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INTRODUCTION

- Tailings are traditionally stored in ponds surrounded by Tailings dams (Mahmood and Mulligan, 2010).
- Lands occupied by tailings dams **loss** their **original value**, and generally **degrade with time** (Gayana and Chander, 2018).
- Tailings sand and other crushed rocks from mines hold the potential of being used for the **construction of houses, embankments, pavements**, and other related infrastructure.
- The tailings sand and crushed rocks can be used as additives in concrete, and the concrete used in the construction process.



Figure 1: Tyrone Mine's Tailings dam, New Mexico (m3eng.com)

METHODOLOGY

- Tailings can be **dewatered** as proposed by Robinsky (1978).
- Dewatering can be done by drying under the sun, or using a sand dewatering screen.
- After dewatering, the sand can be sieved to obtain the desired grainsize fragments.
- The sand is then be mixed with crushed rock aggregates and cement, to produce concrete, for construction.



Figure 2: Concrete being used at construction site (declara.com)

DISCUSSIONS.

The **benefits** of using tailings sands are multi-faceted; **financial**, **environmental** and **socioeconomic**. These are;

- Firstly, it is a more sustainable mining practice, than the construction of tailings dams. Tailings dams occupy huge areas of land, and ultimately deplete them.
- Secondly, tailings dams constitute a major **environmental hazard**. The failures of various tailings dams have proven to be very devastating, both to man and the environment.
- The acquisition of tailings sand and crushed waste rock from mines is easier and **more cost effective** than dredging or quarrying.
- Finally, the use of tailings sands and waste rock from mines, reduces the need to extract these materials from the earth, and thus **prevents the disturbance of ecosystems in such environments**.



Figure 3: Dozers working on a tailings dam (kce.com.au)

CONCLUSION

As demonstrated by this poster, the use of tailings sand and other waste rocks from mines for construction holds great **potentials** for **the sustainable use of raw materials**, **environmental protection** and **cost efficiency**. However, to be able to harness the full potentials of reusing these wastes from mining, I will like to make two **recommendations**;

- Firstly, more research should be done on the properties of tailings materials and suitability for various uses, and
- Secondly, information about tailings sands and other waste rock materials should be readily available in localities in which mining is going on.

REFERENCES

- Gayana, B. C & Chandar, K. R. (2018). Sustainable use of mine waste and tailings with suitable admixture as aggregate in concrete pavements – A review. Retrieved from http://www.techno-press.org/fulltext/j_acc/acc6_3/acc0603001.pdf
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