



***Geothermal Risk Mitigation
Facility for Eastern Africa***



**GEOHERMAL DRILLING FOR DIRECT USE
BY
HUDSON DRILLING SERVICES**

HUDSON DRILLING SERVICES.

- Mention its leadership structure.
- Brief history on how it started and growth
- Area of operation and experience overtime
- Strategic plan, immediate and future plans
- Capital assets so far.
- Mission and vision
- Service charter
- Attach logo and slogan
- (note the references given below are not all correct. Lets look for accurate ones from UNU_GTP document attached)

ABSTRACT

- Nakuru is blessed with abundant geothermal resource that scientific studies done by several players review that if put to good use can impact many people not only in the region but also around the country. Nakuru is the Kenyan's food basket and perhaps the fastest growing town in east and central Africa; more so on industrialization. It is envisioned geothermal development taking shape in the region will contribute allot into her growth, however the technology is not well know by locals that are predetermined to support its growth.
- This paper seek to address this gap through drilling in a potential area close to the city with the a main aim of setting up cottage industrial park and pipe the source to the industrial area adjacent to the borehole. This project will trigger many, small and medium investors to participate in expanding the industry and create many job opportunities for many jobless graduates in the region. It will also provoke more research and innovations from institutions of higher learning within the proposed region are thus acting as a catalyst into more geothermal projects.

OTHER SMART OBJECTIVES

- Some of the main objectives includes setting set-up low temperature geothermal direct use projects to supplement the already existing low temperatures domestic water producing boreholes in the area.
- Having the cottage industrial park as an incubation center will spark other innovations that will help catalyze setting up of planned Menengai crater industrial park in the near future.
- It will also play vital role in environment conservation through provision of environmental friendly energy to Nakuru city industrial area where for many years they have been using diesel and firewood have been in use to generate heat for boilers for manufacturing, food drying, bathing and recreation, agro-processing to mention just a few.

FEASIBILITY OF THE PROJECT.

- **Technical** - Government of Kenya established two parastatals to fast track geothermal development in the region, through which very many experts have been trained, with the support of UNU-GTP in Iceland and other counties in the world, and also several geothermal professional bodies have been established with the main aim of promoting and supporting in intensive scientific studies, technical support and drilling to support geothermal development in the region. This projects aims to tap into the human capital readily available within the project targeted area to achieving it's goals. Most of them are retirees who have several years wealth of experience in the industry in which some have masters in, doctorate and other academic achievements from UNU and other geothermal training institutions all over the world. Many have published several paper detailing the possibility of actualizing the technology and its huge benefits in the region and beyond.

- **Financial analysis-** The proposed project is economically viable from several studies done by several players: Milk pasteurization (WB 2019), potential of hot bore holes (JAC 2017), feasibility study of Menengai industrial park (Jack 2014). Menengai cereal dryer (Nyambura 2017), Olkaria and Bogoria spa (GAK 2019).

Road side maize sun drying in Nakuru Kiamunyi

- looking at cereal drying for instance- Nakuru produces 10Millions tones of maize every year (FAO 2013). Most of is sun dried. The average cost of drying a bag of maize is a approximately 4 USD per a bag which entails offloading, drying, repackaging and transportation back to store for a couple of days (for famers who dry along load sides). This does not account for rainy day and labour charges and transportations cost from store to areas available for spreading. Companies that operate diesel dryers in the region charge 350sh per 90 kg bag. Considering the rental impact the cost of drying is usually high. Comparatively, the geothermal dryer will cost of 30/= approximately to a 90kg of maize is a proximately 30sh and its nature of being environmental friendly them geothermal should be a food for thought.



OLKARIA GEOTHERMAL SPA IN NAIVASHA.

- Taking Spar as another example to justify this opportunity, is that school and other institutions are mostly subjected to cold bathing in swimming pools during their swimming lessons spelt under competence based curriculum (CBC) by the education ministry. A case study of the two geothermal spas in the region (Kinyajui 2017) reveals the demand of hot bath swimming. Like in the case of Olo-karia spa, many travel long distances to enjoy this facility that is far from Nakuru town and other regions not to mention the cost of entering KWS of approximate 3.5 USD before paying 4.0 USD fee for swimming. This is only affordable by the middle class and the VIPs leaving majority to available cold bath which also is not conformable during cold weather on in the evening when many working class are available. On average Olo-karia receives on average 400 clients on weekends and 50 on weekdays local and foreign visitors. This reveals how this project is vital to the locals and also foreigners.



CONCLUSION

- Geothermal energy is one resource that can expand very fast if local investors can be made to understand how important and profitable the energy can be both locally and nationally. Investing in similar ideas is paramount to practically demonstrate the profitability and positive impact of this natural and green resource for the general public to appreciate its importance thus attracting many to invest in several aspects that will contribute into trajectory growth of the geothermal technology and industry in the region.