



CENTMAX ENGINEERING TECHNOLOGY SOLUTIONS



EXPRESSION OF INTEREST FOR PROVISION OF EXPLORATION GEOCHEMICAL SERVICES

Our Partners and Clients



THE
LUTHERAN
WORLD
FEDERATION



Ministry of
Water and
Environment
REPUBLIC OF UGANDA



NCOSHA



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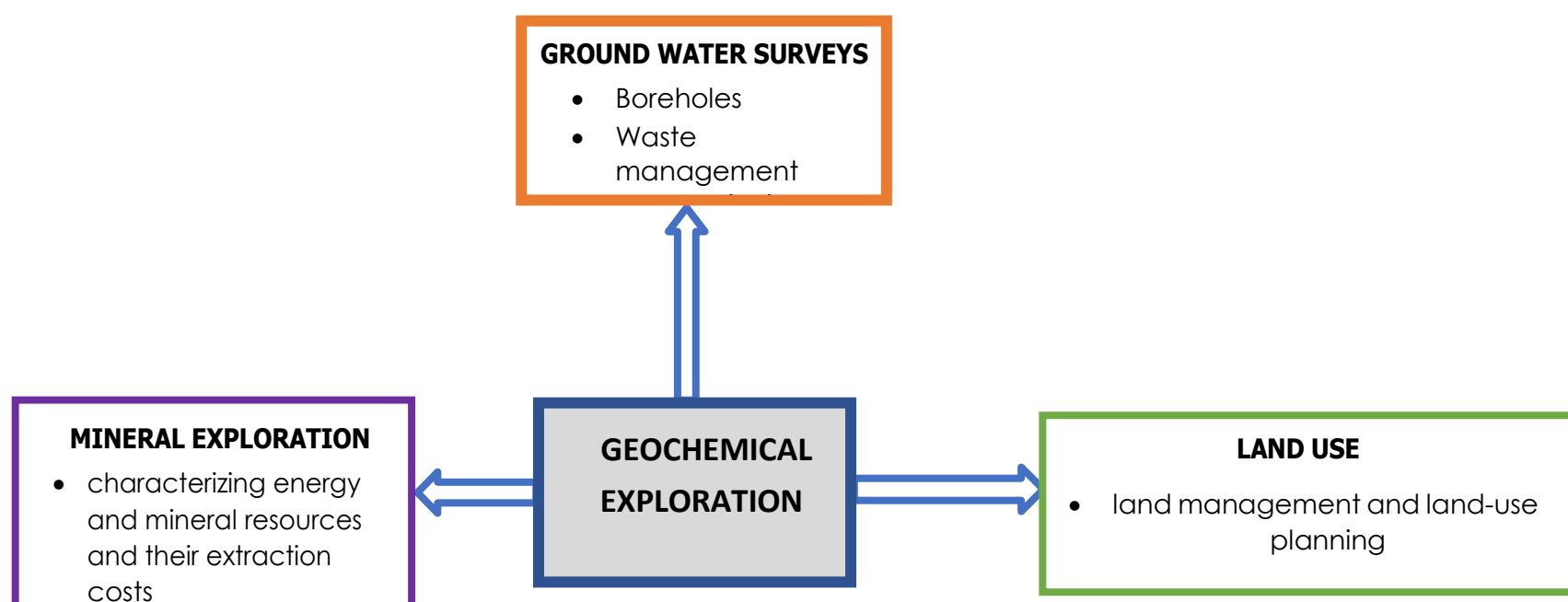
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1.0 BACKGROUND

Until the 20th century prospecting involved roaming likely areas on foot looking for direct indications of ore mineralization in outcrops, sediments and soils. Colours have been a traditional guide to ores. The reds, browns, and yellows of limonitic material for example can indicate leaching of sulphide-bearing veins and disseminated ore bodies. On weathered outcrops, greens and blues could indicate oxidized copper minerals, black could mean oxidized manganese minerals, and yellows and greens the presence of silver halides etc. Conventional prospecting by inspection is still carried out but with the support of new field and laboratory techniques. Geochemistry and laboratory mineralogy are used for the identification and interpretation of gossans and weathered outcrops.

Exploration geochemistry aims to enlarge the target size of mineral exploration by establishing and discovering the chemical and mineral signals of economically valuable deposits. In near-mine exploration, the primary concentration halo around any deposit is used to vector toward the potential ore body. When the deposit has weathered, the signal from weathered mineral fragments or soluble elements can be used to detect it in soils, stream, lake or glacial sediments, based on a knowledge of elemental mobility. Sample preparation, chemical digestion, and analytical methods are optimized to detect this signal. These methods work best where overburden is residual and should be combined with geophysical and geological data.

APPLICATION OF GEOCHEMICAL EXPLORATION



The main benefits of adopting Geochemical exploration include;

- i) gathers geochemical information, including elements, dispersion halos and alteration that can be used to predict the geology in the subsurface or laterally under the rocks, and improves the utility of geophysical data for refinement of subsurface targets.
- ii) provides broad knowledge of the history of the site.
- iii) provide knowledge on what remedies need to be put in place before actual mining can start and provide broad knowledge and guidance to miners

2.0 OUR APPROACH TO GEOCHEMICAL SURVEYING

Exploration Program Planning and Design

Our Geochemists do ensure that the exploration program is based on a sound understanding of the regional-scale and property-scale geology, the target commodity, and the type and style of mineralization that is either known or being sought on the subject property. This understanding is then supported by relevant field data and should include a thorough review of available published, corporate, and private information. The geochemist designs the exploration program and selects the exploration methods and tools that will credibly test the geological premises and interpretation.

In planning, implementing, and supervising exploration work, our Geochemists ensure that exploration practices are based on criteria that either are generally accepted in the industry, or can reasonably be justified on scientific grounds.

he periodically reviews the geological premises the exploration work is based on, and updates those premises as new field observations and data become available. All systematic and thorough review is based on all new information collected from the exploration program, describe and document the interpretation, and discuss any apparent inconsistencies in the data.

Previous Exploration Results

This is an initial step in designing an exploration program, we compile and review previous work that has been carried out on the property, geological mapping and sampling results, geophysical surveys, geochemical surveys, or drilling programs. Our geochemists can use either public domain information (Mining Cadaster), including Directorate of geological survey and Mines programs and provincial assessment files and information in our internal database.

We validate the accuracy and verify the suitability of the information collected from previous work before using it.

Coordinate System

An exploration program needs a consistent spatial coordinate system from the outset, to locate all exploration information on a property.

Tenure and Access

our team confirm with the client that tenure and access rights to the subject property have been secured before beginning work. Access includes permissions from, and agreements with, indigenous and local communities, land owners, and surface rights holders. our team confirms the location of property boundaries, especially to properly locate significant exploration activities such as drilling.

Permits

Our team confirms with the client, that the project holds all necessary permits and permissions before beginning work. Many exploration activities that require the use of water from surface or groundwater sources or require extended stays on undeveloped lands require notification and permitting. Our team is fully aware of the permitting requirements to work in an area well before activities start. Obtaining permits often requires a component of community consultation, which should not be viewed as the only opportunity to meet with the affected communities and their members.

Corporate Social Responsibility

Corporate social responsibility is a business model by which companies make a concerted effort to operate in ways that enhance rather than degrade society and the environment. This helps both improve various aspects of society as well as promote a positive brand image of companies.

Our geologist is often the first person on a project to meet members of the local community. Before the first visit to the exploration area, the approach to community consultation is considered and responsibility for each element of community relations is documented.



Figure 1 community Engagement

Records and Documentation

All geological, geophysical, and geochemical information is stored in a standard digital format in databases or files which can be distributed over network this makes it possible to compile and analyze data efficiently on computers. Data base is managed by personnel who ensure that files are managed and preserved for the long-term.

Geochemical Surveys

The surveys are carried out at a regional scale where the objective is to evaluate large areas for their potential to host a target mineral deposit, or at a property scale to find potentially economic mineralization. Surveys could sample lake sediments, stream sediments, soils, parent overburden, vegetation, groundwater, surface water, individual minerals, or weathered or fresh bedrock. The objective of these surveys is to find concentrations of one or more elements sufficiently above the regional or local background values to be considered anomalous.

results of regional-scale surveys completed by the Directorate of geological survey and mines are publicly available and typically contain a detailed description of the field procedures, sample preparation protocols, analytical methods used, quality assurance/quality control (QA/QC) protocols employed and results, and data processing and management procedures.

We conduct property-scale geochemical surveys to aid in the discovery of mineral deposits. Our team of experts performing the survey acquires a clear understanding of the target mineral deposit model and its anticipated size to design and execute a property-scale geochemical survey. The survey is guided by a good-quality, up to date topographic base map displaying all relevant information such as major cultural features, disturbed areas, and a compilation of all available geological and geophysical results.

With an understanding of different survey methodology options, including their limitations, we are able to chose an appropriate sample medium, sample spacing, preparation protocol, and analytical method. A useful approach at this early stage is to conduct an orientation survey over an area of known mineralization in a similar area and under conditions similar to those anticipated in the target survey area. The goal of an orientation survey is to test different media and methodologies in order to identify which set of survey parameters offers the highest probability of detecting the target mineralization type under the conditions present in the proposed search area.

For a property-scale geochemical survey, successful operation demands collecting a consistent and appropriate sample medium, accurately determining sample depths and locations, preparing good field notes, consistently applying sample preparation protocols, and implementing a quality assurance and quality control (QA/QC) program. Designing and executing a QA/QC program for property-scale geochemical surveys often faces such challenges as sourcing appropriate media for use as sample blanks or certified reference materials and collection of field duplicates. The program design includes discussions with our Senior geochemist and another Geochemical consultant where required to plan, supervise, and interpret geochemical surveys.

Since geochemical survey generate large volumes of information, our Geologist design proper data management GIS system to collect, store, and evaluate the results of these surveys. The exploration program also includes preparation and retention of all metadata in relation to the field samples along with copies of all analytical certificates. These records include documentation related to equipment type and methodology; calibration method and frequency, standards used and dates of analyses.

Our Geochemical services include:

- Pitting and Trenching
- Water sampling and quality analysis
- Soil sampling
- Rock sampling
- Stream sediment sampling
- Diamond core drilling



Figure 2 measuring P.H, salinity/ conductivity of water, collecting water samples for analysis.



Figure 3 collecting gas samples for analysis



Figure 4 Gas sample in Gas Mouse



Figure 5 Collecting stable Isotope water samples



Figure 6 Field Testing for sulphide concentration in water samples using sulphide test papers.



Figure 7 pitting and trenching works

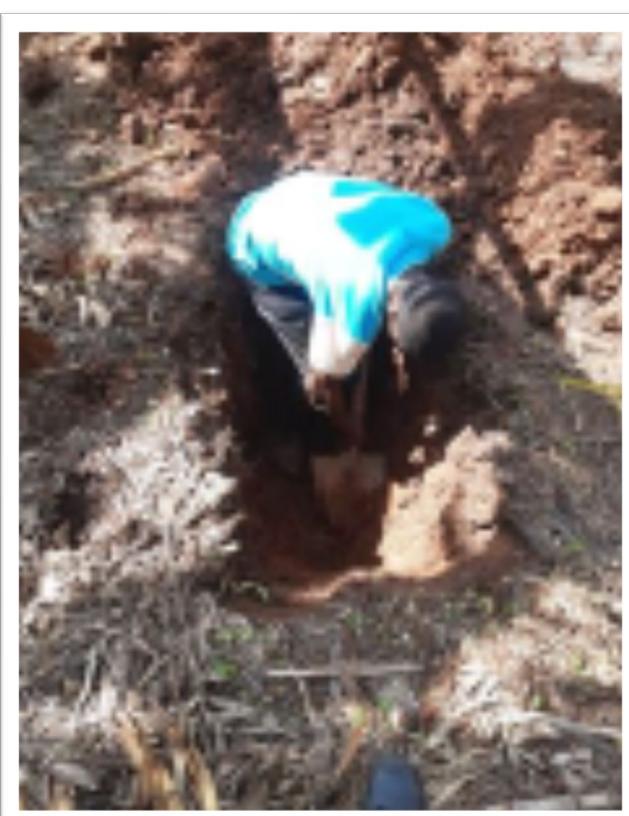




Figure 8 core drilling services

Our team is well versed with **GIS** technology, cartography, spatial analysis, web mapping which facilitates mineral exploration via gathering, storing, and providing access to large spatial datasets. With GIS, the team can collect information on the spatial location of various minerals and uses it to guide mining experts on where best to focus their efforts. As a result, this can reduce costs and increase the efficacy of mining operations.

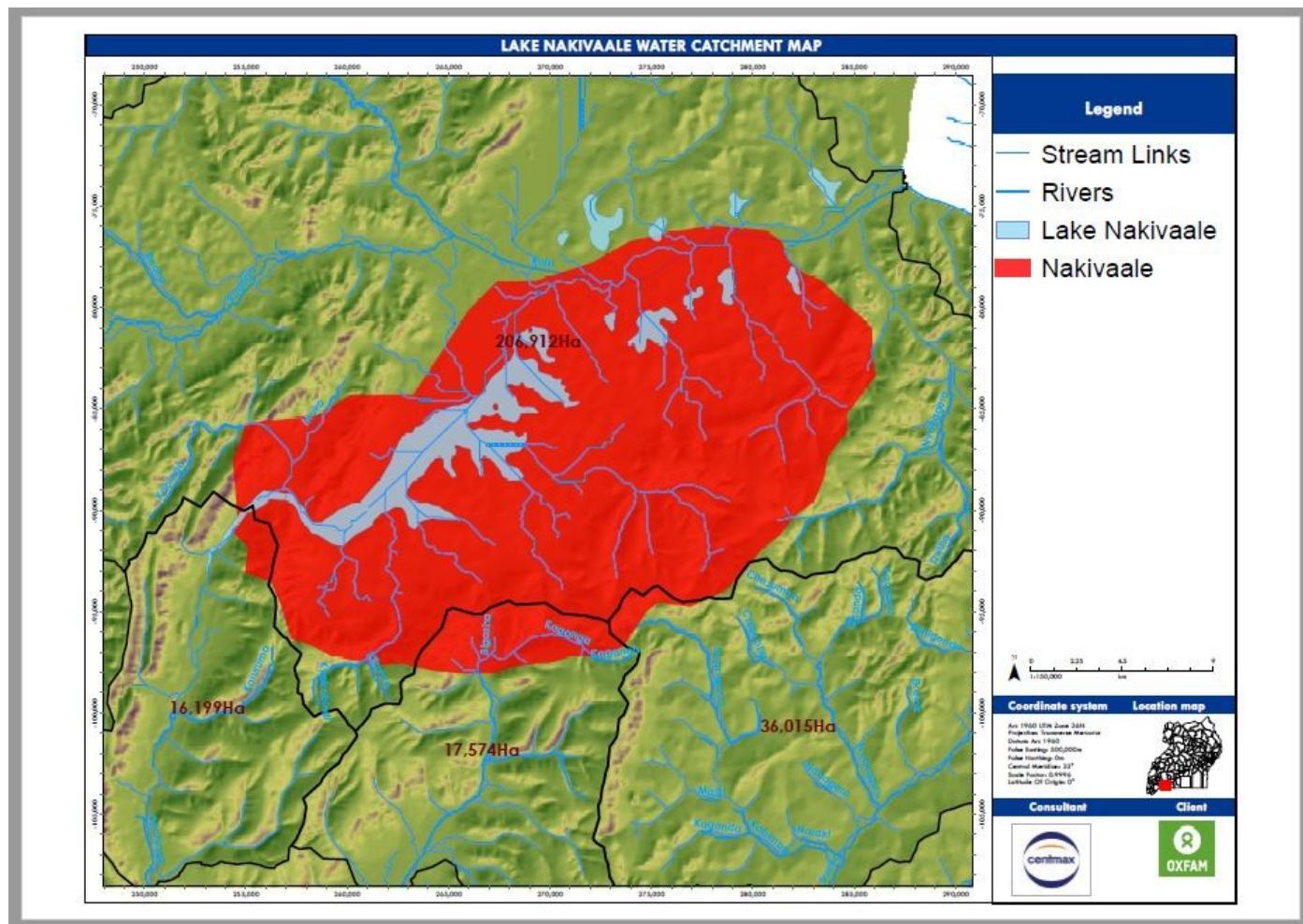


Figure 9 sample of our Base map for background detail necessary to orient the location of the map

Table 1 List of our equipment

Equipment	Make and year	Condition	Ownership	Use
Hilux	Pick up double cabin, 1994	Good	Hired	Transport
Thermo Niton XL3t XRF Analyzer	Niton XL3t 900	Good	Hired	Analysis of elements
Resistivity equipment	ABEM SAS 1000 terameter, 2003	Good	Hired	Siting
Resistivity equipment	ABEM SAS 300C terameter, 2000	Good	Hired	Siting
2 GPS	Garmin GPS Etrix 2010 & Oregon 300, 2010	Good	Owned	Location
3 EC meters	Eijekelkamp, 1999	Good	Owned	Water quality
3 pH meters	Eijekelkamp, 1999	Good	Owned	Water quality
2 Water level meters/dippers / solinst	1 of 50m and 1 of 100m	Good	Hired	Water depths
2 Laptop Computer	Toshiba and a dell		Owned	Field data collection and Reporting
1 Generator	Hale Pumps Hot4200GE-D W/ Lombardini, Motor 1 Ph 17937LR	Good	Hired	Test pumping

Software

Software name	Ownership	Application
Microsoft office (word, Excel, Access)	Owned	Reporting, data, analysis, presentation of geophysical data
RESSOUND	Owned	Sounding interpretation
Aquitesolv & Aquitest	Owned	Pumping test data interpretation
Surfer version 8.0 Arc GIS 10.5	Owned Owned	Presentation of data on Maps Interpretations and analyses

List of other field equipment

EQUIPMENT	PICTURE	APPLICATION
Conductivity meter From Ahaus cooperation		Measuring salinity/conductivity of water.
BD Plastic pack syringe		For taking quantified water samples
Sulphide test paper		For testing sulphide content.
P.H fixed 0 -14 test strip From acherey Nagel		For easy and quick determination of P.H of water.

EQUIPMENT	PICTURE	APPLICATION
Mityvac Vacuum pump		For sucking in water into the gas tubes.
Copper tubing		For collecting gas samples
Gas mouse		Trapping Gas samples

3.0 OUR TEAM OF EXPERTS

No	Technical staff	Qualifications	Years of experience	Position in the company
1	Ecau James	M.Sc. Petroleum Engineering and Production, BSc. Geological Resources Management	9	Senior Geologist
2	Mulinde Rodrick	BSc. Geology, physics	6	Geologist
3	Angeyango Conslate	MSc Environmental Engineering PDG in Project planningand Management BSc. In Water ResourcesEngineering	6	Environmental Engineer
4	Angumenawe Nichodemus	Diploma Workplace Safety and Health, Diploma Environmental Science, Occupational health and safety.	7	Health and safety Engineer

4.0 OUR TEAM ON SITE

	
Exploration for base metals Arua region	Exploration for Bentonite Ihimbo district
	
Exploration for Gold Mityana area	Exploration For Rare earth elements Bugiri district



Water sampling in Ihimbo, Rukungiri District

Panning for Gold in Busia



Stream sediment sampling for Rare earth elements kibimba Bugiri District

Soil sampling for base metals Ntungamo district

5.0 SELECTED LIST OF OUR PROJECTS

	Client	Year of Completion	Brief details of works executed	Contract price
1.	ADROIT CONSULT INTERNATIONAL	2019	Review of Energy and Mineral Development Sector Development plan	85,000,000/=
2.	SOCADIDO	2019	Sustainable integrated risk management in Teso sub region	8,000,000/=