Project stakeholder meeting

"Building the climate change resilience for local communities in the Lake Kivu and Rusizi River basins – CRAG"

Dates: 29-30 August 2018

Venue: Kivu Peace View Hotel, Rubavu – Rwanda

NARRATIVE REPORT

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Kigali, 17 September 2018

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List of acronyms and abbreviations

ABN: Association Burundaise pour la Protection de la Nature

AGLR: African Great Lakes Region

ARCOS: Albertine Rift Conservation Society

CBCS: Congo Basin Conservation Society

CDI: Centre for Development Innovation

CEPF: Critical Ecosystem Partnership Fund

CSO: Civil Society Organization

DRC: Democratic Republic of Congo

FHA: Forest of Hope Association

GIS: Geographical Information System

GPS: Global Positioning System

KOABUNYA: Koperative Abadahigwa mu Buhinzi ba Nyabirasi

MoE: Ministry of Environment, Rwanda

NaFIRRI: National Fisheries Resource Research Institute

NGO: Non-Governmental Organization

RDB: Rwanda Development Board

REMA: Rwanda Environment Management Authority

RSB: Rwanda Standards Board

RWFA: Rwanda Water and Forestry Authority

SSG: Site Support Group

TNC: The Nature Conservancy

WRMD: Water Resources Monitoring Department

Executive summary

This two-day stakeholder meeting on the Climate Resilient Altitudinal Gradients (CRAG) project was held in Rubavu from the 29th to the 30th of August 2018. It was organized by BirdLife, together with its partners and under the auspices of MacArthur Foundation and the Nature Conservancy. The objectives of this meeting were: (1) harmonise and agree on key milestones in project implementation, and learn from ongoing similar initiatives, (2) present preliminary results from the sediment fingerprinting in Sebeya Catchment, (3) discuss potential climate change interventions at the sites identified as erosion and sedimentation hotspots, (4) understand the Sebeya Catchment landscapes and have first contacts with environment and mining field technicians from the four districts sharing the catchment area. In total, 26 participants attended the meeting; including representatives from the project's steering committee, partners and districts. At one hand, the project approach was well understood and clarifications on possibilities to scale up this work were discussed. More importantly, the field data collection methods for sediment fingerprinting; because it was carried out by the project team themselves. Given that this technique involves some modelling of collected soil and sediment samples, participants stressed on the need for training on the statistical analysis (mixing model) which is being done by external consultants. Furthermore, the studies on mapping erosion risks were also presented and similarities with the sediment fingerprinting results were noticed. However, it was recommended to find out strategies to communicate and have the studies' findings well understood by government and incorporated into the climate change adaptation agenda. On the other hand, the meeting was an opportunity to understand the Sebeya landscapes and for this, participants conducted a field visit at three sites along Sebeya River system. Stakeholders in the catchment, their interests and powers were later mapped by participants, and an example of community development and biodiversity conservation initiatives was recognized. Finally, suggestions on the possible climate change interventions were provided. Lessons from somewhere else in the Great Lakes Region were shared, and the project team was advised to look at the worst and best case scenarios, and develop suitable best practices for community resilience in Sebeya Catchment. The meeting created good connections with different project stakeholders and further collaborations towards the successful implementation of the CRAG work are anticipated. Participants also recommended that some efforts to engage the Lake Basin Authorities are very important for the future of the CRAG work.

1. PARTICIPANTS AND MEETING OBJECTIVES

On the 29th and 30th of August 2018, a meeting was held in Rubavu – north western Rwanda, and a range of invitees from the districts, Civil Society Organizations (CSOs) and government were represented (Annex 1). The project under discussion is entitled ''Building climate change resilience for local communities in the Lake Kivu and Rusizi River basins – CRAG''.

Representatives from government institutions, districts, project partners and members of the Site Support Groups attended this meeting

The specific objectives of this stakeholder meeting were to:

a) Harmonise and agree on key milestones in project implementation, and learn from ongoing similar initiatives,
b) Present preliminary results from the sediment fingerprinting in Sebeya Catchment of Rwanda,
c) Discuss potential climate change interventions at the sites pinpointed as sources of river sedimentation,
d) Create awareness on the sediment fingerprinting technique and its potential applicability in other catchments of the Great Lakes region.

2. MEETING SESSIONS

This was a two day meeting, all sessions are described in the sections below, including a field trip carried out on day 1.

DAY 1: 29 August 2018

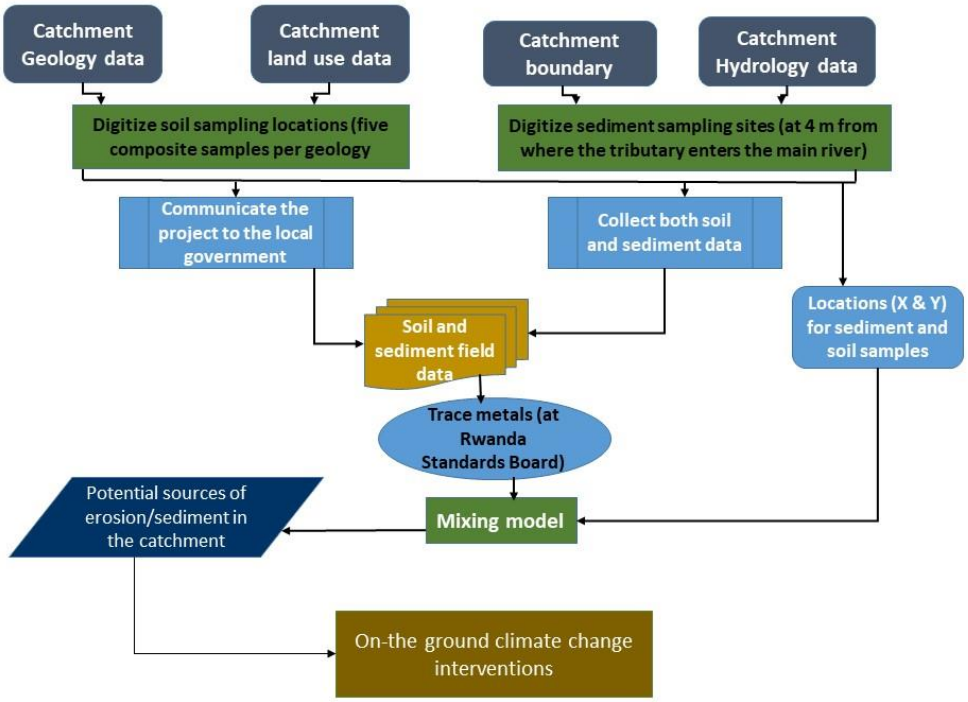
2.1 Welcome and introductions

Participants introduced themselves and per organization:

- Project partners from Burundi and Uganda
- Project's members of the steering committee
- Representatives from government: Rwanda Environment Management Authority (REMA), Rwanda Water and Forestry Authority (RWFA), Rwanda Standards Board (RSB), and Rwanda Development Board (RDB)
- District environment and mining officers
- Delegates from CSOs in Rwanda and the Democratic Republic of Congo (DRC)
- Members of two Site Support Groups (SSGs) engaged during the project activities on sediment fingerprinting

2.2 Progress on the Climate Resilient Altitudinal Gradients project, phase 2

This was presented by Providence Akayezu, the project manager based in Rwanda. The background, goals and project sites were highlighted. CRAG initiatives started in 2014, the first phase was completed in March 2017. The current CRAG project (CRAG II) is funded by the MacArthur Foundation, with additional support from the Nature Conservancy (TNC). The CRAG II starts in April 2017 and will be completed in December 2019. These activities include sediment fingerprinting, community engagement and empowerment, and influencing policy. In Rwanda, these are implemented by BirdLife, and in Burundi by the Association Burundaise pour la Protection de la Nature (ABN). Two catchments corresponding to the main rivers are targeted in Rwanda: Sebeya in the north-west and Ruhwa in the south-west. Similarly, two catchments in Burundi: Muhira and Ruhwa. Details on sediment fingerprinting: study design, data collection and preliminary results were presented.



Sediment fingerprinting study design, with results that feed into climate change interventions

For the implementation of the CRAG II project, all activities were first introduced to the relevant districts and local community groups were mobilised, two per catchment. Sampling of sediment was based on the drainage, local knowledge and catchment boundary, while soils were collected following the geological units, catchment boundary and land use types.

Collecting water at 4-5 m from the confluence of the main river and its tributary. The water is then filtered using a filtration apparatus, to finally retain sediments on a filter membrane

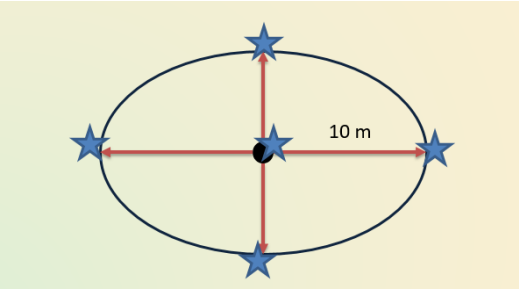
2.2.1 Trapping of sediments

- Use a water bottle to collect water at 4-5 m from the confluence of the main river and its tributary
- For big tributaries (e.g. Pfunda of Sebeya), also consider sampling water at the confluence with the stream affluent
- Measure 200 ml using a graduated cylinder and start the water filtration using an apparatus
- Keep manipulating, and wait until all the water passes through the filter membrane
- Sediments remain on the top of the filter membrane
- Carefully remove the filter membrane and deposit into a well labelled petri-dish
- The labels include the name of the catchment, tributary or stream, date of sample collection and district
- Store each petri-dish in a big sample container (preferably plastic)
- Use the water battery to clean the equipment after filtration
- Sediments were trapped three times at the same locations. This basically allows comparison of sediment load based on seasons (e.g. heavy rain vs slight rain or dry season).

Collecting soil samples at once, based on geological types and engaging communities as Site Support Groups (SSGs). The soil sample location was tracked using a GPS and coordinates were pre-calculated in the ArcMap software

2.2.2 Collection of soil samples

- Follow each GPS point calculated with ArcMap
- At the sample collection location, dig up to 20 cm and collect a small amount of soil in a radius of 10 meters as illustrated below
- No plastic material should be used for digging and collecting the sample. This is to avoid any risk of sample contamination and interference with metals to be traced from the sample
- For each geology, collect 5 samples, considering different land uses
- Soil samples were stored in a well labelled plastic bag. The label includes the catchment name, sample date, geology and sample number, district and sector

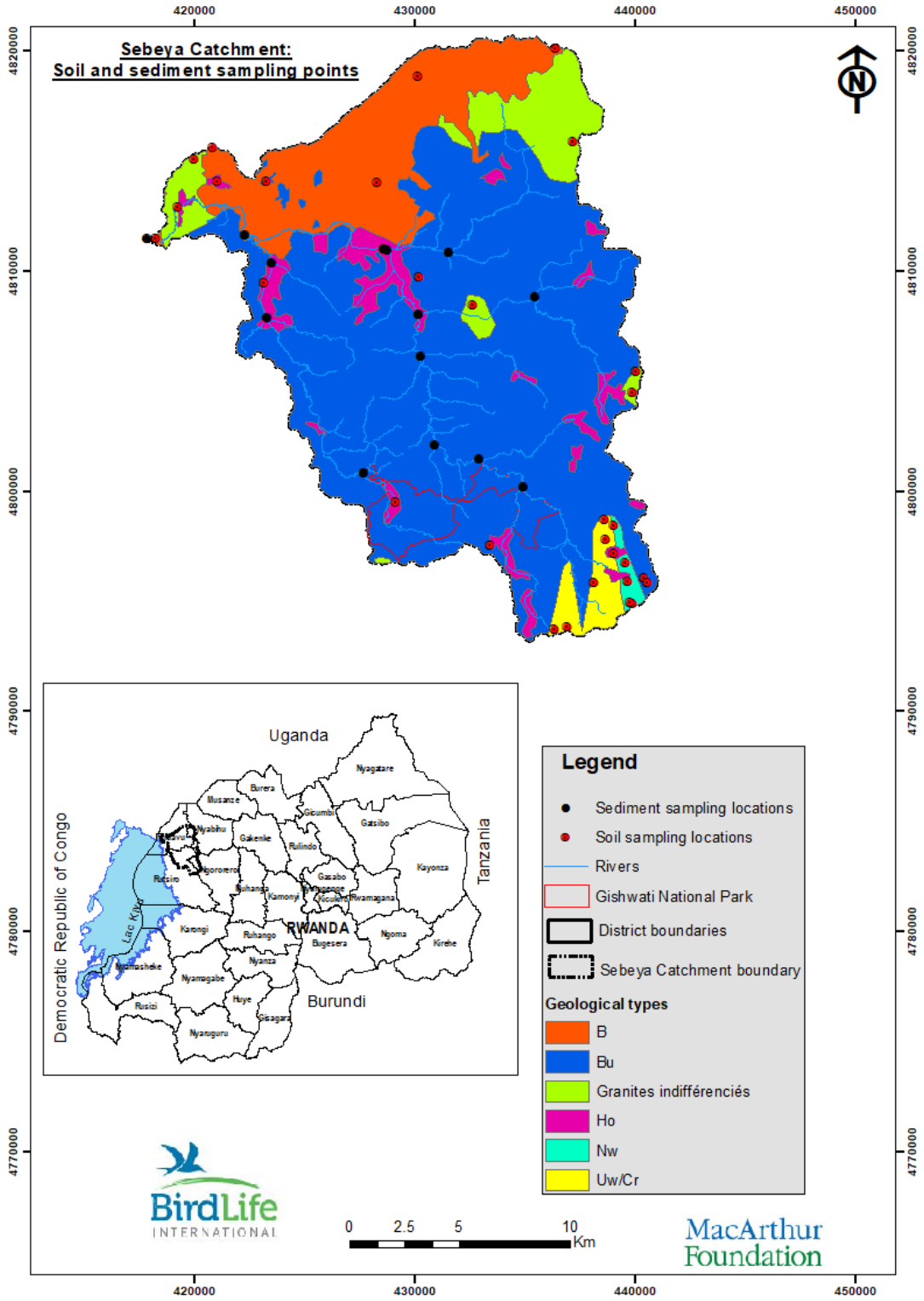


At each location, a composite soil sample was collected following this sketch

2.2.3 Mapping of locations where samples were collected

In total, 129 samples (75 soil and 54 sediment) were collected on the Rwanda side, and 66 samples from Burundi project sites.

The analysis to determine the chemical composition using the X-Ray Spectrometry was carried out at RSB. These laboratory results show the chemical composition of each targeted element (Annex 3) and they constitute inputs to the mixing model which is run using a programming language. Preliminary model outputs are available and include graphs showing the contribution to river sedimentation by geology type and sub-catchment. The modelling is still going on, and the prioritization map showing potential erosion and sedimentation hotspots will also be produced.



Locations where sediment and soil samples were collected in Sebeya Catchment, Rwanda

2.2.4 Next steps with the CRAG II project implementation

- Field work for ground truth: identify land uses corresponding to the geological classes contributing much to the river sedimentation
- Carry out climate change vulnerability assessment for local communities
- Select potential sites and actions for on-the ground climate change interventions

2.2.5 Concerns and recommendations for the successful project implementation

a. Scaling up the project activities and having a sustainable impact: communicate results from this project to different stakeholders, including local communities, mining companies, and government. More importantly, there is need to carry out a valuation of the ecosystem services provided by the river and how much they are impacted by the river sedimentation.
b. The Rwanda Mining Board (RMB) highlighted that there are some interventions to reduce the mining waste into the river. This started already in Ngororero District, where the mining companies and mining cooperatives have to contribute themselves to the implementation of these approaches, without requesting any budget from a third party (e.g. government or donor).
c. Need to know existing policies: for instance the mining standards developed by Rwanda Standards Board, and make sure the instructions in this document are respected. There are field mining officers in each district, who will follow up day to day if the environmental regulations are well respected while mining.
d. Engage the DRC partners, if we talk about the Kivu-Rusizi basins. This will be taken into account for the future project developments and fundraising.
e. Participants were keen to know the affluent and land uses contributing much to the river sedimentation, after the sediment fingerprinting results: there will be a field work for ground truth, to confirm the land uses types where much of the sediments come from in the catchments. Also, from the field observations both the non-sustainable agriculture and mining were found to be major sources of erosion and sedimentation into the rivers.

2.3 Mapping soil erosion in Rwanda and guidelines for erosion control towards disaster prevention

This presentation was given by Philippe Kwitonda, from RWFA. As a catchment officer for the Western Rwanda, including Sebeya and Ruhwa Catchments, he stressed on the linkages between soil erosion risk and river sedimentation. Mr Philippe also suggested that climate change interventions should be decided after a concise analysis of the community's needs and discussions with farmers and local government. Cases where local communities were not happy with some on-the ground interventions were shared, from DRC; where bamboo were planted by an NGO, but some days after these were uprooted by farmers.

2.3.1 Why erosion mapping?

A group of water management technicians constituting a task force was established, following frequent and destructive floods and landslides which occurred in Rwanda since the years 2000 but more severe in 2011. These researchers had to:

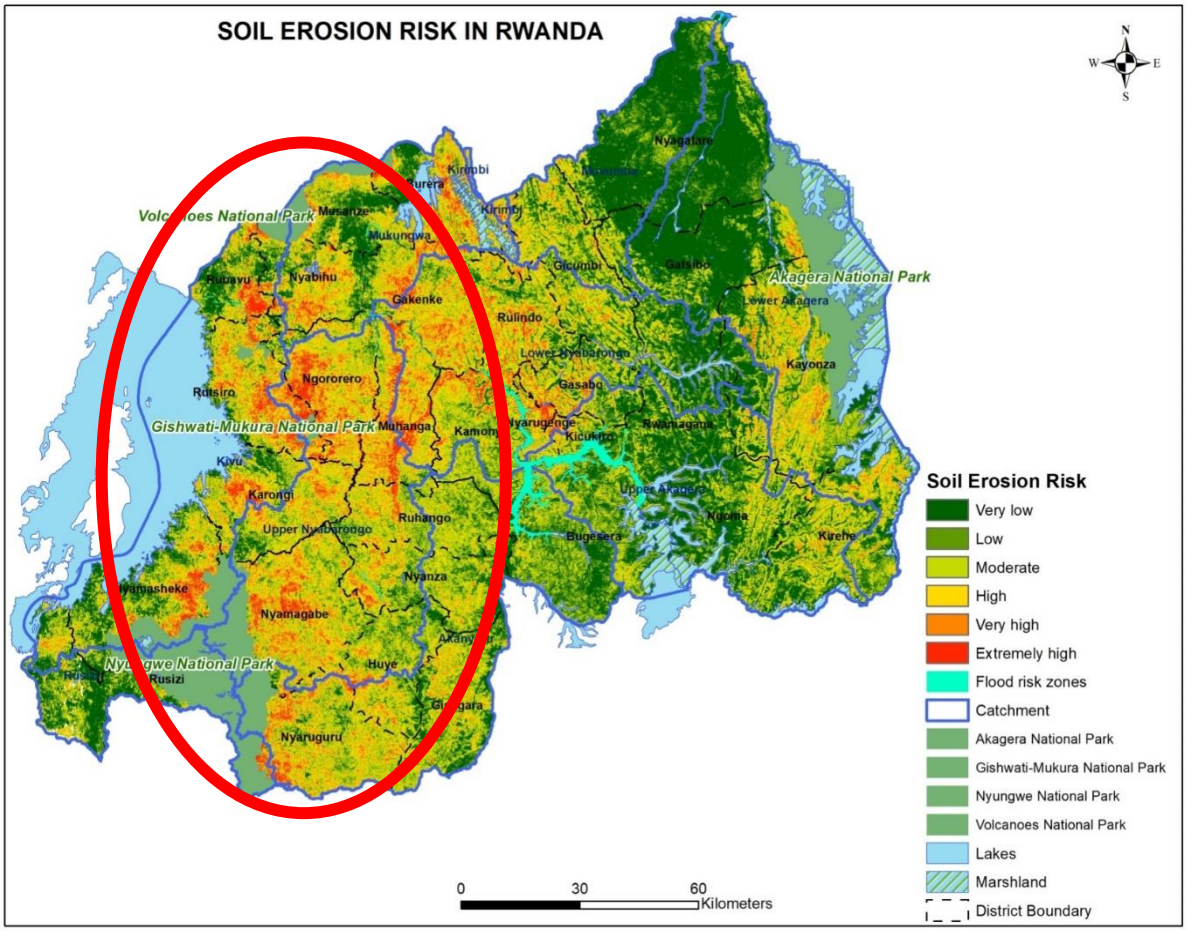
- Identify and map potential areas under risk of soil erosion at catchment level,

- Indicate and prioritize areas to be rehabilitated,
- Develop guidelines indicating the measures to be implemented to control soil erosion; and
- Provide cost estimates and implementation plan of the proposed activities to control soil erosion

2.3.2 Factors considered for mapping areas exposed to soil erosion

- Slope
- Land cover
- Rainfall
- Soil depth
- Parent material (Geology)

First, each factor was used to produce the erosion risk map for Rwanda. Second, all the factors were combined to map areas with extremely high, very high, high, moderate, low and very low soil erosion risk.



Map showing each zone of Rwanda and its exposure to erosion risk

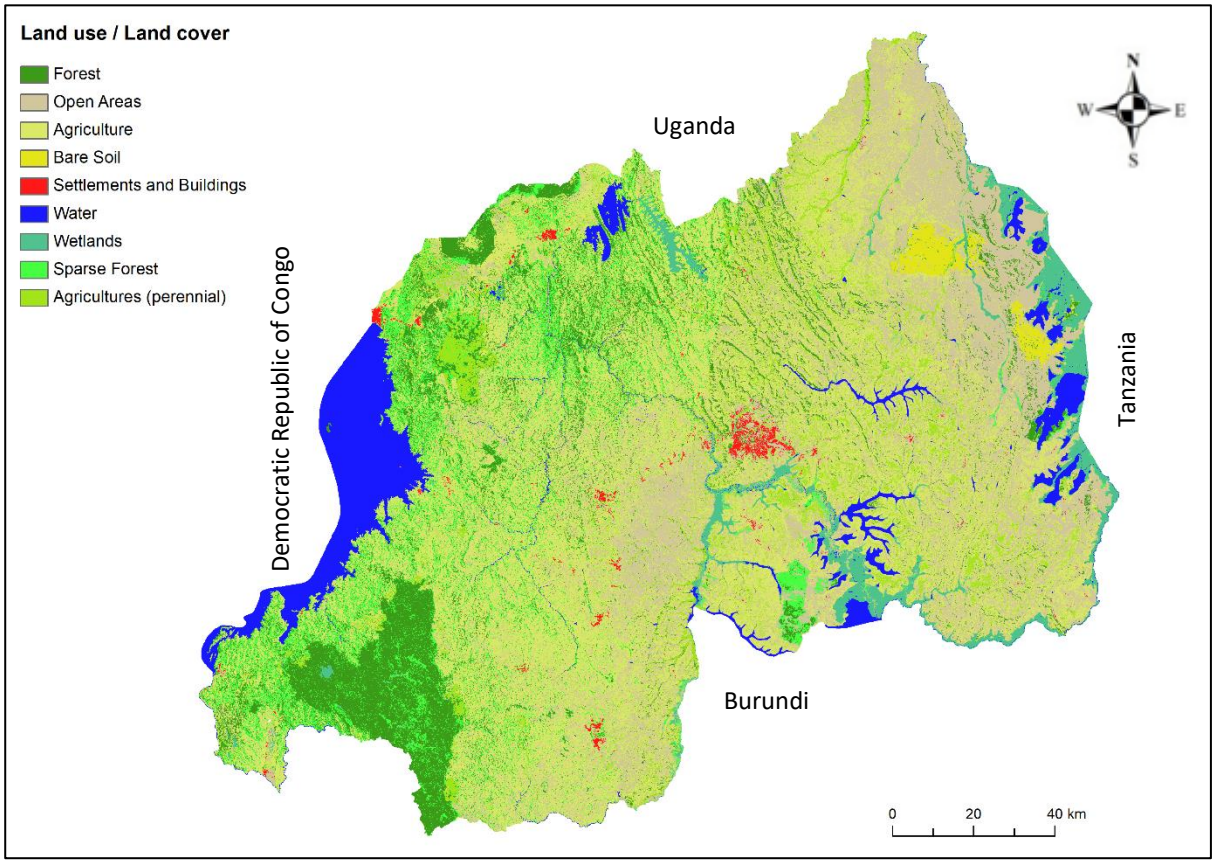
Looking at the western zone of Rwanda, including the Lake Kivu and Rusizi River Catchments; the area is covered by much sparse forest, characterised by high slope and elevation, experience heavy rainfall and consequently, exposed to high risk of erosion. The rate of erosion is not only explained by the topography and soil, but also probably population densities and land use practices on the steep slopes.

The team (task force) also developed the erosion control matrix which guides restoration activities. The matrix was constructed based on two factors: soil and soil depth.

Proposed erosion control interventions in the Kivu-Rusizi catchments were categorized into Class I, II, III, IV and V as described in the table 1 below.

Table 1: Erosion control matrix, created by only considering two factors used for the mapping of erosion risk

Soil depth→ Land slope↓	1: (> 0.5m)	2: (≤ 0.5 m)
1: (0-6%)	**Class I** Agroforestry + Contour ploughing + Alley cropping combined with grass strips	**Class VI** • Agroforestry + Contour ploughing + Alley cropping combined with grass strips • Forestation where soil depth is too limited and unsuitable for crops • Perennial crops, coffee, tea, banana, fruit trees
2: (6 - 16%)	**Class II** • Progressive terraces • Perennial crops, coffee, tea, banana, fruit trees	**Class VII** • Progressive terraces • Perennial crops, coffee, tea, banana, fruit trees • Forestation where soil depth is too limited and unsuitable for crops
3: (16 - 40%)	**Class III** • Bench terraces (or progressive terraces if parent material is not stable) reinforced by agroforestry hedges and grass strips • Perennial crops, coffee, tea, banana, fruit trees	**Class VIII** • Progressive terraces / Contour bunds (4-5 m spacing between terraces) reinforced by agroforestry hedges and grass strips • Forestation where soil depth is too limited and unsuitable for crops • Perennial crops, coffee, tea, banana, fruit trees
4. (40-60%)	**Class IV** • Narrow cut terraces (or progressive terraces if parent material is not stable) reinforced by agroforestry hedges and grass strips • Perennial crops • Forestation	**Class IX** Forestation
5. > 60%	**Class V** • Forestation • Perennial crops	**Class X** Natural vegetation



Land use land cover map for Rwanda. Much sparse forest cover occurs in the north-western Rwanda

2.3.3 Challenges with the soil erosion risk mapping and recommendations

- There are existing land rehabilitation interventions in the Western Rwanda. Yet the accurate data on areas covered are not available. For this, the districts have to regularly report to the Ministry of Environment (MoE) on interventions in their districts, together with a GIS shapefile of these areas. This also calls for capacity building on using GIS, reading and interpreting modelling and mapping results. This is the responsibility of the MoE.
- Once the maps are understood by local government, concerned staff at each district are responsible of downscaling erosion risk maps to sectors, cells, villages and land owners for implementation.

2.3.4 Raised concerns about the soil erosion risk mapping

- Participants asked if some important factors were not omitted with this modelling: e.g. human population growth. It was clarified that this study considered rural areas, given that the higher population densities are observed in cities. However, more modelling can be done and incorporate socio-economic, transboundary and cultural aspects.
- One more issue was about linking all proposed interventions with local community's behaviour, keep education and awareness to local communities, and build their capacity on environmental policies and how to adequately implement them.

DAY 2: 30 August 2018

This started with a recap facilitated by Providence Akayezu. She asked each participant to write two statements on a sticker note: one on what the participants understood from the previous day's sessions and another on what was not clear. From a mingling game on a circle, participants formed groups of two and exchanged memories from day 1.

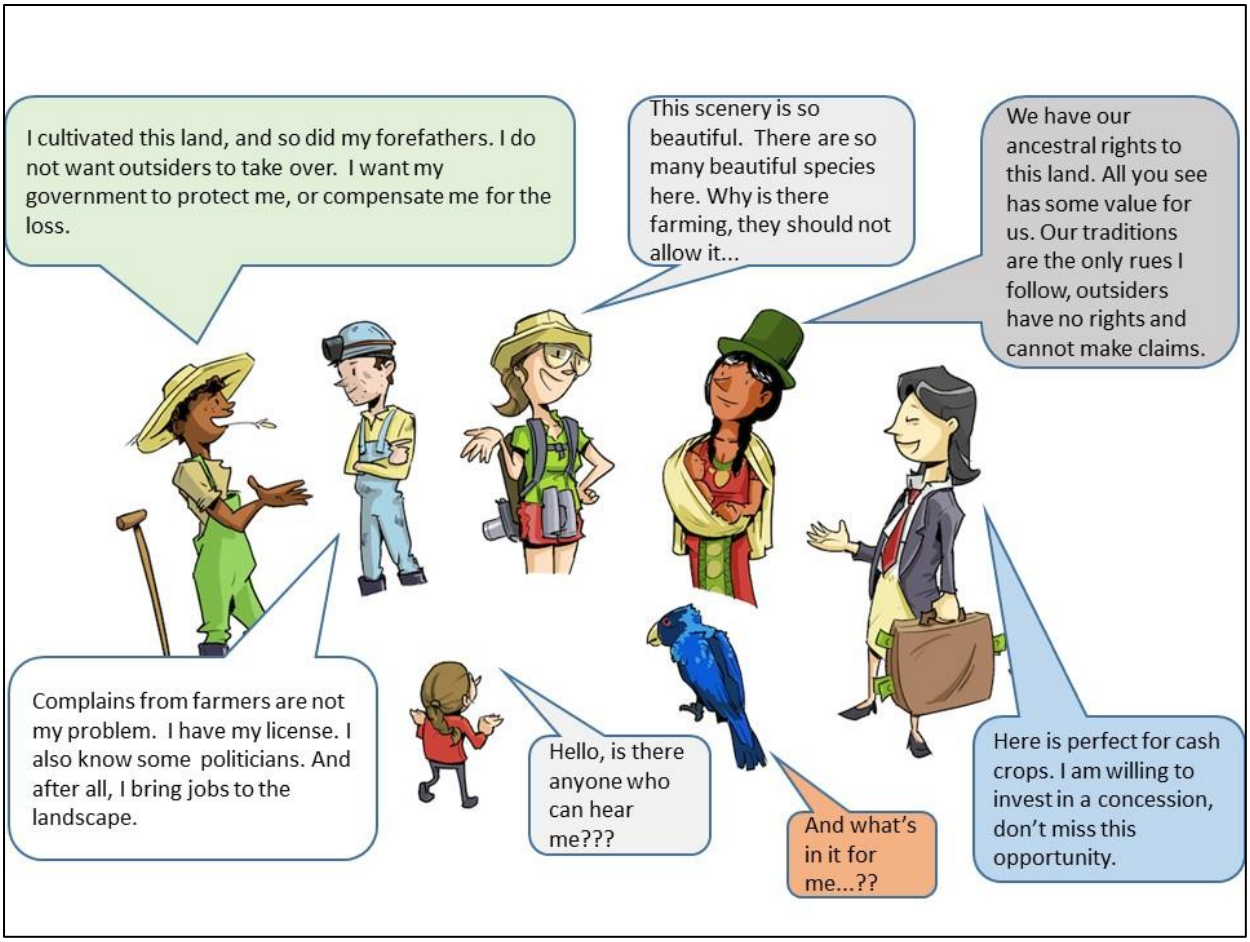
Recap by participants exchanging what they could retain from the previous day's sessions

The recapitulation was followed by more power point presentations and group discussions for the second day of the meeting (Annex 2).

2.4 Stakeholder analysis

This was also a presentation, but also practising on understanding stakeholders in the Sebeya landscapes, their interests and power. The presentation was delivered by Providence Akayezu, and participants contributed to the group exercise on power ranking, and mapping stakeholders of Sebeya. There was a plenary session to conclude on what are the main actors in Sebeya and their roles. Providence stressed on the importance of understanding stakeholders and heir level in a given system and conflicting resource (i.e. with different actors and users). Looking at the illustration below, you can imagine what will happen in case you do not consider any of these actors while making decisions. She also underlined guidelines for selecting stakeholders for any given case study:

- Are their purpose, focus, interest and mission particularly relevant to the management of the resource?
- Do they have a high level of power, authority and influence?
- Do they have a low level of power, authority and influence, and are therefore at risk of being marginalised?
- Do they have a large stake in the outcomes (e.g. are they the management agency or do their livelihoods depend on the resource?
- Is the scope of their involvement high (this could be a key area of work for them?)
- Do they have the capacity to contribute? (Can they participate in meetings with other stakeholders and effectively express their ideas? can they provide special skills or knowledge?)



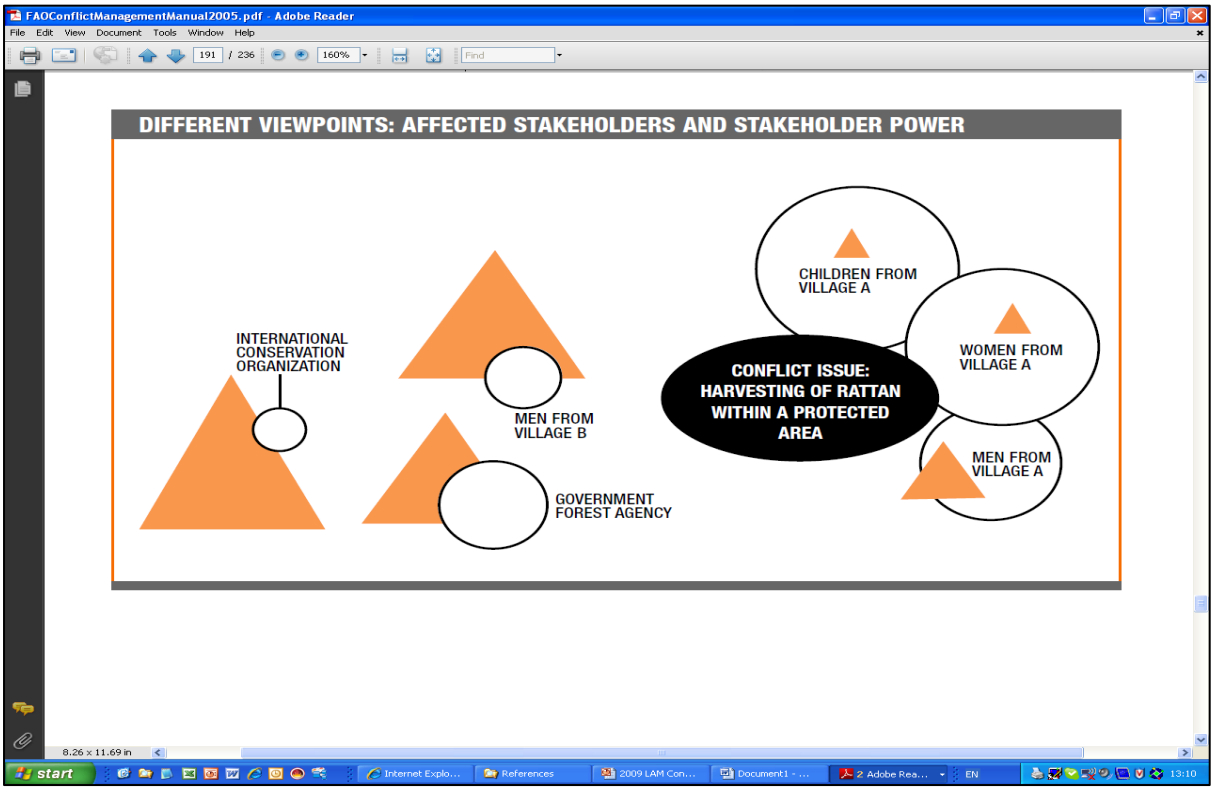
A range of actors with different interests and power on a given resource. Illustration from the course content by the Centre for Development Innovation (CDI), Wageningen University and Research

Participants also understood the concept of ranking based on power, as illustrated below.

Situational Rank	Social Rank	Personal Rank
1.Staff member NGO (project manager) 2. Director INGO 3. Director local NGO 4. Human rights activist 5. Minister of Economic Affairs 6. Director multinational 7. Researcher Knowledge Institute 8. Director Financial institute (bank) 9. Journalist from BBC 10. Community leader 11. Local authority 12. Miner 13. Donor (World Bank)	1. Man 2. Woman 3. Young (25) 4. Older (55) 5. PhD 6. Very attractive 7. Minority Group 8. Very influential family 9. Single 10. Twelve children 11. Disabled 12. Poor family 13. Rich family	1. High self-esteem 2. Charismatic 3. Insecure 4. Difficulties influencing others 5. Very effective in influencing others 6. Avoids conflict 7. Limited communication skills 8. High emotional intelligence 9. Very competitive 10.Very courageous 11.Very communicative 12. Very shy 13. Natural leader

Power ranking: situational, social and personal rank can influence the decision making and impacts on resource use

The power and interests can also be sketched using circles and triangles with different sizes as shown below.



Circles and triangle shapes can be drawn, or cut from papers using a scissor. The bigger the circle, the higher the interest on a given resource, while the smaller the triangle, the lower the power on a concerned resource (e.g. in this case Sebeya River system). Diagram adopted from CDI course contents

Participants joined two groups to list the stakeholders of Sebeya River system, their power and interest

Participants practised the mapping of power and interests for Sebeya River system, and the main conclusions were that the government has a high power and high interest in Sebeya, while conservation NGOs have less power and high interests. Local communities have also high interest, but less power on Sebeya. Given that there are examples where projects failed because of the little knowledge on stakeholders involved and their interests, it is crucial to consider both stakeholders with higher and low interest, high and low power; when decisions are being developed for protecting a natural resource. There was a plenary session and below is one of the diagrams sketched by participants. Stakeholders in Sebeya were not detailed enough, but mainly the government, mining company, conservation NGOs and local communities were identified.

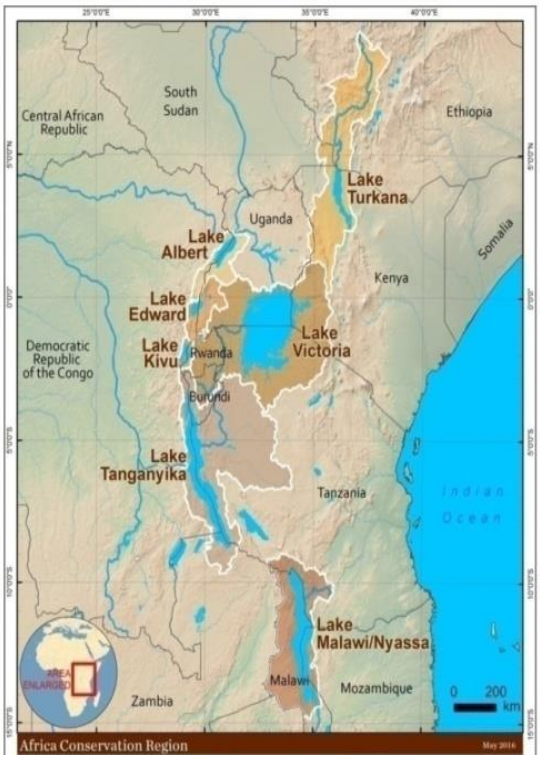
Power and interests analysis for Sebeya River system. Note that there are different views on power and interests, depending on the situation and policies. For instance a farmer can have high power on his land, but not on what to grow on that land, because there is land regularisation and consolidation in Rwanda today

2.5 Climate and land use change impacts: applicability of adaptation and mitigation strategies across the African Great Lakes and their basins

Dr Ogutu-Ohwayo from the National Fisheries Resources Institute (NaFIRRI) in Uganda, highlighted the values of African Great Lakes (AGL), the changes in climate and land use and impacts on fisheries. He also provided a case example on adaptation by lakeside communities in Uganda, challenges with these interventions and synergies of NaFIRRI's work with the CRAG II project.

2.5.1 African Great Lakes Region and ecosystem services

- Comprises of large lakes such as Lake Victoria, Lake Tanganyika, Lake Nyasa, Lake Malawi, Lake Turkana and the Upper Nile basin
- This region is home to approximately 2000 fish species which are endemic
- The lakes support human livelihoods for around 150 million inhabitants of the AGL region
- The AGL is one of the highly populated regions of the world (2-5% population growth rate)



African Great Lakes Region (AGLR)

2.5.2 Impacts of climate and land use change

NaFIRRI's study showed that on average, the air and lake surface water temperatures of the deep African Great Lakes and shallow lakes within the basins, have increased by 1.5°C since the 1980s. Also, the depth of some lakes (Edward, Kyoga, Albert and Victoria) has decreased from the years 1950 to 2010.

As a result, the lakes 'composition, productivity and fish yield have also changed and livelihoods are affected. For Lake Victoria and from years 1900-2000:

- Concentration of phosphorus doubled;
- Dissolved Silicon decreased by ten folds;
- Water transparency decreased due to the increase in Chlorophyll a, and fish catches decreased.

At the same time, shift in fish species composition and the proliferation of invasive weeds was observed on Lake Victoria and Kyoga. Additionally, a study on Lake Wamala (of Lake Victoria basin) showed impacts of climate change on community's livelihoods, as indicated by the percentage of respondents in the table 2 below:

Table 2: Relative proportions (%) of respondents reporting different impacts of climate change (floods and droughts) on livelihoods on Lake Wamala, Uganda

Impact	Floods	Droughts
Reduced fish catches	5.8	23.2
Reduced fish size	0.9	12.0
Damaged to boats	4.9	11.3
Loss of lives	11.2	13.4
Loss of gear	13.9	9.9
Damaged gear	13.0	9.9
Increased fish size	16.6	9.2
Increased fish catches	13.0	6.3
Damaged landing sites	11.7	4.9
Reduced fishing days	8.1	–
Reduced number of traders	0.5	–
Reduced effort	0.5	–

2.5.3 Adaptation strategies on one lake of the Lake Victoria basin

There are success stories on climate change adaptation by lakeside communities, as from a study by NaFIRRI on Lake Wamala – Uganda. The diversification to non-fishery activities, increased time on fishing ground, changed fishing ground and changed target species emerge as important factors to climate change adaptation for fishermen.

Climate change adaptation strategies for lakeside communities of Lake Wamala, Uganda

2.5.4 Application of CRAG and Lake Wamala experience across the AGL region

This will require implementation of existing policies or putting in place new policies covering:

- Controlling nutrient loading in aquatic systems;
- Managing wetlands, river banks and lake shores;
- Managing emerging fisheries, and invasive species;
- Managing land use, land use change, and agricultural practices;
- Promoting afforestation and reforestation;
- Identifying adaptation and mitigation measures in collaboration with local communities;
- Incorporating climate change in existing policies; and
- Communicating success stories to relevant audiences.

2.5.5 Raised concerns and recommendations on climate change and fisheries

There was an issue of governments which do not support the climate change interventions. It was suggested that in this case, CSOs have to raise awareness on their own and contribute to the climate change adaptations, and share positive outcomes of their work.

2.6 Towards local community resilience and livelihood improvement

Thierry Inzirayineza shared the experience of conservation interventions by the Forest of Hope Association (FHA), a local NGO founded in 2012 and engaged in the conservation of Gishwati National Park. He highlighted some ongoing activities, under the small grants by different donors including the Critical Ecosystem Partnership Fund (CEPF):

- Local community outreach programmes and conflict resolution;
- Community development and reducing the dependency on forest resources; and
- Research and forest protection.

These activities by FHA contribute to the community development, and hence resilience to climate change impacts and biodiversity conservation

This is also to stress that Gishwati forest recently gazetted as a protected area, has been cleared for agriculture and settlement during the period of political unrest which characterised East Africa from 1994-1998. The efforts for the forest recovery and protect the small remained forest patches are still going on, and there is hope to make Gishwati a potential touristic and research attraction as well. The whole remained forest fragment is found inside Sebeya Catchment area of Rustiro District. Any interventions to protect this forest will also contribute to the sustainable use of water resources it houses and the entire Sebeya River system. FHA is also in the process of developing guidelines for addressing mining in the Catchment of Sebeya, and for this it was suggested that FHA closely collaborates with the Rwanda Mining Board, and their mining field officers in districts.

3. FIELD VISIT ALONG SEBEYA RIVER

Attendees of this meeting also had an opportunity to observe the landscapes around Sebeya River, including Gishwati National Park, Sebeya outlet and Karambo affluent of Sebeya. At the end of this tour, each participant understood the severity of sedimentation on Sebeya River, as it affects the hydro-power production and some possible impacts on fishing, but also human health when people consume polluted water. Different users of the landscape could be recognized: tea companies, hydro-power production companies, mining investors, cooperatives, farmers, district and sector authorities among others.

Field visit at the Sebeya outlet. Some explanations on the river and lake interactions were provided

4. CLOSING OF THE MEETING

The closing was marked by acknowledgements of each meeting participant for having positively responded to the invitation and their active contribution during the two day exchange of ideas. The project team was advised on the next steps with the project implementation, especially climate change interventions. Recommendations converged to first identifying worst case scenarios and best case scenarios, and deeply understand why some cases were better and others worse. Taking into account local community's suggestions and analysing ongoing initiatives is also key. Given small budgets available for on-the ground interventions, it will be good to find one site and implement effective and productive activities. Keeping the Lakes Basin Authorities in the loop could be an added advantage.

Recommendations for the next phases of the project were provided by participants

Annexes

Annex 1: List of meeting participants

No	Participant's name	Gender	Organization	Position	Email address
1	Fulgence Mbumbatiwenayo	M	RMB-Rubavu District	Mineral Field Officer	mbumbafulu@gmail.com
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3	Théodore Nshimiyumuremyi	M	ARCOS Network	Intern-Forest Landscape Restoration	tnshimiyumuremyi@gmail.com
4	M. Goretti Manikuzwe	F	RWFA	Biodiversity Officer	manygogo@gmail.com
5	Laurence Mutuyimana	F	KOABUNYA/Twitezimbere Rutsiro	Secretary	
6	Philippe Kwitonda	M	RWFA/WRMD	Catchment Officer, Western Rwanda	kwitonda.philippe@gmail.com
7	Thierry Aimable Inzirayineza	M	FHA/Gishwati	Coordinator	fharwanda2012@gmail.com
8	Jean De Dieu Bucankura	M	ABN-Burundi	Projects Coordinator	bujededieu@gmail.com
9	Lydie Ishimwe	F	RMB-Rubavu District	Mineral Field Officer	ishlydie2020@gmail.com
10	Aloys Munyarukiko	M	Ngororero District	District Environment Officer	maloys2006@yahoo.fr
11	Rénatha Niyonsenga	F	Hope Mineral-Rubavu District	Cooperative member	reniyonsenga@gmail.com
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13	Joseph Bizimungu	M	ABN-Burundi	Executive Director	bizijos4@yahoo.fr
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26	Providence Akayezu	F	BirdLife International, Kigali Office	Project Manager, CRAGs Rwanda	providence.akayezu@birdlife.org

Annex 2: Agenda

Day 1: August 29, 2018

When	What	Who (Facilitator)
8.00-8.30	Arrival and registration	Project assistant: Thaulin Dushimiyimana
8.30-9.00	Opening and welcoming remarks	Mayor of Rubavu District: Gilbert H.
9.00-9.30	Participants' introductions	Project manager: Providence Akayezu
9.30-10.30	Presenting the CRAG project progress, results from sediment fingerprinting – Sebeya Catchment/Rwanda	Project manager: Providence Akayezu (PA)
10.30-11.00	Coffee/Tea break + networking	All participants
11.00-11.15	Questions and discussion on the sediment fingerprinting in Sebeya Catchment	Project Manager: PA
11.15-11.45	Mapping soil erosion risk in Rwanda towards Disasters prevention	Rwanda Water and Forestry Authority: Philippe Kwitonda
11.45-12.00	Questions and discussion on mapping soil erosion risk in Rwanda	Rwanda Water and Forestry Authority: Philippe Kwitonda
12.00-12.30	Plans for the sustainable conservation of Kivu and Tanganyika Lakes resources	ABAKIR: Jean-Paul Mwamba, Jacqueline Nyirakamana
12.30-13.45	Lunch break + networking	All participants
14.00-17.00	Field visit along Sebeya River: Karambo, Nyanzo, Pfunda, outlet	Selected participants (need to register the same day in the morning)

Day 2: August 30, 2018

When	What	Who (Facilitator)
8.30-8.45	Recap, registration continues	Project manager/BirdLife: PA, Thaulin D.
8.45-9.30	Stakeholder and institutional analysis	Project manager, Rwanda: PA
9.30-10.00	Towards local community resilience and livelihood improvement	Forest of Hope Association: Thierry Inzirayineza
10.00-10.45	Building Resilience and Adaptation to Impacts of Climate Change: Application of lessons from Lake Wamala – Uganda	National Fisheries Resource Research Institute (NaFIRRI): Ogutu-Ohwayo Richard
10.45-11.15	Coffee/Tea break + networking	All participants
11.15-12.15	Brainstorming and mapping of the potential climate change interventions, addressing river sedimentation	ABN project coordinator: Jean De Dieu Bucankura ABN Director: Joseph Bizimungu
12.15-12.40	Compiling outcomes from the mapping of interventions (plenary session)	Project manager: PA
12.40-14.00	Lunch + networking	All participants
14.00-14.15	Final thoughts	Project manager - Rwanda: PA
14.15-14.30	Closing remarks	Director of land, environment, water and forest at the Rwanda Ministry of Land and Forestry: Emmanuel Uwizeye
15.00	Depart from Rubavu to Kigali (bus provided)	All participants from Kigali

Annex 3: Sample test results from the Rwanda Standards Board and 42 elements analysed for each sample submitted

REPORT N°1420/MTL/17

1.0 Details of the Sample

Name of Customer : BIRDLIFE INTERNATIONAL
Address : Po. Box 2527 Kigali, Tel: 0784983854
RSB Sample N° : RSB 2768/11/17
Sample Description : soil sample Ho (1), **collected on 25/10/2017** (Sebeya Catchment, Nyabirasi, Rwanda), **LULC: Gishwati forest**
Date Submitted : 06/11/2017, **X: 429148, Y: 4799476**

2.0 Analysis of the Sample

Condition of the sample : Good
Date Analysis Started : 15/11/2017
Date Analysis completed : 17/11/2017
Name of Laboratory : Non-Destructive Mechanical Tests Laboratory
Environmental Conditions : Suitable

3.0 Standard(s) used : Not stated

4.0 Lab. Results

5.0 Parameters tested	Test results	Test method
Sulfur content (S), %	0.071	NQTLD/MTL/NDT/SOP-1
Potassium content (K), %	0.365	NQTLD/MTL/NDT/SOP-1
Calcium content (Ca), %	0.186	NQTLD/MTL/NDT/SOP-1
Scandium content (Sc), %	0.002	NQTLD/MTL/NDT/SOP-1
Titanium content (Ti), %	1.537	NQTLD/MTL/NDT/SOP-1
Vanadium content (V), %	0.035	NQTLD/MTL/NDT/SOP-1
Chromium content (Cr), %	0.011	NQTLD/MTL/NDT/SOP-1
Manganese content (Mn), %	0.025	NQTLD/MTL/NDT/SOP-1
Iron content (Fe), %	7.833	NQTLD/MTL/NDT/SOP-1
Cobalt content (Co), %	0.016	NQTLD/MTL/NDT/SOP-1
Nickel content (Ni), %	0.006	NQTLD/MTL/NDT/SOP-1
Copper content (Cu), %	0.003	NQTLD/MTL/NDT/SOP-1
Zinc content (Zn),%	0.006	NQTLD/MTL/NDT/SOP-1
Arsenic content (As), %	0.001	NQTLD/MTL/NDT/SOP-1
Selenium content (Se),ppm	<LOD	NQTLD/MTL/NDT/SOP-1
Rubidium content (Rb), %	0.002	NQTLD/MTL/NDT/SOP-1
Strontium content (Sr), %	0.003	NQTLD/MTL/NDT/SOP-1
Zircon		
Molybd		
Palladi		

BirdLife_RSB: Sediment fingerprinting project

Chemical elements to be tested from sediment and soil samples

N°	Element type	N°	Element type
1	Na	29	Ru
2	Mg	30	Zr
3	K	31	Nb
4	Ca	32	Mo
5	Sc	33	Hf
6	Ti	34	Ta
7	V	35	W
8	Cr	36	Re
10	Mn	37	Rb
11	Fe	38	Sr
12	Co	39	Cs
13	Ni	40	Ba
14	Cu	41	Th
15	Zn	42	U
16	Al		
17	Si		
18	As		
19	Se		
20	Sb		
21	Te		
22	Pb		
23	Bi		
24	Pd		
25	Ag		
26	Cd		
27	Au		
28	Hg		