Problem Statement

- Acid Mine Drainage (AMD) water is the runoff acidic, metal-rich water that is formed in areas of ore or coal-mining activities and is extremely harmful to the environment and is a major problem in South Africa and countries with mining activities
- Pyrite bearing rocks present in mines continues to produce AMD when exposed to air and water, making mine closure difficult in the presence of this recalcitrant pollutant.

Value Proposition

A simple, eco-friendly procedure using fly ash waste to treat contaminated acid mine drainage resulting in water suitable for agricultural use and downstream value added products derived from fly ash.

The Technology Transfer Office is located in the Business Innovation Centre at the University of the Western Cape

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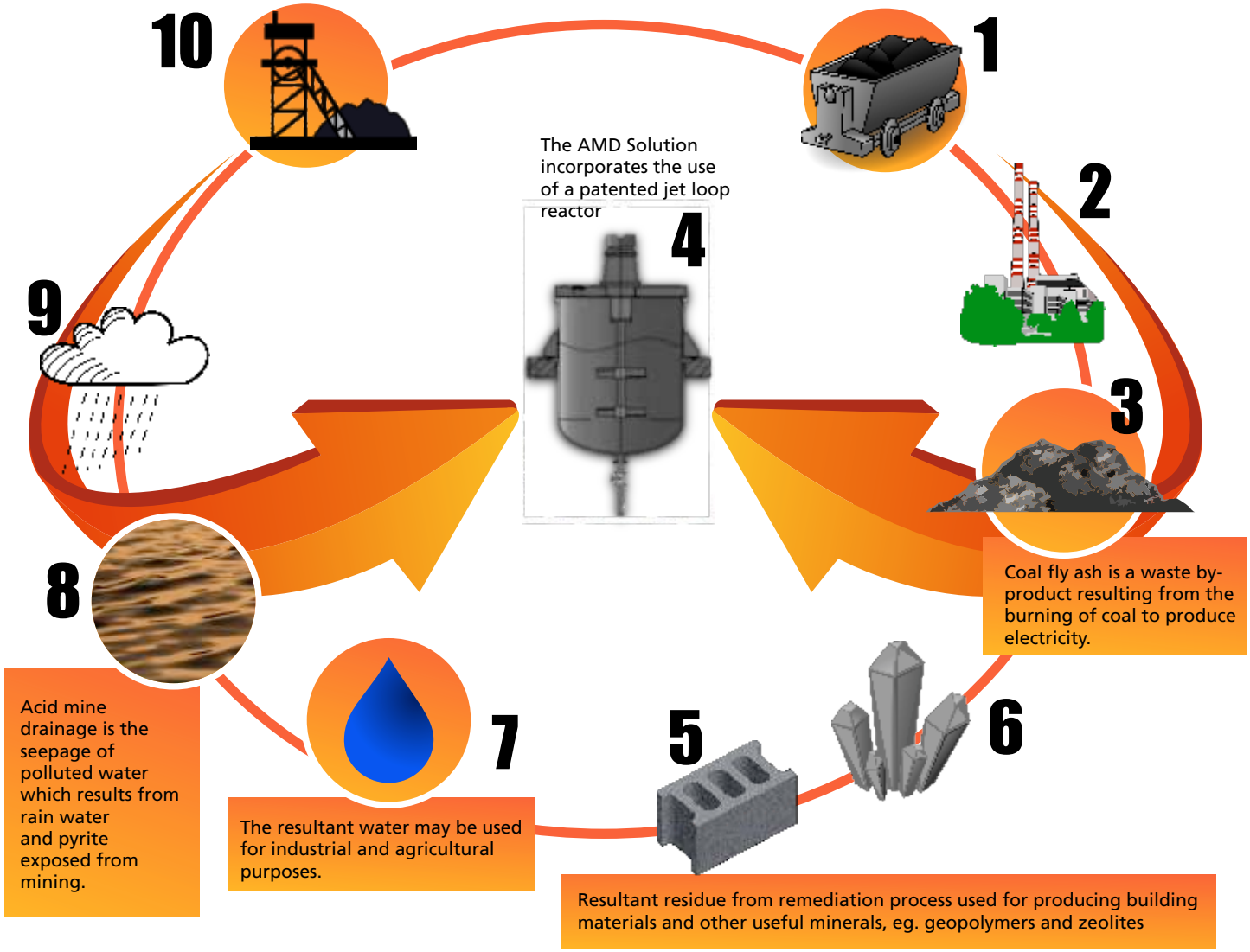
UWC Technologies

Treatment of Acid Mine Drainage using fly ash "Waste Beneficiation"

A place of quality,
a place to grow, from hope
to action through knowledge



Technology Description

The Fly Ash-Acid Mine Drainage technology involves the treatment of AMD water with coal fly ash using a jet loop reactor in one single simple procedure to reduce the contaminants to acceptable levels, and thereby remediating contaminated water which can thereafter be used for agricultural and industrial purposes. Residues produced from the process can be used to backfill the mine voids and thus prevent further AMD formation, offering a much sort-after cradle to cradle solution.

Applications

- Waste-water treatment
- Fly Ash waste beneficiation
- Acid Mine Drainage prevention

Benefits and Advantages:

- One single simple procedure
- Beneficiation of waste fly ash
- Prevention of further AMD problem through backfilling of mines with residue
- Production of commercially viable products from residues

Patent information:

- Patent granted ZA2008/01062 "Applications for ash and its derivatives"
- Patent granted ZA2009/07606 "A mixing apparatus for mixing a fluid mixture and a method of mixing a fluid mixture"

Other Research Activities

- Fly ash and its disposal and sustainability of fly ash as salt sink
- Use of fly ash residue for value added products (zeolites, adsorbents, geopolymers)
- Nano technology in water treatment

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