Akpafu-Todzi Ironmaking Industry-The Past, Present and Future

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ABSTRACT

Iron ore has being found to exit in Akpafu-Todzi in the Volta Region of Ghana for centuries. The ancestors of the land made iron implement from iron ore, which they dug from the mountain they lived on, using self-built furnace for the ironmaking and forge where most implements where manufactured. A geological survey carried out in the year 1975 by Kesse and Banson and various account from historians and old folks of the community confirmed the existence of iron ore and ironmaking industries. The inhabitants of the community have abandoned their ancestor's trade due to lack of sophisticated tools and techniques to help improve the trade. However, current research has shown the potential of rejuvenating the ironmaking industry in this area. Assay of the Apkafu-Todzi iron ore shows the ore is of low grade haematite with an average grade of about 44 wt % Fe_2O_3 and free of deleterious elements. Reduction studies carried out has shown that the iron ore could be successfully reduced into iron nuggets using waste polymers and its blends as reductants. The measured extents of reduction from the reduction studies were recorded to be above 70% which is considered to be high, judging from the fact that the reduction was carried out in an oxygen atmosphere. This review summarises the established waste polymer based reduction process and presents a critical review of the current capabilities of utilising waste mixed plastics and refuse derived fuels in ironmaking. Further discussion of possible future strategies and challenges anticipated in rejuvenating Akpafu-Todzi ironmaking industry is made.

Keywords; Ironmaking, Akpafu-Todzi Iron Ore, Reduction, Mixed Plastics Waste, Refuse Derived Fuels