

Surveying in an Upcountry Environment : Challenges and Best Practices

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Historical Perspective

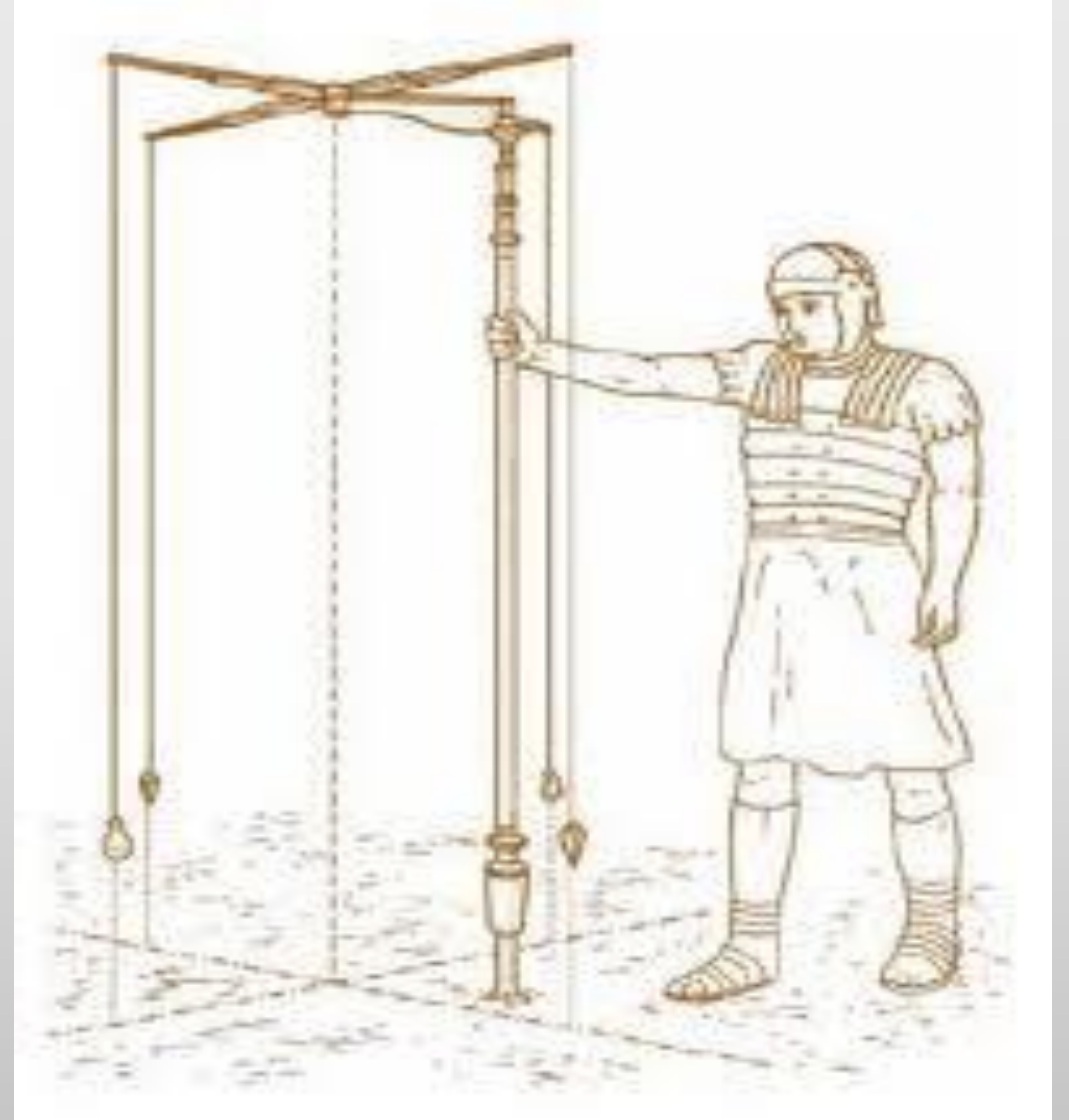
The history of land surveying dates back thousands of years. Land surveying has been around since ancient man in all major civilizations across the globe.



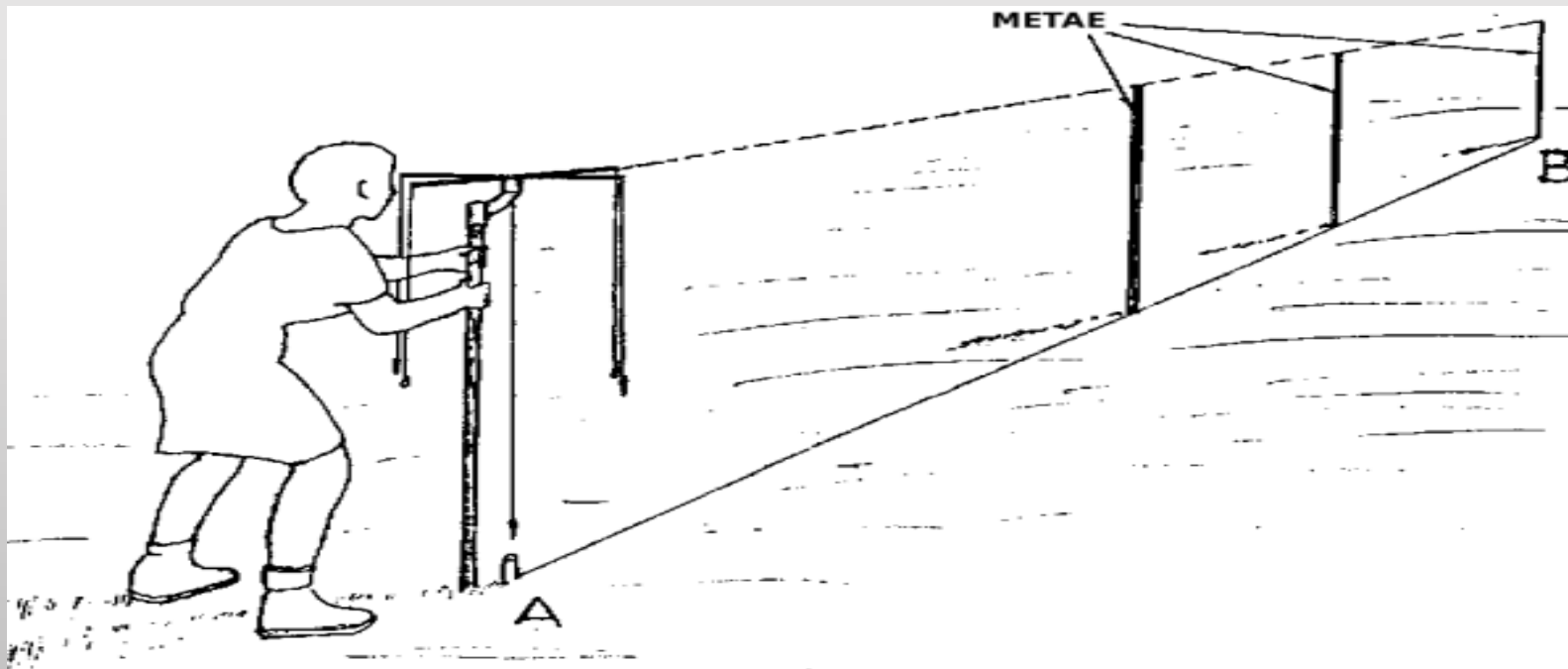
Examples of land surveying in history dates back to the ancient Egyptians during the building of the Great Pyramid at Giza in 2700 BC.



The Romans were the next civilization to advance on the initial land surveying techniques of the Egyptians. They used simple tools to create straight lines and angles



A Roman Agrimensor (Surveyor) working with a Groma (ancient surveying instrument)



It is evident from human history that man needed to know its environment and beyond. Such information as maps and diagrams were used in conquest, exploration, demarcation of territories, urbanization and agriculture.



Measurements were made by foot paces and later chains

Plane tables were introduced in conjunction with tapes measures and compasses to facilitate measurement of angles and distances as well as sketching of structures in the field.



Theodolites and EDMs improved measurement of longer and more accurate distances and angles. However even these were quickly put out of use by the introduction of Total stations.

Total stations combine features of the theodolites, EDM and office computations and has become the present most used tool for land surveying.



Another modern generation survey equipment uses global positioning system (GPS) technology. Others include Laser rangers, Satellite imaging and drones



Challenges in Land Surveying in Northern Uganda Today

1. Inadequate legal framework

A look at some of the laws that regulated land management in Uganda:

(i) Registration of Titles Act – 1924.

- Enacted in 1924 relating to the registration of titles and transfer of land.

(ii) Survey Act – 1939

- An Act to provide for and regulate the survey of lands in Uganda. *Over time this act has been superseded by development in surveying technology.*

(iii) Land Acquisition Act - 1965

- Provides for the compulsory acquisition of land for public use.

(iv) Land Reform Decree – 1975

- Under its provisions, all land was declared to be public land to be administered by the **Uganda Land Commission**. All existing mailo and freehold estates were converted into leaseholds. This was so as to have a uniform tenure of leasehold which could be subjected to developmental conditions.

(v) Land Act 1998

- Provides for the tenure, ownership and management of land;
Provides for the four tenure systems: Leasehold, Freehold, Mailo and Customary

- Survey Act and Regulations enacted in 1939, has never been amended to date. It does not provide for modern innovative techniques and approaches to Land surveying using equipment such as GPS and digital satellite imagery.
- **Because of this the information generated by surveyors today with such modern instruments cannot be legally supported.**
- Procedures for carrying out surveys up to production of the required deed prints have drastically changed in relation to office automation.
- The Uganda National Land Information System (NLIS) Uganda brings in another dimension which urgently require a befitting law to regularize it.

2. Inadequate Awareness on Land Rights:

- Most land owners are not aware of their rights and obligations to land as prescribed in the Land Act. This makes them vulnerable to loss of land or rights and has ultimately fueled land disputes.
- Accurate knowledge of the existing legal frameworks regulating land administration is limited, and misconceptions are high, particularly on procedures of registering interests in land and on the roles of the institutions involved in land administration.
- Always questions of: *how much does it cost to survey 100 acres of land in such and such a place:* are common.
- Most land owners do not relate the value of their property to the costs involved in securing it by acquisition of title.

3. The survey industry in Uganda is still under developed.

- Despite the existence of the profession on earth for thousands of years, Uganda's spatial data industry is still at infancy.
- The first degrees in Surveying only came out 22 years ago (1995) from Makerere University, with a number of just 10 students.
- Despite the increase in the number of institutions offering the course, and therefor the number of graduates coming out, the number of registered surveyors and survey firms remain low.
- Most of the firms are located in and around Kampala and only allow ***unregistered surveyors*** to operate up-country in their names. This in itself creates a gap in realization of quality of the survey jobs.

- Modern equipment and tools are still lacking due to high costs involved in the procurement of such. Most survey firms tend to work by hiring equipment.
- The curriculum for training surveyors lacks emphasis on practical work, as such, many students complete college when they can hardly carry out and compile an accurate field survey report.

4. Inadequate Spatial Base Data:

- Mapping and provision of spatial data is still dominated by government departments and agencies which include:
 - Ministry of Lands Housing and Urban Development
 - Uganda National Roads Authority
 - National Forest Authority
 - National Water and Sewerage Corporation
- These are not well funded and therefore do not invest much in the provision of up-to-date spatial data, e.g. topo maps (1:50,000); cadastral maps. The few information available are also difficult and expensive to obtain from the related institutions.
- Private investments in mapping and provision of survey data (e.g. CORS) is almost unseen.

5. Geodetic and Cadastral Control Network.

- The national geodetic network established 60 years ago has been vandalized mostly between the 70s and the 80s under the false perception that the pillars have mercury underneath. As such, controlling survey jobs are a big problem especially in rural areas.
- In the absence of the above, surveyors tend to extend cadastral survey control from one job to another and in some cases for miles and miles in disregard to the quality of such control.

- Timelines for processing and approval of land survey documents are usually very long and sometimes the fees charged are un-regulated and thus exorbitant.

	Area Land Committees	Physical Planning Committees (MCs)	District Land Boards
Timeline	6 weeks	6 weeks	12 weeks
Fees (Ug. Shs)	200,000 – 600,000	200,000 – 300,000	n/a

7. Interference from Political leaders

- Administrative boundaries disputes.
- Disputes resolutions

Best Practices in Surveying:

- Always prepare detailed job information for the clients.
- Always follow the existing survey guidelines as issued by the commissioner.
- Endeavour to plan survey jobs adequately and obtain necessary control coordinates
- For GPS and Total station observations: prepare/obtain the necessary transformation data for the job site.
- Keep proper record of field observations and computations.

Best Practices in Surveying . . .

- Endeavour to have a presentable office with modern field equipment.