its discretion and without explanation to the prospective vendors/organizations/consultants, etc., choose to discontinue this RFP without obligation to such prospective vendors/ organizations/ consultants, etc. or make multiple awards under this RFP. Contracts will not be awarded to vendors/organizations/consultants, etc. debarred by the US government or named on restricted parties lists.