

Report on the
***Enhancing Climate Change Resilience in Great
Lakes Region Watersheds: the Lake Kivu
Catchment and Rusizi River CRAG***

Regional Workshop

**held on 16-18 September 2014
at Belvedere Hotel, Gisenyi - Rwanda**

By: BirdLife International
www.birdlife.org



MacArthur Foundation



Background

From the 16th to the 18th of September 2014, as part of the MacArthur Foundation funded *Enhancing Climate Change Resilience in Great Lakes Region Watersheds: the Lake Kivu Catchment and Rusizi River CRAG project*¹, a regional workshop was held at Belvedere Hotel in Gisenyi – Rwanda.

The goal of the project is to help to understand, and respond to, increased environmental pressures from climate change, and to create and expand incentives to conserve biodiversity and ecosystem services in the South Kivu and Rusizi River catchments located in Burundi, Democratic Republic of Congo and Rwanda.

The project activities are structured under six Objectives:

- **Objective 1:** Participatory Development of a CRAG Intervention Plan for South Kivu and the Rusizi River Catchment.
- **Objective 2:** Involving local partners to build awareness and support for the plan.
- **Objective 3:** Developing local management networks and implementing the plan.
- **Objective 4:** Monitoring to track climatic and developmental impacts on the ecological health of the watersheds.
- **Objective 5:** Initiating sustainable financing strategies, including Payments for Ecosystem Services (PES), to protect the ecological functions of the watersheds.
- **Objective 6:** Sustaining and scaling-up policy engagement to mainstream climate resilient actions.

The project is implemented by a consortium of BirdLife International (lead organization), the BirdLife Partners Association Burundaise pour la protection de la Nature (ABN) in Burundi and Association pour la Conservation de la Nature au Rwanda (ACNR) in Rwanda, Horizon Nature, an NGO working in Eastern DRC, and the Wildlife Conservation Society (WCS - Rwanda).

The project is collaborating with Dr. Anton Seimon, Appalachian State University – USA, and team who are providing the results from the application of their Community Earth System Model (CESM), funded separately by MacArthur. CESM is providing projections on, among others, precipitation, hydrology, temperature, and changes in extremes of these variables, on an unprecedented detailed scale for the Lake Kivu and Lake Tanganyika landscape, which will be used to contribute to the identification of most sensitive sites.

The regional workshop followed the three national workshops which were held in the last week of August 2014 in the project countries Burundi, DRC, and Rwanda.

The objectives of the regional workshop were:

- To introduce the project, mobilize key stakeholders at national level and regional level,
- To discuss and identify priority sites within the Kivu – Rusizi CRAG by combining historical and current data on land use, topography, rainfall, hydrology, demography, urban growth and resource demands, development initiatives, and threats to biodiversity and ecosystem services with future climate change projections.
- To start the participatory development of an integrated CRAG Intervention Plan which will guide subsequent actions that will increase climate resilience for livelihoods, biodiversity and ecosystem services within the Rusizi and South Lake Kivu catchments.

¹ Details of the project can be found on: <http://www.birdlife.org/sites/default/files/attachments/CRAG-project%20%283%29.pdf>

Participants

The meeting was attended by 39 participants, including the project partners (BirdLife, ABN, ACNR, HN and WCS, Anton Seimon and team), the Lake Kivu and Rusizi River Basin Authority (ABAKIR), and various representatives from government, NGOs, and the private sector from Burundi, DRC, Rwanda and Tanzania (see Annex 1).

Throughout the three days of the workshop, simultaneous translation was provided to serve both the Anglophone and francophone participants.

Proceedings

Day 1: Tuesday the 16th of September 2014

Welcome, opening and self-introduction

The meeting (Annex 2: Agenda) started at 09:20 with a welcome to all participants by Serge Nsengimana, Director of ACNR. Ambassador Eugene Munyakyanza, Co-Director of the Lake Kivu and Rusizi River Basin Authority (ABAKIR), formally opened the meeting, which was followed by self-introductions of the participants.

Dr. Julius Arinaitwe, Director BirdLife International Africa Secretariat, welcomed all on behalf of BirdLife International and stress the vital need for African countries to merge economic development other important aspects such as democracy, gender equality, culture, social challenges, security, *and* of course the sustainable environmental and natural resource management, particularly in the face of climate change.

Ademola Ajagbe, Team Leader Conservation Action and Policy BirdLife International Africa Secretariat, then invited the participants to write down their expectations of the workshop. The general feedback can be summarized as: to understand the CRAGs approach; how it differs from other approaches; how the CRAGs approach will address climate change: i.e. which threats, which sites, which actions, and through which actors, and to establish or expand relations with the different stakeholders present.

Ms. Rusine Nyirasafari, Vice-Mayor of the District of Rubavu, formally opened the workshop by welcoming everybody to the District of Rubavu and stressing the need to form partnerships to address climate change challenges in the District of Rubavu and beyond.

CRAGs concept and project background

The first presentation² of Day 1 was on CRAGs concept and project background. Dr. Ian Gordon, Technical Advisor of BirdLife International – Africa Secretariat, gave a presentation on the conceptual background of the CRAGs approach. This presentation was followed by a presentation by Albert Schenk, Coordinator Conservation Action BirdLife International – Africa Secretariat and project manager, on the goal, objectives, project partners, duration etc of the Lake Kivu – Rusizi River CRAG project (see also footnote 1 on page 2).

After these and all other presentations during the workshop, time was allocated for questions and comments from, and extensive discussing between the workshop participants.

Basin Setting: on institutional context, priorities, engagement and plans for the Lake Kivu Basin

In this session, Amb. Eugene Munyakyanza, Co-Director of ABAKIR, presented on ABAKIR, one of the app. 80 Lake Basin Authorities in Africa, its current status (being a transitional structure though it is anticipated that the International Convention which will establish ABAKIR as a fully established entity will be signed halfway 2015), ABAKIR's mandate, challenges and opportunities and their priorities.

² All presentations have been shared with the participants after the workshop, while others can request the presentations from Albert Schenk by email albert.schenk@birdlife.org.

Regional Updates

The presentation on ABAKIR was followed by presentations from Ademola Ajagbe from BirdLife International, Michel Masozera, Country Director WCS – Rwanda, and Claudien Nsabagasani, Landscape Conservation Programme Manager from the Albertine Rift Conservation Society (ARCOS) on the wider engagement of their organizations in Africa, the specific priorities, programmes and projects in the region.

The Nature Conservancy (TNC) had been invited but was unable to attend but their presentation was shared by email with all workshop participants.

One noticeable common theme in the presentations of the above four organizations was the emphasis on the need to work actively with and through local communities to achieve sustainable conservation and developments impacts (the so called grass-roots approach).

Climate and modeling

Dr. Anton Seimon, Appalachian State University – USA, gave a presentation on past and present climates globally and specifically on his area of focus: the Lake Tanganyika and Lake Kivu region, while his collaborator Dr. Simon Nampindo, University of Massachusetts – USA, explained the concepts and processes of modeling after which he elaborated on the technicalities of the Community Earth System Model (CESM), a model that is more advanced and much more detailed than other (existing) models.

Close of Day 1

The day was wrapped up by Albert Schenk, summarizing the key points of Day 1.

Day 2: Wednesday the 17th of September 2014 and Day 3: Thursday the 18th of September 2014

Recap

Day 2 started with a recap of the proceedings of Day 1 by Ademola Ajagbe.

Future Climates

Anton Seimon presented on future climate projections (e.g. precipitation, temperature) and resulting potential impacts (e.g. run-off, carbon storage, Lakes surface levels) in the Lake Tanganyika and Lake Kivu region, and mentioned that in the coming year his team will work with partners to tailor outputs to serve project needs.

Catchment health and dams/irrigation

The next presentation was by Kasongo Lisasi, Chef de Centrale RUZIZI 2, Société Internationale d'Electricité des Pays des Grands Lacs (SINELAC) on possible and anticipated threats and effects from unplanned, uncontrolled and unsustainable land use on the capacity of the two existing hydropower plants (while two more are planned to be constructed in the coming years) with particular problems arising from sedimentation (resulting for example in a 60% decrease in volume of the Rusizi II hydropower plant reservoir) and floating rubbish.

Group Work

The rest of Day 2 (with a summary of the key points at the end of Day 2 by Simon Nampindo), plus the morning of Day 3 were reserved for group work.

Three working groups were formed by countries: Burundi, DRC, and Rwanda who were joined by the participants from Tanzania. The three groups were chaired by Laurent Ntahuga, Board member ABN, Chantal Shalukoma, Directeur Horizon Nature, and Michael Masozera (WCS), respectively.

Four group sessions were held on:

1. identification of threats to biodiversity (using the IUCN - CMP Unified Classification of Direct Threats³) at (app.) 10 sites in their country (e.g. two Protected Area sites, two urban sites, two riparian sites, two sites in the agricultural landscape, and two lake sites) which the groups deem to be priority sites in the context of the CRAG project;

³ See: http://www.iucnredlist.org/documents/June_2012_Guidance_Threats_Classification_Scheme.pdf

2. identification of threats to ecosystem services at the identified sites;
3. prioritization of the identified ten sites based on likely sensitivity to climate change;
4. and, proposed actions to address the identified threats at the sites.

Re session 3: this session was led by the CESM team. Specifically, the three teams were each tasked with assessing the consequences of environmental changes in several key variables (annual precipitation, mean temperature, surface runoff, evapotranspiration, net primary production and net ecosystem carbon) mapped spatially and also as time series over the next several decades as predicted by the CESM under one single climate change scenario, the high-end Recommended Concentration Pathway (RCP) 8.5. The teams were encouraged to draw inferences from the model, keeping in mind that the objective of this specific exercise was more about the process of incorporating such information into the planning process rather than the specific predictions themselves. The sub-regional differences in environmental outcomes, apparent in the high-spatial resolution modeling outputs, were central to all the discussions, and were effective in demonstrating both positive and negative outcomes are likely to be determined by relatively local geographic characteristics and the context considered.

After completion of each group work session, each group reported back to the other participants on their findings, although it became quickly clear that more time would have been needed to facilitate comprehensive group discussions and to work out all the requested details.

An extensive overview of the main outcomes of the group work is presented in Table 2 below⁴, while Table 1 provides an overview of how many times threats have been recorded per IUCN - CMP threat category per country. Annex 3 shows a map of the sensitive sites identified by the groups.

This information will be augmented with further mapping and modeling work with the aim to produce a map or set of maps of the Kivu-Rusizi CRAG which will show the most sensitive sites based on threats to biodiversity and ecosystem services, climate projections, geography, land use, demography and others.

Table 1: Summary of threats per category per country

IUCN – CMP Threat Category	Burundi	DR Congo	Rwanda	Totals
1. Residential and Commercial Development	8	8	1	17
2. Agriculture & Aquaculture	9	7	5	21
3. Energy production & Mining	10	6	5	21
4. Transportations & service corridors	4	7	2	13
5. Biological resource use	9	6	5	20
6. Human intrusions & disturbance	3	8	3	14
7. Natural system modification:	9	8	5	22
8. Invasive & other problematic species genes & Disease	6	2	4	12
9. Pollution	9	8	6	23
10. Geological Events	1	8	4	13
11. Climate change & severe weather	8	6	6	20
12. Other	2	0	1	3

⁴ The work documents (outputs) from the group work are available upon request.

Table 2: Overview of group work outputs

No.	Site	Threats to biodiversity and ecosystem services	Proposed actions
Burundi Group⁵			
1	Rusizi National Park Protected Area	<p>1. Residential and Commercial Development: Bujumbura, Gihanga Gatumba: Empietement des limites</p> <p>2. Agriculture & Aquaculture: Riz, canne à sucre, coton et palmier à huile</p> <p>3. Energy production & Mining: Bois de chauffe, les braches des palmiers ventreux</p> <p>4. Transportations & service corridors: Sentiers illégaux, route pour l'exploitation de la Canne à Sucre (TBC), et route menant à la station de recherche Zoologique de l'ISABU</p> <p>5. Biological resource use: Recherche du poisson, terre salé, artisanat et construction (tronc de faux palmier)</p> <p>6. Human intrusions & disturbance: Les collecteurs de bois de chauffe, qui vont travailler dans les champs de Canne à Sucre, traverser des frontières par irréguliers, fraudeurs</p> <p>7. Natural system modification: Cfr Précédent, réduction de l'aire protégé, l'extraction du sable, élevage, cimetière</p> <p>8. Invasive & other problematic species genes & Diseases: <i>Mimosa pigra</i>, <i>Mimosa diplotricha</i>, <i>Lantana camara</i></p> <p>9. Pollution: Déchet ménager de Gatumba, Application des pesticides pour le riz, Construction de l'usine pour la canne à sucre</p> <p>11. Climate change & severe weather: Sécheresse,</p> <p>12. Other: Braconnage crocodile et hippo, crue des rivière</p> <p>Ecosystem services: Habitat de la faune et flore, alimentation de l'homme et l'anima (poisson, fruit du palmier venteux, tourisme, bois de chauffe et de construction, sol salé, régulation des extrêmes climatologiques, purification de l'eau dans les papyrus, séquestration du carbone ;</p> <p>Threatened by: agriculture extensive de culture vivrière, de la canne, palmier , extraction du sable, élevage des bovins, Cimetière, braconnage, feux de brousse, coupe du phragmites, pollution, sédimentation, polinisateurs</p>	Not further worked out by the group due to lack of time
2	Kibira National Park Protected Area	<p>1. Residential and Commercial Development: REGIDESO</p> <p>2. Agriculture & Aquaculture: ISABU, DPAE (agriculture agencies)</p> <p>3. Energy production & Mining: Bois de chauffe, barrage hydro électrique, orpillage</p> <p>4. Transportations & service corridors: Pistes Ruhondo, (Muruta-Musigati), Pistes d'accès au site semencier de la DPAE et ISABU</p> <p>5. Biological resource use: Collecte des produits forestiers non ligneux, Bambous et bois de chauffe</p> <p>6. Human intrusions & disturbance: Collecte des produits forestiers non ligneux , collecteurs de miel, Barrage Mpanda</p> <p>7. Natural system modification: Activités agricole de l'ISABU, DPAES, orpillage feux de Brousse</p> <p>8. Invasive & other problematic species genes & Diseases: <i>Cercosthacus scandens</i></p> <p>9. Pollution: Produits phytosanitaire (engrais&pesticides) orpillage</p> <p>11. Climate change & severe weather: Feux de brousse suite à sécheresse</p> <p>12. Other: Braconage des potamovhère, des singes</p> <p>Ecosystem services: Purification des eaux, réduction de ruissellement, séquestration du carbone, habitat de la biodiversité, services récréation el</p> <p>Threatened by: Déforestation, Agriculture, coupe de bambous et orpillage</p>	<p>1. Agroforestry using two species – fast growing (e.g. <i>Maesopsis eminii</i>, <i>Griveliria</i>) and indigenous species (e.g. <i>Markhemia lutea</i>)</p> <p>2. Bamboo planting</p> <p>3. Bee keeping</p> <p>4. Fire management</p> <p>5. Strengthen law enforcement through training, and equipments (uniforms, GPS units, Camera for evidence gathering)</p> <p>6. Promotion of energy efficient technologies e.g. improved cooking stoves</p>
3	City of Rugombo	<p>1. Residential and Commercial Development: Déchet ménages</p> <p>2. Agriculture & Aquaculture: Pesticides</p>	Not further worked out by the group due to lack of time

⁵ <https://translate.google.com/> or other software can be used for translation, if required.

	<u>Urban site</u>	3. Energy production & Mining: Collecte du bois de Chauffe 5. Biological resource use: Bois de Chauffe	
4	City of Cibitoke <u>Urban site</u>	1. Residential and Commercial Development: BUCECO 3. Energy production & Mining: Bois de chauffe 4. Transportations & service corridors: Route Bujumbura Ruhwa 7. Natural system modification: Extension de la ville 9. Pollution: Déchets solides	Not further worked out by the group due to lack of time
5	City of Kagunuzi <u>Urban site</u>	1. Residential and Commercial Development: L'agglomération s'étant de manière non planifié 2. Agriculture & Aquaculture: Séparation non claire de la zone agricole et la zone urbaine 3. Energy production & Mining: Orpaillage en amont qui cause la pollution tellurique des aux du cours d'eaux. 4. Transportations & service corridors: Pollution provenant des stations de pétrole : Vidange et graissage fait de manière anti environnemental. 7. Natural system modification: Expansion de la zone sur des parties de la savane de l'imbo. 8. Invasive & other problematic species genes & Diseases: <i>Lantana camara</i> , <i>Thymphonia sp</i> , <i>mimosa sp</i> 9. Pollution: Déchets ménages, dans les quartiers, et ceux rejetés dans la Kagunuzi 10. Geological Events: Ville situé au fond du Rift albertin avec risque de tremblement de terre régulière . 11. Climate change & severe weather: Inondation de la Kagunuzi pouvant affecter les cultures des habitats de la cité. Ecosystem services: Séquestration de quelques arbres urbains Threatened by: Coupes des arbres de l'agglomération par des villageois inconscient de la valeur de ces arbres pour eux et l'environnement.	1. Improve water storage/ water harvesting 2. Protection of river banks through planting of appropriate plant species 3. Protection of forest galleries 4. Solid waste management 5. Promotion of energy efficient technologies e.g. improved cooking stoves 6. Environmental education and awareness
6	Nyamagana <u>Riparian site</u>	1. Residential and Commercial Development: Ville de Mabayi, Ruseseka, Nyakibanda, Buhoro, déchets ménager et Industriel 2. Agriculture & Aquaculture: Sédimentation de la rivière, cultures sur les berges du haricot, manioc, patates douce 3. Energy production & Mining: Orpaillage suivi de pollution des eaux des cours d'eau 5. Biological resource use: Pêche des poissons chats (clarias sp) alors que le poison a fortement diminué 7. Natural system modification: Détournement du cours d'eau naturel pour l'exploitation de l'or dans le lit du cours d'eau 8. Invasive & other problematic species genes & Diseases: <i>Lantana camara</i> , <i>Thyphonia sp</i> 9. Pollution: Pollution tellurique pour l'agriculture et l'orpaillage 11. Climate change & severe weather: Crues au moment des précipitations excessive surtout (Oct-Décembre Fevr-Avril) Ecosystem services: Eaux pour divers usages, pêche de clarias, moellon, gravier sable, irrigation des champs, séquestration du carbone Threatened by: Tellurique et sédimentation	Not further worked out by the group due to lack of time
7	Mpanda <u>Riparian site</u>	1. Residential and Commercial Development: Centre Mpanda, Village de Buringa 2. Agriculture & Aquaculture: Culture de riz, pesticides du riz, vagabondage du bétail 3. Energy production & Mining: Barrage 5. Biological resource use: Pêche 7. Natural system modification: Site d'extraction de l'argile, construction du barrage, conduite forcée 8. Invasive & other problematic species genes & Diseases: <i>Lantana</i> 9. Pollution: Tellurique, engrais et pesticide 11. Climate change & severe weather: Sécheresse et les inondations	1. Planting of appropriate plant species 2. Environmental education and awareness to reduce deforestation 3. Promotion of energy efficient technologies e.g. improved cooking stoves

		Ecosystem services: Eaux, extraction du moellon, pêche et hydro électricité Threatened by: Agriculture, pesticide et engrais chimique, surexploitation	
8	<u>Kaburantwa Riparian site</u>	1. Residential and Commercial Development: REGIDESO 2. Agriculture & Aquaculture: Cultures vivrières (haricot, manioc) provoquent la sédimentation 3. Energy production & Mining : Orpaillage, construction d'un barrage hydroélectrique 5. Biological resource use: Pêche 6. Human intrusions & disturbance: Orpaillage 7. Natural system modification: Présence d'un barrage hydroélectrique 8. Invasive & other problematic species genes & Diseases: <i>Lantana camara</i> 9. Pollution: Rejets des produits (pesticides, engrais chimiques), sédimentation 11. Climate change & severe weather: Crues dues aux fortes précipitations Ecosysteme services: Irrigation des services, pêches de poisson, habitat, séquestration du CO2, matériaux de construction (sable, moellon), eaux pour divers usage. Threatened by: Pollution (sédimentation, érosion, agriculture, surexploitation, destructions des zones frayères	Not further worked out by the group due to lack of time
9	<u>Nderama Agricultural site</u>	2. Agriculture & Aquaculture: Système traditionnel agricole culture vivrière (Patate douce, mais, haricot) 3. Energy production & Mining: Exploitation du minerais (Or et coltan), bois de chauffe 5. Biological resource use: Bois de chauffe, chasse à top et rat de Gambie 7. natural system modification: Orpaillage, creusement de trou et feu de brousse 9. Pollution: Pesticide et engrais 11. Climate change & severe weather: Glissement de terrain Ecosystem services: Séquestration du Carbone, habitat pour la faune et la flore, Threatened by: Déforestation, système traditionnel, feu de brousse	1. Construct water channels 2. Strip planting of selected crops/grasses 3. Agroforestry 4. Promotion of energy efficient technologies e.g. improved cooking stoves
10	<u>Ruvyimvya Agricultural site</u>	2. Agriculture & Aquaculture : Système traditionnel agricole culture vivrière (Patate douce, mais, haricot) 3. Energy production & Mining : Exploitation du minerais (or et coltan), bois de chauffe 5. Biological resource use: Bois de chauffe, chasse à top et rat de Gambie 7. natural system modification: Orpaillage, creusement de trou et feu de brousse 9. Pollution: Pesticide et engrais 11. Climate change & severe weather: Glissement de terrain, Ecosystem services: Séquestration du Carbone, habitat pour la faune et la flore, Threatened by: Déforestation, système traditionnel, feu de brousse	Not further worked out by the group due to lack of time
DR Congo Group			
1	<u>Kahuzi-Biega National Park Protected Area</u>	1. Residential and Commercial Development : Villages et centres commerciaux autour de la partie haute altitude du PNKB 2. Agriculture & Aquaculture : Agricultures vivrières, pérennes, Empiètement des terres du Parc car absence des zones tampons 3. Energy Production & Mining : Déforestation, Carbonisation, exploitation artisanale des mines 4. Transportation & Service Corridors : Trafic sur la route nationale N°4 ; Couloir écologique de Ninja investit par les fermiers 5. Biological Resource Use : Braconnage, exploitation PFNL et plantes médicinales 6. Human Intrusions & Disturbance : Présence des campements militaires, bandes armées, populations déplacées et braconniers. 7. Natural System Modifications : Feu de brousse, activités anthropiques 8. Invasive & Other Problematic Species, Genes & Diseases : Invasion par <i>Sericostachys scandens</i> ,	1. Sensibilisation 2. Reboisement 3. Foyer amélioré

		<p>Dépérissement des bambous 9. Pollution : Pollution due au trafic routier et activités humaines 10. Geological Events : Présence des têtes d'érosion</p> <p>Ecosystem services: Régulation du climat, source des cours d'eaux, source d'alimentation, apiculture, PFNL (= NTFPs) Threatened by : Production d'énergie et mining (Déforestation), modification du système naturel (feu de brousse), agriculture, événement géologiques (érosion et éboulement)</p>	
2	<u>Itombwe Mountains Protected Area</u>	<p>1. Residential and Commercial Development: Villages et centres commerciaux 2. Agriculture & Aquaculture: Agriculture vivrière 3. Energy Production & Mining: Déforestation, carbonisation, exploitation artisanale des mines 4. Transportation & Service Corridors: Trafic routier 5. Biological Resource Use: Braconnage et exploitation des PFNL + plantes médicinales 6. Human Intrusions & Disturbance: Présence des bandes armées, militaires, braconniers 7. Natural System Modifications: Feu de brousse, activités humaines 8. Invasive & Other Problematic Species, Genes & Diseases : Présence de <i>Sericostachys scandens</i> 9. Pollution: Pollution due au trafic et activités humaines ainsi que l'exploitation minière</p> <p>Ecosystem services: Régulation du climat, source des cours d'eaux, source d'alimentation, apiculture, PFNL (= NTFPs) Threatened by: Production d'énergie et mining (Déforestation), modification du système naturel (feu de brousse), agriculture, événement géologiques (érosion et éboulement)</p>	Not further worked out by the group due to lack of time
3	<u>Bukavu Urban site</u>	<p>1. Residential and Commercial Development: Construction anarchiques 6. Human Intrusions & Disturbance: Disparition des espaces verts 7. Natural System Modifications: Création des quartiers à des endroits et sites inappropriés 9. Pollution: Pollution atmosphérique, mauvaise gestion des déchets solides et liquides 10. Geological Events: Séisme, Eboulement, Glissement de terres 11. Climate Change & Severe Weather: Evaluation des températures, prolifération de certaines insectes</p>	1. Reboisement
4	<u>Uvira Urban site</u>	<p>1. Residential and Commercial Development: Constructions anarchiques 2. Agriculture & Aquaculture: Agriculture vivrière 4. Transportation & Service Corridors : Trafic intense interne 6. Human Intrusions & Disturbance : Croissance démographique élevée, construction et agriculture à des endroits inappropriés. 7. Natural System Modifications: Création des quartiers à des endroits inappropriés 9. Pollution: Pollution atmosphérique, mauvaise gestion des déchets liquides et solides 10. Geological Events: Eboulement, glissements de terres 11. Climate Change & Severe Weather: Elevation de la temperature</p>	Not further worked out by the group due to lack of time
5	<u>Rusizi River Riparian site</u>	<p>1. Residential and Commercial Development: Résidence et développement commercial 2. Agriculture & Aquaculture: Agriculture vivrière 3. Energy Production & Mining: Centrales hydroélectriques (Ruzizi I et II) 4. Transportation & Service Corridors: Trafic routier, les piétons, transport en pirogue 5. Biological Resource Use : Pêche, Coupe des <i>Cyperus spp.</i>, <i>Phragmites maurianum</i>, <i>Typha angustifolia</i> (macrophytes aquatiques) 6. Human Intrusions & Disturbance: Dépotoir d'ordures (Jet), Sédimentation 7. Natural System Modifications: Déviation des rivières 9. Pollution: Pollution d'origine domestique (eaux usées, ...), Activité d'abattoir de la ville, Sédimentation 10. Geological Events: Erosion sur les flancs de la Ruzizi 11. Climate Change & Severe Weather: Variations de niveaux d'eaux</p>	<p>1. Reboisement 2. Lutte antiérosive</p>

		<p>Ecosystem services: Production alimentaire, energie Threatened by: Centrales hydroélectriques (Affecte la croissance aquacole), usage des ressources naturelles (Pêche non contrôlée), perturbation humaine, événements géologiques (érosion sur les flancs).</p>	
6	<p>Rusizi River plains <u>Agricultural site</u></p>	<p>1. Residential and Commercial Development: Villages et centres commerciaux 2. Agriculture & Aquaculture: Agriculture vivrière et Etangs piscicoles 3. Energy Production & Mining: Déforestation et carbonisation 4. Transportation & Service Corridors: Trafic intense RN°5 5. Biological Resource Use: PFNL 6. Human Intrusions & Disturbance: Croissance démographique 7. Natural System Modifications: Feu de brousse 9. Pollution: Trafic routier, usage des engrais chimiques 10. Geological Events: Plusieurs têtes d'érosions, inondation et formation de torrents 11. Climate Change & Severe Weather: Diminution des précipitations et augmentation de la température</p> <p>Ecosystem services: Production alimentaire Threatened by: Développement résidentiel et commercial (Diminution d'espaces cultivables), événements géologiques (érosions, changement climatique (augmentation de la température, perte de productions).</p>	<p>1. Sensibilisation 2. Agroforesterie 3. Lutte antiérosive sur les bassins versants</p>
7	<p>Plateau de Kalehe (Luhako) <u>Agricultural site</u></p>	<p>1. Residential and Commercial Development: Centres (commerciaux) de négoce 2. Agriculture & Aquaculture: Agriculture vivrière et pérennes, Boisements avec d'essences exotiques 3. Energy Production & Mining: Trafic sur route N°2 4. Transportation & Service Corridors: Braconnage et exploitation de PFNL 5. Biological Resource Use: Activités humaines 6. Human Intrusions & Disturbance: Déviations de lits des rivières 7. Natural System Modifications: Déviation des rivières 9. Pollution: Pollution due au trafic et exploitation minière 10. Geological Events: Plusieurs têtes d'érosion, inondations et formation des torrents 11. Climate Change & Severe Weather: Augmentation de température, perturbation climatique</p> <p>Ecosystem services: Production alimentaire Threatened by: Développement résidentiel et commercial (Diminution d'espaces cultivables), événements géologiques (érosions, changement climatique (augmentation de la température, perte de productions).</p>	<p>Not further worked out by the group due to lack of time</p>
8	<p>Lake Kivu <u>Lake site</u></p>	<p>1. Residential and Commercial Development: Résidences et centres commerciaux, Eutrophication du Lac, constructions des ports (non-respect de 10 m de rive) 2. Agriculture & Aquaculture: Agriculture vivrière sur les rives du Lac. 3. Energy Production & Mining: Extraction du sable 4. Transportation & Service Corridors: Trafic lacustre intense 5. Biological Resource Use: Pêche non contrôlée 6. Human Intrusions & Disturbance: Perturbation des frayères et espèces végétales aquatiques 7. Natural System Modifications: Disparition des macrophytes aquatiques 9. Pollution: Dépotoirs de déchets domestiques, industriels 10. Geological Events: Mouvements tectoniques dans le Lac 11. Climate Change & Severe Weather: Baisse du niveau d'eau</p> <p>Ecosystem services: Source d'alimentation Threatened by: Trafic lacustre intense, pollution des eaux (déchets domestiques et industriels)</p>	<p>1. Reboisement 2. Lutte antiérosive</p>

Rwanda Group			
1	Nyungwe National Park <u>Protected Area</u>	<p>2. Agriculture & Aquaculture: Subsistence agriculture, potential threat to forest encroachment as arable land is degrading</p> <p>3. Energy Production & Mining: Mining (mainly gold mining)</p> <p>4. Transportation & Service Corridors: Transportation is a threat: vehicles kill wildlife such as monkeys, introduction of invasive species (e.i eucalyptus), human wastes-solid wastes left by travelers, risks of fire set in case of accidents or while drivers camp in the forest when their trucks are broken (and resulting poaching)</p> <p>5. Biological Resource Use: NTFPs (hunting for animals such as duikers, honey collection, firewood collection)</p> <p>6. Human Intrusions & Disturbance: Disturbance resulting from the high ways crossing NNP</p> <p>7. Natural System Modifications: Fire</p> <p>8. Invasive & Other Problematic Species, Genes & Diseases : <i>Sericostachys</i>, eucalyptus</p> <p>9. Pollution: Wastes by road users, noise, oil spill by vehicles, pollution from illegal miners</p> <p>10. Geological Events: Landslides resulting from road construction</p> <p>11. Climate Change & Severe Weather: Severe weather, severe drought resulting in wildfires</p> <p>Ecosystem services: Biodiversity, soil conservation, water provision, water flow regulation, climate regulation, honey, aesthetic, educational, tourism</p>	Not further worked out by the group due to lack of time
2	Mukura Forest <u>Protected Area</u>	<p>2. Agriculture & Aquaculture: Subsistence agriculture, encroachment, grazing</p> <p>3. Energy Production & Mining: Mining</p> <p>5. Biological Resource Use: Hunting, deforestation</p> <p>6. Human Intrusions & Disturbance: Paths inside the forest</p> <p>8. Invasive & Other Problematic Species, Genes & Diseases : eucalyptus plantation</p> <p>9. Pollution: Pollution resulting from mining (human waste)</p> <p>10. Geological Events: Landslides resulting from mining and unsustainable agriculture</p> <p>11. Climate Change & Severe Weather: Encroachment for agriculture due to weather changes</p> <p>Ecosystem services: Habitat for endangered species, soil conservation, water provision, water flow regulation, climate regulation, honey, aesthetic, educational, tourism</p>	<p>Target groups:</p> <ol style="list-style-type: none"> 1. Communities 2. Decision makers local/national <p>Actions:</p> <ol style="list-style-type: none"> 1. Define the boundary and buffer 2. Speed up the gazettelement 3. Develop the management plan 4. Initiate the implementation of the management plan 5. Community awareness raising 6. Land use plan and implementation <p>Note: must use participatory approach</p>
3	Gisenyi City <u>Urban site</u>	<p>1. Residential and Commercial Development: Urban sprawl</p> <p>4. Transportation & Service Corridors: Road construction</p> <p>5. Biological Resource Use: Consumption is high for food, fish, firewood, charcoal , construction material</p> <p>7. Natural System Modifications: River deviation, dam construction</p> <p>8. Invasive & Other Problematic Species, Genes & Diseases: Introduction of new exotic species (ornamental)</p> <p>9. Pollution: Sewage, solid waste management, erosion and sedimentation</p> <p>10. Geological Events: Volcanic activities , earthquakes</p> <p>11. Climate Change & Severe Weather: Flooding, landslide</p> <p>Ecosystem services: recreation, firewood, habitat for some species, aesthetic, shelter</p>	Not further worked out by the group due to lack of time
4	Bugarama City <u>Urban site</u>	Not further worked out by the group due to lack of time	Not further worked out by the group due to lack of time
5	Sebeya River <u>Riparian site</u>	<p>2. Agriculture & Aquaculture: Subsistence agriculture (poor SLM practices)</p> <p>3. Energy Production & Mining: Mining (sand mining)</p>	Not further worked out by the group due to lack of time

		<p>6. Human Intrusions & Disturbance: Siltation from unsustainable agriculture. 7. Natural System Modifications: Deviate river for energy production 9. Pollution: Pollution from mining, agriculture 11. Climate Change & Severe Weather: Severe weather, flooding</p>	
6	Rubyiro River <u>Riparian site</u>	Not further worked out by the group due to lack of time	Not further worked out by the group due to lack of time
7	Hillside Nyamasheke District <u>Agricultural site</u>	<p>2. Agriculture & Aquaculture: Unsustainable land use practices, plantation of eucalyptus , monoculture 3. Energy Production & Mining: Mining and Queries 5. Biological Resource Use: Short term of rotation of eucalyptus (for charcoal, firewood) 7. Natural System Modifications: Fire 8. Invasive & Other Problematic Species, Genes & Diseases: Biotechnology seeds (seeds from unknown sources) 9. Pollution : Pesticides, soil erosion 10. Geological Events: Landslides 11. Climate Change & Severe Weather: Unpredictability of rain season 12. Other Policies: monoculture, agroclimatic zones delimitations</p> <p>Ecosystem services: Food, firewood, handcrafts, beekeeping, drinking water, erosion control, climate regulation, carbon sequestration Threatened by: Decline in agriculture productivity, drying/pollution of springs, landslide, diseases</p>	Not further worked out by the group due to lack of time
8	Marshlands in Rusizi District <u>Other</u>	<p>2. Agriculture & Aquaculture: Subsistence agriculture 3. Energy Production & Mining: Mining (peat mining, clay, sand) 5. Biological Resource Use: Harvesting papyrus 7. Natural System Modifications: Dams construction, conversion to agriculture land 9. Pollution: Sewage, sediments, pollution from mining, agriculture, heavy metals 11. Climate Change & Severe Weather: Flooding, siltation</p> <p>Ecosystem services: Water flow regulation, flood regulation, materials for handcrafts (ibyibo, ibirago), fish, habitat for birds</p>	Not further worked out by the group due to lack of time

Institutional Roles of stakeholders

After finishing the group work on Day 3, a short plenary discussion, led by Amb. Eugene Munyakayanza, was held on the roles of different stakeholders in the development and implementation of the CRAG Intervention Plan. Although it was recognized that all stakeholders present, plus a wide variety of additional stakeholders will have a role in the implementation of actions in the CRAG that increase climate resilience, the consensus was that the exact roles and responsibilities of stakeholders can only be defined once the set of proposed actions are identified.

CRAG Intervention Plan outline

In this session led by Ian Gordon, participants were invited to comment on a first draft of proposed chapters of the CIP, and to brainstorm on sub-chapters and/or topics which should be included. Below are presented the proposed **chapters** with the *input* received from participants in italics. Further stakeholder consultations and requests for input are planned for the coming months when the CIP is being drafted. It is anticipated that a first advanced draft of the CIP will be ready early 2015 while the final version is expected to be ready and endorsed halfway 2015.

CIP Outline

Foreword and LTA/ABAKIR endorsements

Chapter 1. Introduction

Process of proposal development
Why CRAGs
Why Kivu-Rusizi
Climate Change
Outline of following chapters

Chapter 2. The Kivu-Rusizi catchment/landscape

A separate chapter on water?
CRAG boundaries
Important infrastructures, demography
Transportation
Rivers

Chapter 3. Policy and Institutional Context. institutional roles

National and sectoral policies and legislations
NAPA. NBSAPs
Lake Basin Authorities
Transboundary environmental agreements

Chapter 4. Biodiversity in the CRAG

KBAs/PAs production landscapes
Important fauna and flora
Fisheries
Habitat types: wetlands/forests, urban areas etc

Chapter 5. Ecosystem services

Millenium Ecosystem Assessment categorisation
Provisioning and regulatory services
Transportation

Chapter 6. Current threats

Pollution etc

Chapter 7. Climate Change (CESM team to advise)

Chapter 8. Recommended Site and Landscape Actions

*From the workshop and experts inputs
Recommended sites and landscapes*

Chapter 9. Recommended Policy Interventions

As above

Chapter 10. Monitoring Programme

*Indicators
Require review of the CIP
Caveat*

Chapter 11. Timetable and Budget

Life span of the plan

Chapter 12. Conclusions**Milestones towards climate resilience of the Lake Kivu – Rusizi River CRAG**

In this session Ademola Ajagbe gave an overview of the CRAG Project Milestones which include the CIP launch mid-2015 and implementation of CIP: mid-2015 onward, strengthening local capacities first half mid-2015; application of monitoring tools: annually starting from 2015; development of sustainable finance approaches in 2015, and policy influencing late 2015 and onward

Beyond the project timeframe, use of the CIP to leverage funds, integration of the CIP in national policies and plans, and replication of the CRAGs Approach in other landscapes are key milestones to work towards.

Closing Remarks

The workshop was closed at 17:00 hours after closing remarks from representatives of ABAKIR, BirdLife International, the CESM team, and a representative of each country, i.e. Burundi, DRC, Rwanda and Tanzania.

Acknowledgement

BirdLife International wishes to express its sincere appreciation to all participants for their pro-active participation and immensely valuable contributions to the regional workshop. In addition, BirdLife International wants to thank ACNR for assisting in organizing the workshop, and ABAKIR in facilitating and chairing the workshop.

Many thanks to all for making the workshop a success.

Annex 1: Inception meeting participant overview

No	Name	Organization	Position	Email address
1	Amb. Eugène Munyakayanza	ABAKIR	Co-Director	ekayanza@gmail.com
2	Charles Hakizimana	ABAKIR	Co-Director	hakiza06@yahoo.fr
3	Henriette Ndombe	ABAKIR	Co-Director	ndombe_henriette@yahoo.fr
4	Mutabazi Rushengi	ABAKIR	Communication Officer	mmushenyi@yahoo.fr
5	Charles Rugerinyange	ABN	Executive Director	rugecharles@yahoo.fr
6	Laurent Ntahuga	ABN	Chair	laurent.ntahuga@gmail.com
7	Jean Paul Kubwimana	ACNR	National CRAG Project coordinator	jpkubwimana@gmail.com
8	Mohammed Mupenda	ACNR	Communication Officer	acnr1981@gmail.com
9	Serge Nsengimana	ACNR	Executive director	serge@acnrwanda.org
10	Alexis Nikiza	APRN/REPB	National Director	nikiza07@yahoo.fr
11	Claudien Nsabagasani	ARCOS	Landscape conservation Program manager	cnsabagasani@arcosnetwork.org
12	Antoine Ngaboyisonga	ARECO	Field coordinator	arecorwa@yahoo.fr
13	Ademola Ajagbe	BirdLife International	Team Leader	ademola.ajagbe@birdlife.org
14	Albert Schenk	BirdLife International	Conservation Action coordinator	albert.schenk@birdlife.org
15	Ian Gordon	BirdLife International	Program advisor	ian.gordon@birdlife.org
16	Julius Arinaitwe	BirdLife International	Regional Director	julius.arinaitwe@birdlife.org
17	James Allan	CEED & GFS	PhD	james.allan@uqconnect.edu.au
18	Sean Maxwell	CEED & WCS	PhD Candidate	smaxwell@ug.ed.ac.uk
19	Anton Seimon	CESM Project ASU	Project Director	anton.seimon@gmail.com
20	Simon Nampindo	CESM project ASU/NCAR	Project Manager	simon.nampindo@gmail.com
21	Adelin Ntungumburanye	Chambre d'agri-business du Burundi	Executive secretary	adelint1@yahoo.fr
22	Jean Paul Lubula	Coordination provinciale/ Environnement/Sud Kivu	Coordinateur Provincial	jplubula@yahoo.fr
23	Magnus Mosha	FZS-Tanzania	Project leader	magnus.mosha@fzs.org
24	James Byamukama	Great Virunga Transboundary Collaboration	Program manager	jbyamukama2@yahoo.com
25	Balezi Zihahirwa	Horizon Nature	Chargé de projet	bzih2004@yahoo.fr
26	Chantal Shalukoma	Horizon Nature	Director	chantalshalukoma@gmail.com
27	Benjamin Mugabukomeye	IGCP	Country coordinator	bmugabukomeye@igcp.org
28	Claude Hakizimana	INECN/BURUNDI	Chief Park Warden	haclaude2007@yahoo.fr
29	Pascal Isumbisho	ISDR/BUKAVU	Director general	isumbisho@yahoo.fr

30	Shadrack Kamenya	Jane Goodall Institute	Director of conservation(JGI TZ)	skamenya@janegoodall.com.tz
31	Deus C. Mjungu	John Goodall Institute	Director of Gombe Research Center	dmjungu@janegoodall.org.tz
32	John Kahekwa	POPOF, DRC	Executive Director	kahekwajohn@yahoo.fr
33	Innocent Harerimana	RUBAVU District	Environmental Officer	iharelimana3@yahoo.fr
34	Rusine Nyirasafari	Rubavu District	Vice Maire/Social Affairs	-
35	Lisasi Kasongo	SINELAC	Chef de la centrale Rusizi II	klisasiyohan@yahoo.com
36	Ismael Kimirei	TAFIRI-Kigoma TZ	Center Director	kiakimirei@yahoo.com
37	Anifa D. John	Tanzania National Park	Ecologist	anifajohn@yahoo.com
38	Bana Mediatrice	WCS	Sustainable Conservation and Finance Manager	mbana@wcs.org
39	Michel Masozera	WCS	Country Director	mmasozera@wcs.org

Participants summarized per category:

- AKAKIR: 4
- NGOs: 11
- INGOs 11
- Universities/educational institutions: 5
- Private Sector: 2
- Government (other than ABAKIR): 6

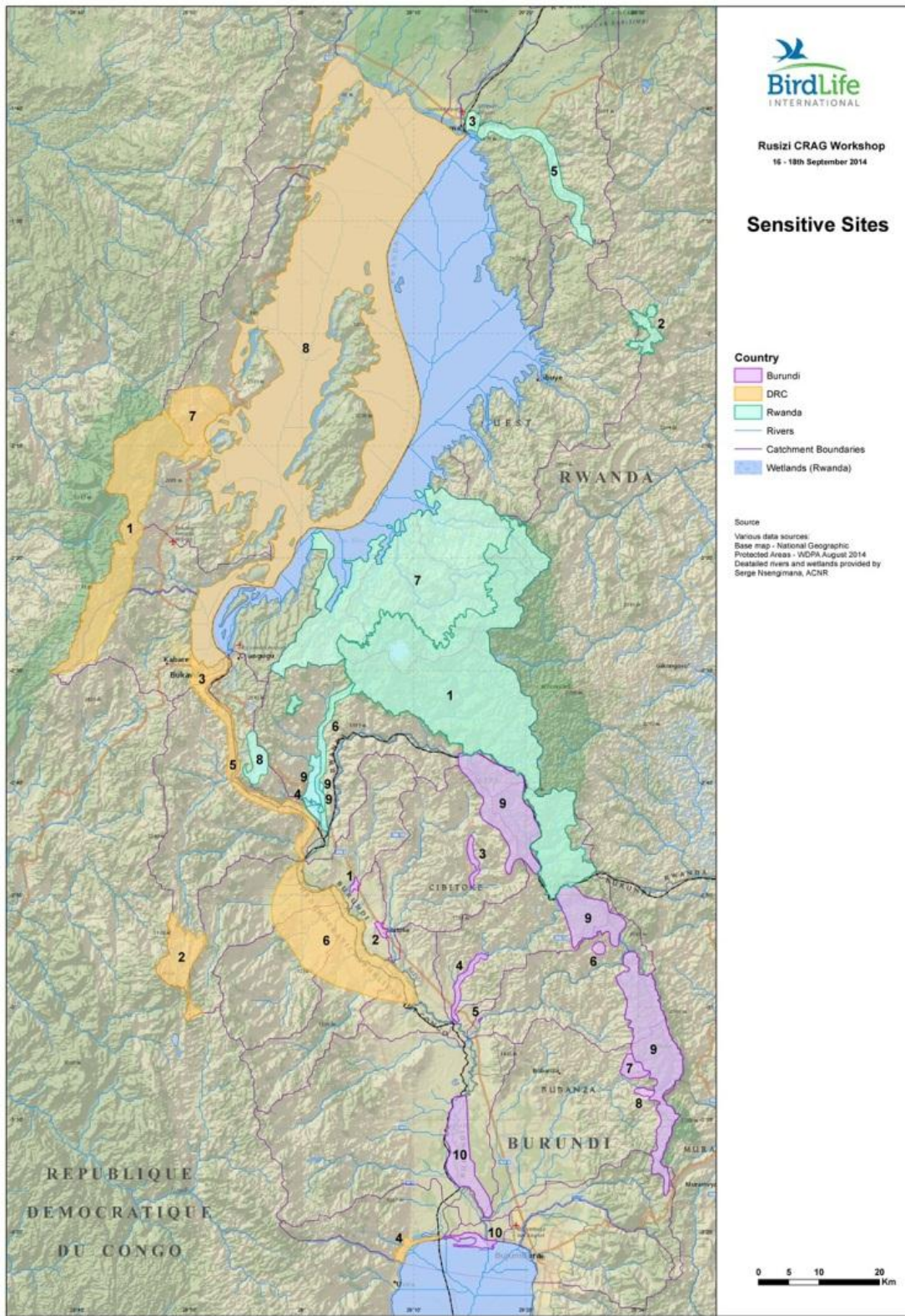
Annex 2: Agenda of the meeting

Day 1: Tuesday the 16th of September 2014		
08.30	Arrival/Registration	BirdLife
09.00	Welcomes	ACNR – Serge Nsengimana
09:05	Self-introduction	All
09.15	Purpose/Expectations	BirdLife – Ademola Ajagbe
09.30	Opening	Office of the Mayor of Rubavu
09.45	CRAGs concept and project background	BirdLife – Albert Schenk and Ian Gordon
10.00	Basin Setting On institutional context, priorities, engagement and plans for the Lake Kivu Basin	ABAKIR - Amb. Eugene Munyakayanza
10.30	Coffee	
11.00	Regional Updates 1 On wider engagement in Africa and specific priorities, programmes and projects in the region	BirdLife – Ademola Ajagbe
11.40	Regional Updates 2 As above	WCS - Michel Masozera
12.20	Regional Updates 3 As above	ARCOS
13.00	House keeping	ACNR – Jean Paul Kubwimana
13.05	Lunch	
14.00	Regional Updates 4 As above	TNC
14.30	Past and Present Climates	CESM team – Anton Seimon
15.15	Tea	
15.45	CESM: climate modelling	CESM team - Simon Nampindo
16.45	Key Points/Summary Day 1	BirdLife – Albert Schenk
17.00	Close	

Day 2: Wednesday the 17th of September 2014		
08.30	RECAP Day 1	BirdLife – Ademola Ajagbe
08.45	Future Climates On possible and anticipated threats	CESM team – Anton Seimon
09.30	Catchment health and dams/irrigation On possible and anticipated threats and effects	SINELAC
10.00	Coffee	
10.15	Introduction to Group Work	BirdLife – Albert Schenk
10.30	Group Work on Biodiversity threats	Groups led by ABN, ANCR, HN
11.30	Plenary on Biodiversity threats	BirdLife – Ian Gordon
12.45	House keeping	ACNR– Jean Paul Kubwimana
13.00	Lunch	
14.00	Group Work on Ecosystem Services threats	Groups led by ABN, ANCR, HN
15.00	Tea	
15.30	Plenaries on Ecosystem Services threats	WCS – Michel Masozera
16.45	Key Points/Summary	CESM team – Simon Nampindo
17.00	Close	

Day 3: Thursday the 18th of September 2014		
08.30	RECAP Day 2	BirdLife - Ademola Ajagbe
08.45	Introduction to Group Work	BirdLife – Albert Schenk
09.00	Group Work on Sensitive Sites	Groups led by ABN, ACNR, HN
10.00	Coffee	
10.15	Plenary on Sensitive sites	CESM team – Anton Seimon
11.15	Group Work on Site Actions	Groups led ABN, ACNR, HN
12.15	Plenary on Site Actions	BirdLife – Albert Schenk
13.00	Lunch	
14.00	Institutional Roles of stakeholders	Amb. Eugene Munyakayanza + Plenary discussions
14.45	CRAG Intervention Plan outline	BirdLife – Ian Gordon + Plenary discussions
15.15	Milestones towards climate resilience of the Lake Kivu – Rusizi River CRAG	BirdLife – Ademola Ajagbe + Plenary discussions
16.15	Key Points/Summary	WCS – Ademola Ajagbe
16.30	Closing Remarks	ABAKIR, LTA, BirdLife, CESM team, MacArthur, and others
17.00	Closing cocktail	All

Annex 3a: Map of the sensitive sites identified through the group work



Annex 3b: Sensitive sites list and map IDs

ID	Site Name	Country
1	Rugombo	Burundi
2	Cibitoke	Burundi
3	Nyannaganna	Burundi
4	Kaburantwa	Burundi
5	Kagunuzi	Burundi
6	Nderama	Burundi
7	Ruvjimrga	Burundi
8	Mpanda River	Burundi
9	Kiriba National Park	Burundi
10	Rusizi National Park	Burundi
1	Kahuzi-Biega National Park	DR Congo
2	Itombwe Mountains	DR Congo
3	Bukavu	DR Congo
4	Uvira	DR Congo
5	Rusizi River	DR Congo
6	Rusizi River plains	DR Congo
7	Plateau de Kalehe (Luhako)	DR Congo
8	Lake Kivu	DR Congo
1	Nyungwe National Park	Rwanda
2	Mukura Forest	Rwanda
3	Gisenyi City	Rwanda
4	Bugarama City	Rwanda
5	Sebeya River	Rwanda
6	Rubiyro River	Rwanda
7	Hillside Nyamasheke District	Rwanda
8	Marshlands in Rusizi District	Rwanda