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Visit Report Owotoro Town – Mamsom Ventures 14th August 2021

Introduction

- Mamsons General Ventures Nigeria Ltd is an established $350 Million USD funded Turnkey Mega-Agricultural Business opportunity - *(Cassava Bio-Ethanol Project)*.
- It is a start-up Backward Integration Project, which will focus on everything from land-clearing to harvesting - with Cassava as the main feedstock that will be produced from over 15,000 hectares of farmland that is *vested in Oyo-State Government*, in accordance with the Federal Government of Nigeria's Promulgated Land Use Degree of 29th March, 1978.
- The Land being visited is near to Owotoro Town and extends to approximately 8500 ha currently under the stewardship of the local Kabyese who hosted our team.

The following Hi-level report is outlining the following criterion:

- Initial observations – Overview of Site
- Power availability in locality - options
- Access to water – wet/dry season
- Bush density for land clearance
- Community stability observations.
- General Security observations.
- Gathering of drone images & video.
- Photographs.
- Conclusions.

Attending:

Mr Jamie Rixton – Soil to Silo Ltd – AGCO Ltd
Engr Jimi – IITA
Local team from Owotoro Village

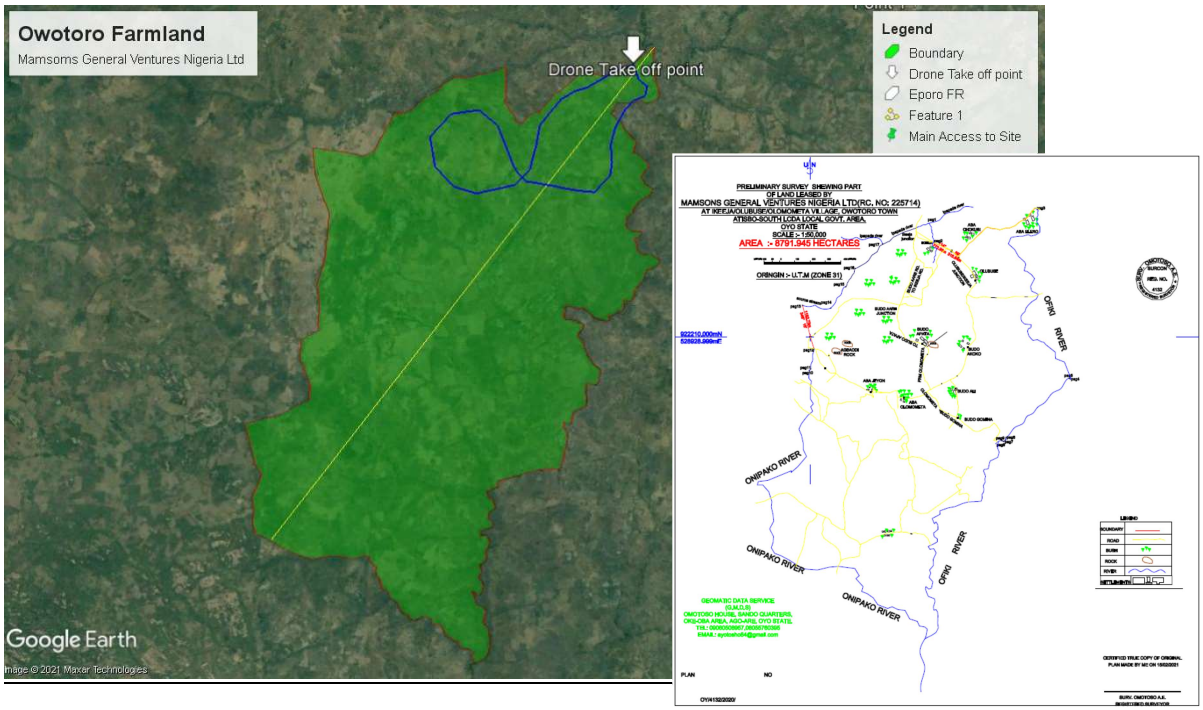


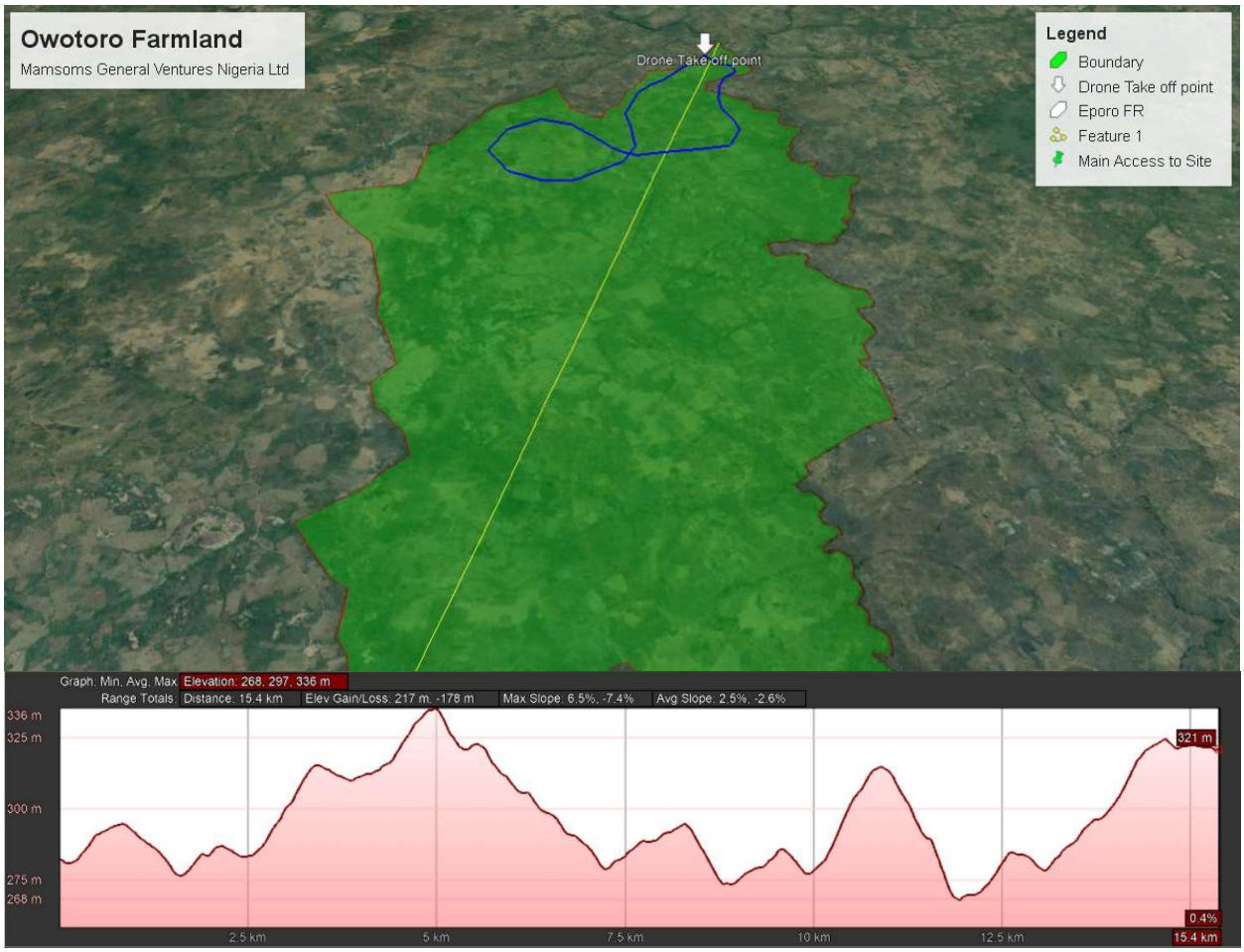
Fig 1 - Overview Map of area extending to nearly 8900 ha

Initial observations & overview of site –

The Drone was deployed to the far North of the site as seen in fig 1 and the path it took as depicted by the blue line. As this was an initial look see and observe visit we didn't go too far into the lands as this wasn't necessary at this stage. I would recommend however that a full spectral Hi-resolution pictures be conducted using a long range drone or using hi res satellite images in order to map the area properly to start planning the site and where potential network of roads can be created as well as the main farming compound and Ethanol plant.

The area is extending to approximately 8900 ha in a single plot and currently there is little or no infrastructure onsite nor in the surrounding areas for admin offices, accommodations or workshops etc.

The slope of the land can be seen in the below diagram of a cross section North East to South West direction. Highest point 336m in the north, lowest 268 in the South. Generally the land is quite flat with some gentle slopes towards the rivers.



A compound with all the necessary administration buildings (offices), workshops, senior management and workers accommodations would need to be constructed very early on in project to ensure all those going on site have a place to stay from workers to management. This would be separate to the Ethanol production plants.

The principal access to the site from the Northern end was via a bridge over the main Ofiki river, If the project was to move ahead a new bridge would need to be constructed to cope with Heavy trucks/ tractors and an increase in traffic, as seen in below pictures. The Southern side as far as can be observed

in the satellite images doesn't have any major roads into or out of it. The entire site has river boundaries which is a big positive in terms of security and will reduce the amount of people able to encroach on the site.

Soil Observations

On the higher areas sandy loam predominates with exposed laterite rock in some places, the soil was very course and abrasive although as we moved further down the lands we observed the larger rocks diminish and the soil became softer. It was also observed that the depth of topsoil appeared to get thicker. We would need to do further in depth study of the soil across the lands when the feasibility study is commenced.

Northern area with poor mechanised farming

Exposed laterite Rock

Fig 8 Course soils with laterite stone northern part.

On the fringes of the site some smaller farmers are growing maize and some cassava but there are only a few and the majority are positioned in the North. This is a positive thing due to the fact that if this site is chosen we should have fewer local community issues if and when the land is taken back.

Power availability

- Local NEPA is from Ibadan Electricity Distribution company. Connecting into local grid is not an option as the drop would be too large and requirement for the site would be very large. Local Electricity substation needs to be identified.
- Power will be an issue due to the availability being less than 2-3 hours per day. This will obviously not be sufficient and the local transformers/grid would not be able to cope with demands of a commercial farm.
- 3 options available
    - **Direct line** - from main distribution centre (substation) to guarantee 18-20 hours per day electricity. Needs to be negotiated with IEDC Approx. 4-5m NGN/km excluding transformer.

- **Off Grid system** – **Hybrid system**, solar/batteries and generator. Initially expensive but running costs much lower if bought or persue possible partner with a Solar energy Development Company to set up infrastructure in area then only pay for usage.
- **Off Grid system** – **Biomas for Electricity generation** - using the residues, material from land clearing to create power. then creating a sustainable land to grow biomas (bamboo or other)
- **Off Grid system – Generator** only (short term cost cheaper however long term diesel consumption would be enormous) not advisable long term.

Access to water.

There appears to be an abundance of water for 6-7 months of the year. There are 2 rivers in the region which make up the majority of the boundaries, however it is unclear the flow rate during dry season and this would impact the entire area if Irrigation was to be used. (Social and environmental impact of extracting water.) The Ethanol factories would also require large quantities of water for cooling and other purposes and a full environmental impact study would need to be conducted during the feasibility phase.

Bush density for land clearance.

The site has been farmed in some areas for many years however these lands are still full of stumps and some larger trees which would need to be cleared, and yield seems poor due to knowledge gap and availability of quality seed and fertiliser. The approximate breakdown of bush density as follows:

- 45% light L bush, with stumps and poor land management but using mechanisation with disc plough.
- 35% medium M bush.
- 20% Medium Heavy MH

Bush Density Key			Description
EH	Extra Heavy		Many Very Large Trees 60cm+ Taller than 4m with Heavy foleage intetwinded - 40+ trees per ha Tropical Forest
H	Heavy		Fewer very large Trees 60cm, mainly 20-30cm diameter with heavy foliage interwind - 30-40 Trees per ha - Tropical Forest
MH	Medium Heavy		Many Trees 20-30 cm but with many heavy shrubs - Heavy lush thick bush (2m+ tall). 30-40 trees/ha. Semi Tropical Forest
M	Medium		Trees 20-30cm but Heavy shrubs 1.5-2m consistent coverage - Medium Foliage 1-2m tall. 20-30 trees/ha
ML	Medium Light		Lighter Trees 20-30cm, lighter shurbs 1.5-2m inconsisitent covereage - Medium to light grasses. 10-20 trees/ha
L	Light		Fewer Trees 20-30cm, light shurbs 1-1.5m dryer foliage, mainly lighter grasses. 0-10 trees/ha

It is still very important to maintain areas of forests for biodiversity at 5-10% of total land. This encourages ecosystems to thrive and assist the pollination process of the crops. An additional local people could create a business with homey bees to enable this biodiversity further but also create additional jobs and revenue for the local communities.

Community stability observations.

No Real obvious issues observed, as we were being hosted by the local king (Kabyese) but it would be necessary to find local employees in order to facilitate meetings with community leaders if this site is developed. There would also be a need to manage the Fulani Herdsmen in the area as they have a tendency to encroach. It is of vital importance that community relations are kept at the forefront and that communities are incorporated into the whole planning process to ensure that any issues that come up are dealt with properly. (Community relations officer) Many obstacles can be overcome if there is good communication between all parties even with the existing relationships.

General Security observations.

As with virtually all regions of Nigeria there is unpredictability but the area is peaceful and calm with small hamlets and villages. Security would be needed onsite, as with any large project, but the secret to good security is inclusion with local community leaders.

Other local resources for potential partners/interest.

Initial Conclusions

The site is quite remote and the roads in and out are rough in places. A lot of infrastructure would need to need to be put in place on the farm to make it more self-sufficient and obviously this would affect the time to get the project moving. This is however a great site and I believe could be the start to bring this region. It appears to be reasonably flat with a few higher areas. Accommodations in the locality are available but it would be necessary to build proper compound on inception.

With the two rivers flanking the site there should be plenty of water but as I mentioned previously and environmental impact study would be essential to understand how extracting water could affect the local ecosystem further down stream.

A detailed look at Contour maps would provide better idea of where the final location for the main compound would be. However higher areas are always preferable close to water source. Road infrastructure and drainage will be key to managing the site. What will also be very important for the project is the road system from the farm particularly on the main road from Ibadan to Shaki. This is essentially the lifeline bringing the ethanol to the major cities once the project is up and running. This will be covered in main feasibility assessment.