

Oil, Gas, Wildlife & Communities

Capacity Building to Mitigate Conflicts in Uganda

By: Thomas E. Lacher, Jr. & Patrick Byakagaba

At the crest of a dry plateau of scrub forest, the road suddenly reaches the edge of a precipitous drop. From there the road winds down a series of narrow switchbacks. At first glance, the view presents an expanse of hazy, yellowed scrub on the plain below. Further in the distance is a large, pale blue lake, which fades into the horizon. It is a stunning view, the Albertine Rift.

Perhaps more stirring is what we know but do not see; that a mere 200,000 years ago the first members of our species walked that valley. Two hundred thousand years is barely a note in the evolutionary symphony. We are a young species compared to most, but we have come a long way from our hunter-gatherer ancestors. Our demands on the environment have amplified.

Uganda is one of the newest inland oil exploration frontiers in Africa with an estimated 6.5 billion barrels and the larger potential of 8 billion barrels. Most known reserves lie in the Albertine Graben, adjacent to Lake Albert, one of the world's most biodiverse regions.

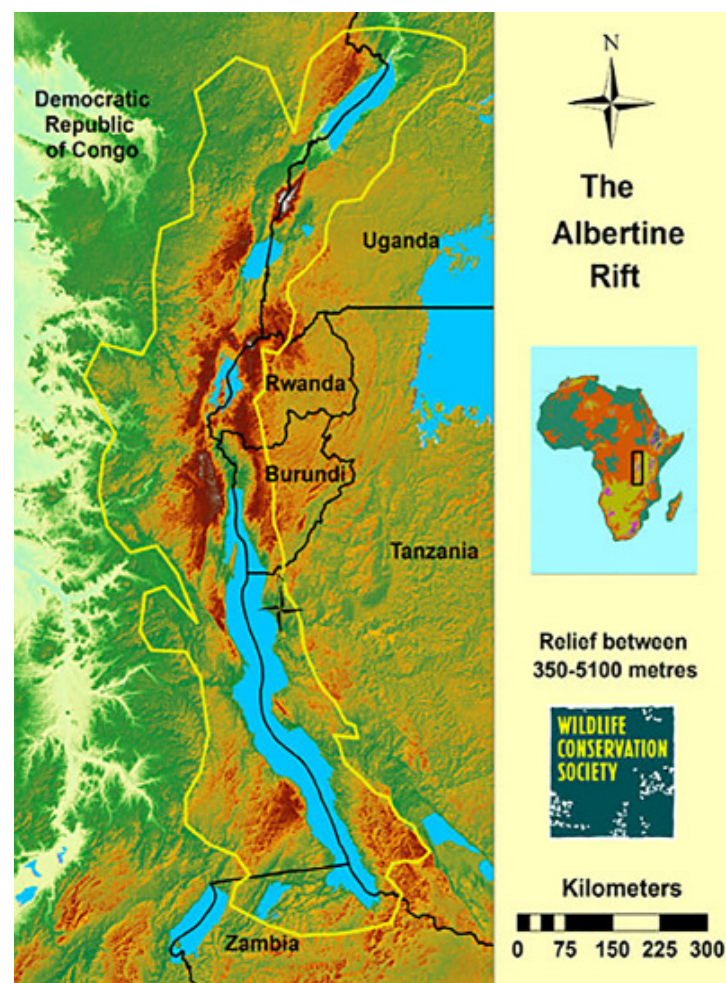
The Albertine Valley (credit: Thomas E. Lacher Jr.)

Several companies have drilled exploratory wells to assess the production potential, including wells inside national parks. In addition, the region is home to a number of traditional peoples and several Community Wildlife Areas, and there is the potential for significant social and cultural impacts in the districts within and adjacent to the primary zones of exploration. Oil and gas is a new opportunity and challenge for Uganda, and there is little current infrastructure to train either petroleum engineers or specialists in the environmental and social impact assessments associated with this new industry. The challenge currently facing Uganda is to develop educational training programs to build capacity within the country to mitigate these threats to biodiversity, natural systems, and local and traditional communities.

Biodiversity and Protected Areas in the Uganda Albertine Graben

The Ugandan Rift Valley is located in the extreme northern sector of the Albertine Rift, running from slightly north of Lake Albert south to the border region between Rwanda and the Democratic Republic of Congo. The Ugandan rift region includes two other important lakes in addition to Lake Albert: Lake George and Lake Edward. The massive Lake Victoria sits farther to the east of the Albertine Rift. Much of the country sits on the East African Plateau and habitats vary from savanna to subtropical and tropical forest, with about 50 percent of the country dominated by grasslands and savanna woodlands. Forested ecosystems (about 17% of the land area) are restricted to high elevation zones, like Mount Elgon and the highlands around Kidepo in the east and the mountains of the Albertine Rift in the west, especial along the border with Rwanda and the Democratic Republic of Congo. Due to its varied topography and the tendency for the western region of Uganda to be more mesic, the Albertine Rift is particularly rich in biodiversity.

Both international and national NGOs consistently highlight the exceptional biodiversity in the region around the Rift Valley. It is designated an Important Bird Area by BirdLife International and a biodiversity hotspot by Conservation International. There are many species of both endemic and threatened vertebrates and plants throughout the Albertine Rift, and the region contains more endemic mammals, birds and amphibians than any other site in the continent. The complex of lakes in Uganda harbor one of the largest known assemblages of freshwater fish. The Wildlife Conservation Society estimates the Albertine Rift to contain 39 percent of Africa's mammal species, 52 percent of its bird species, and 19 percent of its amphibian species, along with 14 percent of the plant and reptile species. The 2013 IUCN Red List Assessment lists 183 threatened species for Uganda, including 25 mammals, 22 birds, and 61 fish species.



Regional map of the Albertine Rift (outlined in yellow) through six countries (credit: Wildlife Conservation Society).

The USAID report “Uganda Biodiversity and Tropical Forest Assessment” published in 2014 presents an overview of the status of biodiversity in Uganda, and the report emphasizes the critical importance of conservation in the Rift Valley. In good news, the elephant population in Uganda has recovered from a low of less than 1,000 in the 1970s to approximately 5,000, as recently reported as part of the Great Elephant Census funded by former Microsoft executive Paul Allen. The government of Uganda sees value in their wildlife and ecosystems, and there are increasing efforts to maintain and enhance this heritage.

Protected Areas in the oil-rich region include National Parks, Wildlife Reserves, Forest Reserves and Community Wildlife Reserves. The Uganda Wildlife Authority (UWA) is responsible for managing the protected areas of Uganda together with the National Forest Authority. The total network

consists 712 units covering 16% of the country, and includes 10 National Parks, 12 Wildlife Reserves, seven Wildlife Sanctuaries, 12 Ramsar sites and five Community Wildlife Management Areas (<http://www.protectedplanet.net/country/UG>). There are 506 central forest reserves under the National Forestry Authority. The total protected area of Uganda is about 2.2 million hectares and approximately 5000 ha of protected land is under local governments as local forest reserves. UWA reports that Kibale National Park in the Albertine region harbors 13 species of primates in only 760 km², including chimpanzees, and the Bwindi Impenetrable National Park contains large populations of chimps and half of the world's population of mountain gorillas. Much of the area under exploration is within the spectacular Murchison Falls Conservation Area, sensitive for biodiversity conservation and a popular tourist destination with many safari lodges, and this presents



Uganda Kob herd on degraded land (credit: Patrick Byakagaba); Cape buffalo (below); Defassa Waterbuck (right) (credit: Thomas E. Lacher Jr.)



the most urgent short-term threat. Queen Elizabeth National Park, also within the exploration region, is the most visited national park in Uganda. The Murchison Falls - Albert Delta Wetland System is a Ramsar Wetland of International Importance and the entire Albertine Graben is a foundation for a growing tourism industry that contributes \$650 million a year to the national economy. A fear is that this economic potential, that will extend beyond the period of oil extraction, could be severely impacted should the region become excessively degraded by extensive oil and gas development.

Social, Economic, and Cultural diversity in the Albertine Graben

The Albertine region is one of the most ethnically diverse regions in Uganda. The area where commercially viable oil deposits have been confirmed (Hoima and Buliisa district) is predominantly occupied by indigenous Banyoro and Bagungu, and immigrant communities from neighboring regions such as the Alur, Okebo, Lugbara, Bakiga, and Banyarwanda. The Banyoro are an ethnic group from the defunct Bunyoro-Kitara Empire that used to extend up to some parts of current Democratic Republic of the Congo, northern Tanzania, and eastern, central and western parts of Uganda by the 15th century (Uzoigwe, 1969). This empire has over the years been reduced to only a few small districts in mid-western Uganda, which include Hoima, Masindi, Kibale, Buliisa and Kiryandongo, to form the present day Bunyoro-Kitara kingdom. The Bunyoro-Kitara Empire was reduced to the present day size by the arrival of the British colonial administrators who fought and deposed King Kabalega to the Seychelles Island in the Indian Ocean. He had resisted British colonial administration in his Kingdom and therefore was perceived as a threat in the quest to colonize Uganda. The kingdom was further reduced by annexation from neighboring kingdoms such as Buganda in central Uganda with the support of British military officers. The people were subjugated and ruled by agents and administrators of Britain from neighboring Buganda and since then, local



Murchison Falls on the Nile (credit: Thomas E. Lacher Jr.)

communities have not overcome the trauma and they perceive themselves as marginalized compared to the rest of Uganda.

Oil deposits have been confirmed in Hoima and Buliisa districts which are dominated by Banyoro and Bagungu respectively. Bagungu are a sub-ethnic group of the Banyoro with a distinct dialect of the Runyoro language called Lugungu. They pay allegiance to the Omukama (King) and traditionally provided the security of the boundaries of the Bunyoro-Kitara kingdom from intruders who would come from the north. Bagungu traditionally are cultivators, fisherfolks and pastoralists. Historically, this is because Buliisa district which is their cradle land has ecosystems that can allow them to practice all these three economic activities. Traditionally they were predominantly fisherfolks and pastoralists but this has over the years

changed with the decline of fish stock in Lake Albert and competition for grazing resources, resulting in more cultivation. Many of the Bagungu people have migrated to other neighboring areas such as Hoima and Masindi districts to practice crop farming since arable land is extremely limited in Buliisa district.

Customary private and communal land tenure system is the most predominant traditional land tenure system in the Albertine region. Most inhabitants have not registered their parcels in spite of the fact that Uganda's legal framework provides for registration of such land giving permanent inheritable rights to owners, which renders them susceptible to land grabbers who fraudulently register it as private freehold land at the expense of the livelihoods of local communities (CRED, 2015). Lack of formal registration of the land has been

one of the bottlenecks in ensuring fairness when the government has to compensate land owners; this has resulted in government being perceived as unfair to her own people. The land in this region varies in terms of value both at temporal and spatial scales and therefore local communities have traditionally preferred communal ownership to enable all members to have access to diverse livelihood options at all times. This however is changing due to the rise in the value of land. There are more people now preferring private ownership of land in the Albertine region partly because of the artificial demand associated with discovery of oil deposits in the region (CRED, 2014).

The Albertine region is also culturally highly regarded by the ancient Bunyoro-Kitara Kingdom which is currently led by a cultural King with extremely restricted authority, since Uganda is a republic. The statutory laws recognize him as a cultural leader who should never be partisan and cannot have political power beyond promoting the culture and norms of Bunyoro-Kitara kingdom. The region retains some of the hunting areas for the King and burial sites for the royal family that date back to over five generations as well as sacred sites for local communities. Some of these sites are found in areas currently managed as wildlife conservation areas by the Uganda Wildlife Authority whose doctrine to conservation is of extreme restriction. This is a potential area of conflict between the kingdom, local communities and the Uganda Wildlife Authority which has the statutory mandate to manage all wildlife conservation areas and antiquities in there.

The discovery of oil deposits in this region is a recipe for conflicts over land resources since the oil and gas industry requires heavy infrastructural development and creates an impression of a bright future for the economy. Unfortunately, land rights are not well defined and secured. There are already reports that individuals who are wealthy and politically connected have started illegally acquiring communal land through unscrupulous

means to be able to harness economic benefits envisaged to come with the burgeoning oil industry (CRED, 2014).

The region has had an influx of other ethnic groups from neighboring regions such as the Alur, Banyarwanda, Banyankole, Bakiga, Lugbara, Okebo, Lendu and Baganda, and this has often created tension due to limited livelihood options and the historical injustices that the indigenous Banyoro people have experienced. Arable land is extremely limited in this area and the influx of other ethnic groups has exacerbated the situation. Conflicts over grazing resources between immigrant communities such as the Banyankole and Banyarwanda with indigenous ethnic groups such as the Bagungu of Buliisa are also on the rise and are most likely going to worsen as the value of land increases due to the nascent oil and gas industry (Médard, & Golaz, 2013; Manyak, 2015). The moral fabric and cultural values that were a hallmark for land governance in the region are at a risk of being eroded as the region becomes more cosmopolitan.

The USAID EMOS Project

The United States Agency for International Development (USAID) released a new comprehensive policy on biodiversity in 2014 (USAID 2014), the first such official policy developed by USAID. The document provides guidelines on the integration of biodiversity conservation into USAID funded development activities. A significant component of this document focuses on a new blueprint for integrating biodiversity conservation with what AID defines as “sustainable, resilient development” (Table 1). The policy document is influenced by other international policies and assessments like the Millennium Ecosystem Assessment (Reid et al. 2005) and a growing concern over the maintenance of ecosystem services. The report highlights many challenges relevant to the Texas A&M Applied Biodiversity Sciences Program, including enhancing disciplinary capacity in training people, improving the governance of conservation,



Tools of the Wildlife Officer, cell phone and AK-47 (credit: Thomas E. Lacher Jr.); Team examining potential drill sites (middle); New oil highway (top) (credit: Patrick Byakagaba)

and reaching policy makers and local communities through the effective use of broader impacts.

With the advent of the discovery of oil and gas reserves in Uganda, a number of international corporations have made investments on exploration and refineries, most notably the French company Total E and P (one of the “supermajor oil and gas corporation), the Irish company Tullow, and the Chinese giant CNOOC (China National Offshore Oil Corporation). In response to this expanding investment, USAID solicited proposals for the project Environmental Management for the Oil and Gas Sector (EMOS) in 2013, and Texas A&M was contracted by Tetra Tech as a partner to assist in the enhancement of capacity to address critical training needs for professionals in fields from petroleum engineering to conservation biology. The initial Texas A&M proposal team included ABS faculty Tom Lacher and Amanda Stronza, Fred Boadu from Agricultural Economics, Teri Reed-Rhoads from Petroleum Engineering, Ed Price from the Conflict and Development (ConDev) Program, and Principal Investigator Paul Schwab from Soil and Crop Sciences. The project has received strong support and participation from Leslie Ruyle of ConDev and the former ABS Coordinator. Our role in the project has focused heavily on assessing current capacity among relevant professionals and developing curricula across disciplines that integrate everything from the training of more conservation focused engineers to the development of skills of environmental impact assessment and environmental toxicology among ecologists and conservationists.

The Ugandan Government agency, NEMA (National Environmental Management Authority), has been aware of these deficiencies and released several reports with support from the Government of Norway; these were key in the development of the request to USAID. A focus was on what are referred to as the Environmental Pillar Institutions of Uganda, which include the Ministry of Water and Environment (MWE), the Uganda Wildlife Authority (UWA), the National Forestry Authority (NFA),

as well as NEMA. Key to the training was the engagement of key academic institutions in Uganda, led by Makerere University in Kampala, with strong participation from Mbarara University of Science and Technology and Kyambogo University. Other institutions, namely, Nyabyeya Forestry College, the Uganda Wildlife Training Institute-Katwe, and the Uganda Petroleum Institute-Kigumba, are also engaged. The project is funded by USAID through Tetra Tech under the leadership of the Chief of Party Mr. Jones Ruhombe.

The first two years of participation involved meetings in Kampala with a project management team formed in by Makerere University in Uganda, the Oil and Gas Curricula, and Research Committee of Makerere University (OCRC). The OCRC was initially coordinated and chaired by Dr. J.Y.T. Mugisha. Later, Dr. Joseph Oonyu and Dr. John. R.S. Kabogoza were hired by Tetra Tech in the role of Senior Technical Advisors on Curriculum Development and Management of the Project based at Mekerere. These meetings helped the Texas A&M team to assess capacity and strengths of programs and identify potential weaknesses in relation to the assessment of oil and gas impacts. Based upon this assessment we began to develop MS-level degree programs and modular instructional tools, in collaboration with Ugandan colleagues. A focus of the curricular enhancements has involved the development of transferrable modules covering topics as diverse as general ecology, wildlife toxicology, social and cultural impact assessment, low impact oil exploration, and governance and legal issues.

Components of these modules were presented to faculty and staff from Ugandan universities and the Environmental Pillar Institutions in July of 2015 and January of 2016. Texas A&M faculty Paul Schwab, Teri Reed-Rhodes and Tom Lacher participated, as well as TAMU graduate students Alejandra Maldonado and Christopher Dermody. Nearly twenty Ugandan instructors also participated by presenting materials that they had developed over the two sessions. This provided for a dry run of many of the modules, and these are

Table 1. The USAID Blueprint for Biodiversity Conservation goals and objectives

Vision	To conserve biodiversity for sustainable resilient development
Goals	Conserve biodiversity in priority places Integrate biodiversity as an essential component of human development
Objective	Support enabling conditions for biodiversity conservation Reduce priority drivers and threats to biodiversity Integrate conservation and development for improved biodiversity and development outcomes Build partnerships to mobilize resources in support of biodiversity conservation Influence key international policies in support of biodiversity conservation Apply science, technology, and learning to enhance biodiversity conservation practice

currently being converted into the “Compendium”, containing slides and lecture notes. The compendium will form the basis of the instructional modules that can be added as components to either current classes or newly developed disciplines.

We are now beginning perhaps the most exciting phase of the project, initiating a “Professoriate Program” at Texas A&M University. This fall semester (2016), six Ugandan professors will spend the semester on campus taking classes and participating in multiple activities, workshops, and seminars. Two staff members were selected from each of the participating universities of Kyambogo University, Mbarara University of Science and Technology, and Makerere University with one faculty member focusing on Petroleum Engineering (PE) expertise and one focusing on Environment, Life Sciences and Biodiversity (ELSB). The six visiting faculty are Norah Mutekanga (ELSB) and Titus Watmon (PE) from Kyambogo University; Grace Birungi (ELSB) and Theodora Mondo (PE) from Mbarara University of Science and Technology; and Hillary Kasedde (PE) and co-author Patrick Byakagaba (ELSB) from Makerere University. The PE faculty will take two classes in the Department of Petroleum Engineering and one biodiversity related class in Wildlife and Fisheries Sciences or Ecosystem Science and Management, and the ELSB faculty will do the reverse.

The USAID EMOS Project is a 4-year investment

and we are entering the final year of funding. This represents a critical time, because it has become far too common for projects funded over the short term to eventually fade and become inactive as interest wanes and sources of support disappear. The investment in developing capacity, providing instructional materials, and initiating faculty exchanges is designed to try to leave sufficient infrastructure in place to train more trainers to confront the potential impacts of an expanding oil and gas industry. We also hope that the interactions among the Ugandan visiting faculty and Texas A&M researchers will result in project and proposal ideas for research through the College of Engineering and the College of Agriculture and Life Sciences. From an ABS perspective, there are urgent needs for research on biodiversity surveys, conservation planning, social and cultural impact assessment and mitigation, and examination of the influence of foreign investment on natural resource governance structures. The Ugandan participating faculty and institutions are eager to development of new research collaborations and engage both TAMU and Ugandan students in these projects. The Professoriate Program can open up both a new geography and new conservation research questions for the ABS Program.

There is oil under the savannas of Murchison Falls National Park, one of the jewels of the Ugandan protected area system, that many people want taken

from the ground. It is a landscape that leaves indelible images. Two in particular are still very much alive in our memory. We can still hear the roar of the Victoria Nile as it plunges through a six-meter gorge before spreading out into a broad flood plain, supporting populations of hippos, Nile crocodiles and elephants. We can also still smell the dry grass supporting populations of Lelwel hartebeest and Uganda kob that literally stretch across the horizon, in numbers impossible to count. We still have memories of the endangered Rothschild’s giraffes as they elegantly stroll and later settle for a good meal of twigs of the savanna shrubs, their necks stretched high above the savanna. Only now, in that same vast landscape, there are oil wells tall among the shrubs.



Patrick Byakagaba meeting with the community (above, credit: Patrick Byakagaba). Author, right, with Sadic Waswa (left) and Robert Kityo (center) on field trip during workshop (credit Thomas E. Lacher, Jr.)

References

- CRED, (2014). Civic response on environment and development. land rights abuses in the oil rich albertine graben in Uganda.
- CRED, (2015). Securing communal land and resource rights in the Albertine region of Uganda.
- Manyak, T. G. (2015). Oil and Governance in Uganda. *Journal of Public Administration and Governance*, 5(1), 40-58.
- Médard, C., & Golaz, V. (2013). Creating dependency: land and gift-giving practices in Uganda. *Journal of Eastern African Studies*, 7(3), 549-568.
- Plumptre, A.J., M. Behangana, E. Ndomba, T.R.B. Davenport, C. Kahindo, R. Kityo, P. Ssegawa, G. Eilu, D. Nkuutu, I. and Owiunji. 2003. *The Biodiversity of the Albertine Rift*. Albertine Rift Technical reports No. 3. 114 pp.
- Reid, W. V. et al. 2005. *Millennium Ecosystem Assessment. Ecosystems and Human Well-Being: Synthesis*. Island Press, Washington, DC.
- USAID. 2014. *USAID Biodiversity Policy*. USAID, Washington, DC.
- Uzoigwe, 1969. Kabalega and the Making of a New Kitara. *Tarikh*, 3(2), 5-21.
- Winterbottom, B and G. Eilu. 2006. *Uganda Biodiversity and Tropical Forest Assessment*. Prepared for USAID, International Resources Group (IRG), Washington, DC.
- Thomas E. Lacher, Jr., Professor
Dept. of Wildlife & Fisheries Sciences,
Texas A&M University
- Patrick Byakagaba
Department of Environmental Management,
Makerere University