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Subject**RSG 24.2.10 Detailed Final Report**

Project Title**Building a local community conservation group and establishing ecotourism activities around the Ondiri Swamp, Kenya's only quaking bog. Kenya.**

Nairobi river basin is a complex of several parallel streams that flow in an eastward direction and meet River Athi eventually flowing to the Indian Ocean. The Nairobi Rivers form the mid-section of an extensive tropical river system whose headwaters are located in the highlands of central Kenya. The rivers pass through the capital city and finally discharging their waters 600km away into the Indian Ocean. The main rivers of the Nairobi river system are Motoine/ Ngong River, Nairobi River and the Mathare River. The Nairobi River has one of its sources at the Ondiri swamp in Kikuyu Township where farmers living around the swamp use the water to irrigate their crops. The swamp is also a source of water for domestic use as well as for livestock. The Mathare and Gitathuru River Catchment in the upper reaches are areas of intensive tea and coffee farming that border the City. Motoine/ Ngong River has its source at the Motoine swamp and Dagoretti forest. The river flows through a number of man-made dams one of which is the Nairobi Dam.

But the main source of the Nairobi River is the Ondiri Swamp, the main subject of my study which seeks to develop it into a community ecotourism facility. Ondiri wetland is located within close proximity to Kikuyu town. It is an important wetland since it forms the headwaters of Nairobi River within the Athi drainage basin. The area is a unique wetland with macrophytes growing on a floating peat, making it Kenya's only major quaking bog. In spite of this uniqueness, the wetland is characterized by poor or scanty information on its ecology, utilization and threats as is the case with most small wetland ecosystems in the country.

Stakeholders within Ondiri wetland include local farmers, institutions like schools, hospitals, government departments and civil society organizations. Activities in Ondiri wetland include water abstraction for both irrigation and domestic use and harvesting of macrophytes, mainly for use as forage for livestock, both for commercial and domestic use. Due to its close proximity to Kikuyu town and Nairobi city, it is an important source of horticultural products. Local people also use it intermittently as a recreation site. Currently the ecosystem is highly threatened by various activities within both the wetlands and riparian land. This includes dumping of solid waste and uncontrolled water abstraction. There are several water pumps around the wetland, which are not metered meaning that it is impossible to gauge the level of water abstraction. In addition, there are fears that the water in the wetland has been decreasing. Kikuyu town also lacks a sewerage system, which increases the likelihood of pollutants seepage from septic tanks. Previous conservation initiatives, mainly fencing and tree planting by forest departments in the 1990's, collapsed due to lack of community ownership of the process and enforcement.

It is a resource that draws interest in various quarters, which include government departments, local authority, farmers and private developers. Due to the fact that it is not protected, the multiplicity of stakeholder's presents a situation where each individual seeks to maximize their benefits; a pure case of the tragedy of the commons. This complicates the position of management and conservation agencies.

Recently, a Community-Based Organisation whose objective is the conservation of Ondiri Swamp and the rivers that flow from it has been formed. Known as the Ondiri Riparian and Abstractors Resource Users Association (ORARUA), the CBO was registered with the Ministry of Gender in February 2011. I am the Project Coordinator for ORARUA as well as Chairman of the Ondiri, Nyongara, Kabuthi and Rungiri Water Resource Users Association (ONKARU-WRUA) Monitoring and Evaluation Committee.

Both ORARUA and ONKARU-WRUA comprise women groups and youth groups as major stakeholders. The Water Resources management Authority (WARMA) has agreed to fund a capacity building workshop for all major stakeholders especially the officials and the riparian owners, in August this year.

After years of false starts and unfulfilled promises, the Kenyan Government has finally taken steps to protect and save Kenyan wetlands, among them Ondiri Swamp. Ondiri Wetland Fraternity Marks World Wetlands Day 2011.

The other major activity at the wetland was the marking of the World Wetlands Day which is celebrated on 2nd February each year throughout the world. In Kenya, the national ceremony marking the WWD was held at the Lake Nakuru National Park. Lake Nakuru, famous throughout the world for its millions of flamingoes, was the first wetland to be designated as a Ramsar site. This followed the ratification of the Convention on Wetlands Wise Use (Ramsar, 1971). This is the oldest Multilateral Environmental Agreement (MEA) and it was signed in the Iranian city of Ramsar along the shores of the Caspian Sea. The Convention provides the framework for both national and international cooperation for the wise use of wetlands and their resources. The newly promulgated Constitution of Kenya demands that all laws, treaties, protocols and conventions to which Kenya are party to be implemented. Kenya became a party to the Ramsar Convention in 1990, designating Lake Nakuru as the first Ramsar site – a wetland of international importance.

The others are Lakes Naivasha, Baringo, Bogoria and Elmenteita. All these have been designated wetlands of international importance, mostly because of their rich avian biodiversity, as exemplified by the flamingoes of L. Nakuru, famed the world over as one of the biggest bird spectacles on earth and a major tourist attraction. The lake is visited by over 300,000 visitors per year, bringing in over USD24 million per annum. Lake Naivasha, on the other hand, supports one of the world's largest horticultural industries with large-scale flower farms that employ over 30,000 people, most of them women, yielding net returns of USD 63 million per year.

However, the race to sustainable wetland management has not been rosy and Kenyan wetlands face a number of threats due to human population pressure and development activities. They have been targeted for conversion to agriculture and settlement over the past five decades or so, partly due to inadequate recognition of their crucial functions and values.

But, all these notwithstanding, Kenya, as a signatory to the Ramsar Convention on wetlands, are obligated to ensure sustainable management of its wetland resources. This includes addressing wetland degradation and encroachment, and resolving conflicts between resource

users. It is in this spirit that we, the Ondiri Wetland Community, decided to mark the WWD as part of awareness creation on the importance and benefits of our wetlands. Since all of us could not make it to the national celebrations, we decided to have a local celebration for the Ondiri Wetland Community in the banks of the Swamp. We started our celebration at about 10.00am Kenyan time and it went on for about three hours. During the occasion, we planted hundreds of trees and a number of bamboo shoots. However, we planted a few because of the drought that was then ravaging the country. Our members came out in force to mark this important day and we thoroughly enjoyed ourselves. Both young and old gathered together and almost everyone present planted at least one tree. During the national celebration, the Minister for Environment and Mineral Resources assured Kenyans that the country will soon have a wetlands policy. To date, this policy is lacking and wetlands conservation has been conducted on a more or less *ad hoc* basis. In the build-up to the WWD, a workshop was held at the National Museums of Kenya's Louis Leakey Memorial Hall. Some members of the Ondiri Wetland Community attended the workshop which was well attended by the country's conservation fraternity. Present were the Director-General of the National Environment Management Authority (NEMA), and representatives from the Ministry of Environment and Mineral Resources, the national museums, Birdlife International, The International Union for the Conservation of Nature (IUCN), Wetlands International, Kenya Forest Service, Nature Kenya, Kenya Wildlife Service, universities and conservation bodies. The participants were assured that plans to publish a Kenya Wetlands Atlas were at an advanced stage and the same would be ready by June this year. This has not yet materialized but it is expected by October this year. Many decried the lack of a national wetlands policy but the NEMA Director-General allayed these fears and said that plans were also afoot to come up with one. The Director for Policy in the Ministry of Environment and Mineral Resources, Mr Paul Kere, added that his ministry has established a national task force to carry out a nationwide inventory and mapping of Kenyan wetlands with the ultimate aim of enhancing their management. Its overall objective is to develop the wetlands atlas for the country. However, in a bid to educate people about wetlands, using Ondiri as an example, my project has so far published three issues of a newsletter known as The Bog. The Bog is a full colour easy to read magazine that highlights developments at the swamp. It has been posted in my Rufford site as well as the Friends of Ondiri Wetland Conservation (FOWCON) website.

The national environmental watchdog, the National Environmental Management Authority (NEMA) in March ordered everyone encroaching on wetlands to vacate them immediately or face prosecution. NEMA has written to the Lands Ministry, asking it to revoke all land allocations in these areas within the next three months. The Water Resources Management Authority (WARMA) has also been directed to peg and mark all riparian areas clearly within these three months. The NEMA acting director-general, Dr Ayub Macharia, said priority would be given to urban wetlands, Ondiri Swamp, Lake Olbollossat, Sabaki Estuary, Lake Kenyatta and Lake Naivasha as they were the most endangered. *"NEMA therefore warns the public to avoid any form of encroachment or human activity in riparian areas. A minimum of six metres and a maximum of 30 metres is to be maintained for all rivers, be they seasonal or perennial,"* said Dr Macharia. He added that statistics show that 6.8 per cent of Kenya's land mass had been classified as wetlands, but this had been reduced to 2.6 per cent by last year.

At a meeting on April 8, the WARMA regional manager for Kiambu County, Ms Julia Kiruri, confirmed these sentiments and said that because of the serious encroachment that has been taking place in the swamp over the years, the riparian area at Ondiri would be the maximum which is 30 metres. She was speaking to Ondiri Swamp riparians and abstractors when they gathered to write a new constitution that will see all groups and organisations working in the upper Nairobi River basin become one Water Resource Users Association. The representatives of the groups agreed that the new WRUA would be called Ondiri, Nyongara, Kabuthi and Rungiri water Resource Users Association (ONKARU-WRUA). This would replace the earlier Ondiri, Nyongara and Rungiri Water Resource Users Association (ONRU-WRUA) which had been formed earlier. I was elected as the project coordinator for the Ondiri Riparians and Abstractors Resource Users Association. We have already submitted a project proposal to the Community Environment Facility (CEF) of the Community Development Trust Fund for the conservation and rehabilitation of the swamp. I am glad to report here that I was the lead writer of this concept proposal which has now been accepted and if all goes well, we might secure substantial funding for our dream of making the swamp a haven for ecotourism. Following NEMA's directive on the riparian area, WARMA has ordered riparians who had planted Eucalyptus trees along the swamp's edges to cut them down and this has already started. We are lobbying the riparians to also control soil erosion by terracing their land and some have already taken this up. With the help of WARMA, all the riparian area around the swamp has been pegged and the community is satisfied with the exercise in which they fully participated. It was unanimously agreed that the area would extend 12 metres instead of the 30 that was initially mooted

I have noted an alarming decline in the number of Grey-Crowned cranes in the Ondiri Swamp and recently there were only two of these graceful birds surviving my recent observations now show that they have since doubled to four and looking at the plumage of these four, two are males and the other two are females. This augurs well for the future of this bird which was nearly becoming extinct in the swamp. All in all, the avian biodiversity has increased tremendously with swarms of Sacred ibis and herons as well as water ducks. There are only two of these birds left. My observations indicate that the bird may have been headed for extinction in the swamp and various factors may have contributed to this. The extensive harvesting of swamp vegetation is causing serious habitat loss for this bird. This is coupled with the disappearance of trees that have in the past been felled for fuel. This crane is the only one that roosts in trees and this means that there has been a drastic reduction in roosting sites. The other suspected cause of this precipitous decline is the conflict between riparian farmers and the cranes. I have observed that the cranes feed on maize planted in the riparian area and the farmers could be trapping and killing them though this has not been verified. I hope to undertake a small study on measures required to stem this loss as well as lobbying NEMA and WARMA to ban harvesting of vegetation. But now many riparian owners are restricting the harvesting of vegetation and with the highly enhanced tree cover, the future is bright for these birds and other fauna.

Quite a number of other activities have also taken place since the last update. Our Water Resource Users Association, the Ondiri, Nyongara and Rungiri Water Resource Association (ONRU-WRUA) has had its name changed to the Ondiri, Nyongara, Kabuthi and

Rungiri Water Resource Users Association (ONKARU-WRUA). This was necessitated by the people downstream in the Kabuthi River which is fed by the Ondiri swamp. The people who draw water from the river felt that they were left out in the name ONRU-WRUA and they sought to have their river added to the WRUA's name. I was elected the Chairman of Monitoring and Evaluation Committee of the WRUA, charged with monitoring and evaluation of all activities within Ondiri Swamp and the rivers Nyongara, Kabuthi and the Rungiri Dam. On May 31st, the Tana and Athi Rivers Development Authority (TARDA) announced that it would give ONKARU-WRUA a grant of Kshs 2.5 million (£ 17,240) towards the conservation of Ondiri Swamp and the Nyongara and Kabuthi river basins as well as the Rungiri Dam. Consequently, the WRUA recruited youths aged between 18 and 35 years to carry out a massive tree planting exercise in which 20,000 tree and bamboo seedlings will be planted. A total of 189 youths comprising of 100 young men and 89 young women were recruited using a balloting process in a bid to ensure transparency. The recruitment was supervised by me, Francis Wainaina, the Organising Secretary, and Carol Wanyama of TARDA. Among the tasks to be carried out is the digging of terraces to arrest the siltation that has contributed to the degradation of the swamp. The tree and bamboo seedlings are being sourced from the members of the WRUA. The Kikuyu Water Company has also joined these efforts and recently donated 5,000 indigenous trees to be planted during the next rainy season expected about October/November.

Tree planting started in earnest on July 8th, 2011. The first activity undertaken was the digging of holes for the trees to be planted. TARDA, in consultation with ONKARU-WRUA selected a variety of water-friendly trees among these are indigenous trees such as *Warbugia ugandensis*, *Prunus africanus*, *Markhamia lutea*, *Ficus sycomorus* and many more. Most of the trees also have medicinal value and will make the swamp a major source of traditional African medicine.

An article on Ondiri Swamp written by me was published in the July issue of *The Platform*, a Kiambu County monthly newspaper. A follow-up article has been published in the August issue, with a special emphasis on the ecotourism activities envisaged by the community. This is a new media outlet that will be articulating issues of Kiambu County-home to Ondiri Swamp. County newspapers have sprung up following Kenya's new constitution that was promulgated in August last year. The Constitution divides the country into 47 counties with each county charged with generating its own revenue. Ondiri Swamp has been identified as a major resource for Kiambu County and is expected to play an important role in generating revenue for the county. This revenue will come from proceeds of the sale of water from Kikuyu Springs to the city of Nairobi. These springs, which are fed by Ondiri Swamp through an underground route, provide 2% of the water consumed in Nairobi. This means that two out of 100 people in Nairobi depend on Ondiri Swamp for their water needs. With a population of approximately 4 million people, this means that 80,000 Nairobians depend on Ondiri Swamp. The development of the Swamp, which is now in high gear, could not have come at a better time since the revenue generated from ecotourism activities will go to the county's kitty. With equitable sharing with the ecotourism development community members

In the new constitutional dispensation, the environment has been accorded greater importance. Legislation on the Environment and natural resources is contained in Chapter 5, Clause 69. The State shall ensure sustainable exploitation, utilization, management and

conservation of the environment and natural resources, and ensure equitable sharing of the accruing benefits. The State will also work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya. This calls for a massive national tree-planting effort when one bears in mind that the present tree cover is estimated at about 2% following decades of senseless environmental degradation and unsustainable exploitation of forests.

Towards this objective, I have written a proposal to the PACT-Kenya which in part outline measures necessary to harness this situation. Besides maximizing on the environmental benefits, Ondiri Wetland will be transformed into an attractive eco-tourism destination for both locals and foreigners. In addition, by stabilizing Ondiri as a sustainable water reservoir, safeguarding the natural vegetation and wildlife will also lead to ecotourism. This will in effect, see job creation for the various residents of the District in several capacities. The conservation activities will translate into increased income for members from ecotourism and spin-offs from the conservation activities. These include the manufacture of bamboo products such as furniture and laminates; handicrafts; harvesting of edible bamboo shoots; and, construction and composite industrial products. A basketry cottage industry from the reeds is also envisaged where members, especially women, will make baskets, mats, trays, etc. Both of these industries will involve all members. There will also be clean and safe water for members as well as the city of Nairobi, which gets 2% of its waters from Kikuyu Springs, which, in turn, are fed by Ondiri Swamp. We envisage in the first three (3) years of conservation, building a water reservoir that will serve all members of the community. In the long term, we will see industries like mineral water bottling that will sustain our efforts.

In this proposal, the ORARUA Environmental Group will work in concert with downstream communities which include the Nyongara and Kabuthi rivers that emanate from Ondiri wetland. In the past, these downstream users have progressively suffered serious water shortages, especially in the dry season due to over-abstraction of water and siltation by the Ondiri riparian farmers. This will be brought to an end. The siltation and inflow of agricultural chemicals has also in the past been a major bone of contention between upstream and downstream users and this will also be controlled through the establishment of a bamboo perimeter plantation that will prevent the inflow. The conservation of Ondiri Swamp will be a major boon for the Kikuyu Springs downstream which is fed by the swamp through an underground link. The conservation activities around the swamp will also augment the work of other organizations that are working towards the conservation of Nairobi River, of which the swamp is a major source, including the United Nations Environment Programme (UNEP) and the Nairobi Metropolitan Authority.

The expected outputs of this exercise are:

- Conservation of Ondiri Swamp's biodiversity, both plant and animal, a rehabilitated and enriched ecosystem, leading to ecotourism activities and recreational facilities for the community and outsiders;
- Increased sustainable water availability to all stakeholders, i.e. farmers, institutions and downstream users; and,

- Increased income, to the community, from agricultural activities, intensified horticulture, value addition, ecotourism earnings, fish farming and spin-offs such as mineral water bottling.

The expected benefits of this exercise are:

- The communities will benefit from the income accruing from ecotourism and sustainable harvesting of bamboo and papyrus;
- Downstream communities will benefit by having a reliable clean water supply, both for domestic and livestock use; and,
- The Ondiri Community will have enough water for irrigation and for their livestock.

Recurrent expenses will be sustained by the introduction of by-laws, which will protect bamboos, prevent encroachment and which will provide education and awareness to the populace. In addition, a resource centre will be established in order to strengthen management and give support. The project is in the process of establishing a nature trail, animal sanctuary, fishponds, nurseries, sitatunga sanctuary, and a butterfly park. A fee will be charged to use the nature trail and to view the animals located in the sanctuaries. A bird watching club has already been established and this will help visitors who come bird watching for a fee. To this end, I have published a comprehensive guide to all the birds of the swamp and its environs. In effect, the wetland will have activities geared towards making it an ecotourism resort, which will generate employment for the residents vis-à-vis youth groups, women groups, etc. In addition to ecotourism, there will be sustainable harvesting of bamboo which will be sold as poles and bamboo supports for flower farms. There will be a number of products made from bamboo and papyrus which will be sold to visitors to the ecotourism site. These include bamboo furniture, bamboo floor and table mats, chopsticks, toothpicks, edible bamboo shoots and baskets. Women and youth will establish indigenous and plantation tree nurseries in the area and these will be sold to outsiders who require them. In the course of time, the project will develop nuptial gardens in the site where marrying couples can hold their weddings. This has become a lucrative venture and groups that have beautiful nuptial gardens are raking in good revenue. As stated earlier, there will be a water purification and packaging plant that will bottle mineral water for sale in various outlets, including local and other supermarkets. Members will also benefit from irrigation water which will enable them to grow various horticultural products for sale locally and for export.

In addition, I have been in contact with PACT to train the community on the issue of community governance of eco-tourism activities in the event that our project goes through to the funding process.

To cap all these efforts, we are now realizing increasing numbers of tourists. This month alone, I have hosted two school children's groups accompanied by their teachers as they come to witness, for themselves, what a quaking bog is and the efforts that are going on to conserve the swamp. I have also hosted a group of adults on a similar mission. The children were particularly happy to jump up and down in what is the biggest natural bouncing castle. In a nutshell, the

dream of an ecotourism haven is being effectively realised as is evidenced by the attached photographs.



Naftali addresses a group of tourists from Nairobi, who were touring Ondiri Swamp.



Naftali gives tips on eco-tourism to a group of children on a tour of Ondiri Swamp.



Stakeholders listen keenly during a workshop on Ondiri Swamp conservation.

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