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# **EFFECTS OF COAL SEAM FIRES AND OTHER ENVIRONMENTAL HAZARDS ON CHILDREN IN HWANGE**



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# Introduction

Research has revealed significant evidence of the deleterious contribution of coal to climate change through combustion. However, no investigations into life-changing disasters suffered by people in coal mining areas due to underground coal fires have been done. Raging underground coal fires in and around Hwange town are endangering humans, leaving some with near-death experiences and permanent disabilities. This report focuses on the adverse effects of underground coal seam fires and other environmental hazards on children in Hwange. Reference is also made to fire victims outside the children's category. Some of the victims who are now adults were injured whilst young and had their future ruined by the permanent injuries, lengthy periods spent in hospitals and unending excruciating pain that has become a permanent experience in their lives, largely due to inadequate therapy they received. The children who fall victim to the coal seam fires suffer a range of physical and psychological effects which include post-traumatic stress disorder (PTSD).

This report is inconclusive because not all cases were captured. It is not an in depth research on the effects of underground coal seam fires on children in Hwange. Data was gathered alongside implementation of human rights interventions in Hwange by the Centre for Natural Resource Governance (CNRG). The organisation had the privilege to visit some of the affected children in their homes. Some of the survivors or their guardians consented to have their stories and pictures published. For ethical reasons, some of the pictures could not be published in this report due to the gravity of the injuries.

There is scope for further research which could include visits to schools in and around Hwange to talk to school authorities on statistics of affected children, and assessments of how these tragedies have affected the school performance of the affected children.

This report is a call to action to the Government of Zimbabwe and an invitation for dialogue among mining stakeholders in Hwange on reducing and bringing to an end these incidences. There is also need to offer various forms of help to the affected children and their families and ensure they get equal opportunities in life. Both the families and the children need psycho-social support to overcome the trauma they now live with. Finally the stories of these children should be told whenever the story of coal is discussed.

# Underground fires

According to Global Forest Watch 'most coal seam fires are ignited by human activity, usually in the process of coal mining or waste removal'<sup>1</sup>. These fires can burn underground undetected for decades but can occasionally protrude to the surface with severe effects on flora and fauna. According to Global Forest Watch, underground coal seam fires 'cause the ground to become extremely hot and unstable, destroying roads and homes, as well as creating fiery sinkholes that swallow anything from cars to people.'<sup>2</sup>

Underground coal seam fires are now prevalent in Hwange, throughout the concession owned by Hwange Colliery Company Limited (HCCL) where there are also human settlements for the mine labour. Residents have noted that mine residue dumps found in Number 2 and 3 areas of HCCL are some of the most hazardous sites with raging underground coal seam fires. It was noted that loose dry materials that land on hot coal dumps quickly ignite fires that spread to coal seams. Fires travel underground from one coal seam to another and subsist in the ground for many years. Removal of overburden during mining brings the fires close to the ground. In some cases, the overburden gives in to the heat, causing the ground to collapse.



*A common sight of smouldering ground in Hwange as a result of underground coal seam fires. There are some areas where the fire is invisible with no signs of smoke or burning objects.*



*This is one of the few areas that the Colliery Company has erected a danger sign to alert the community, but the area is not fenced.*

## WHY CHILDREN?

Children, by their very nature love playing and having fun. They are curious, experimental and adventurous. They have limited knowledge of the life changing dangers that surround them in mining compounds. Most of the children profiled in this report met their fate whilst playing with their peers. For instance, the child attacked by a crocodile whilst swimming in an abandoned pit that became a pond was doing what any other child would do when they find plenty of water. Unlike children in affluent suburbs who play in controlled environments, usually under the watch of an elderly person, children in mining areas play on their own. Usually their parents have no clue as to where they spend their day playing or what they spend their time doing. In most mining regions in Zimbabwe, environmental laws are poorly implemented, resulting in creation of death traps for children who often find joy in playing with abandoned equipment and chemicals or use open pits, sometime with toxic substances, as swimming pools.

Lack of investment in recreational facilities by mining companies results in children playing in dangerous

<sup>1</sup> Global Forests Watch (2019) Embers Under the Earth: The Surprising World of Coal Seam Fires. <https://www.globalforestwatch.org/blog/fires/embers-under-the-earth-the-surprising-world-of-coal-seam-fires/>

<sup>2</sup> Ibid

zones. It is therefore important for mining companies to put in place policies that protect and safeguard children from physical danger. Dangerous sites must be properly secured to ensure children do not gain access. In places with underground fires such as Hwange, the company and the Environmental Management Agency have a duty to keep watch over these fires and warn the community accordingly. Companies that dig and leave open pits must be heavily fined and banned from operating as they pose risks to unsuspecting children. The Ministry of Health and Child Welfare also need to carry out inspections on the safety and wellbeing of children in mining zones and make policy recommendations to the government for tightening of laws to ensure children do not fall victim to mining hazards.

## Children as victims of underground coal seam fires in Hwange

Whereas several people have fallen victim to the underground fires in Hwange, an analysis of the age range of the victims reveals that the majority are children. Children usually play on grounds close to the mine dumps or run on grounds that have underground fires, unaware of the danger. The areas with the underground fires are not secured and some of the fires are invisible such that children can easily walk over the ground. Equally, adults have fallen victim to these underground fires as they pursue their day-to-day livelihood activities in and around the mine.

The following are a few cases of children who were burnt by coal seam fires in Hwange.

### An early-childhood development level child (minor)

On the 11th of September 2021, a six-year-old child landed on burning coal after the ground gave in while he was walking from Madumabisa village to Number 2 area in the Colliery. The child, who cannot not be named for ethical reasons, was in the company of his grandmother when tragedy struck. The burns that he sustained are severe such that doctors had to cut off some flesh from his thighs and grafted it on his burnt feet. The child was admitted in hospital for two months and is currently visiting the hospital regularly for wound dressing. This child has missed out on school and will continue to miss school for several months until he fully recovers. The traumatic experience is likely to affect the child's psycho-social development as his ability to engage in educational and extra-curricular activities like other children has been negatively impacted.



*The injured, a six-year-old ECD child from Hwange. The doctors had to cut off flesh from his thighs (bandaged) to graft onto his severely damaged feet.*

## Obedient Dube

Obedient Dube was burnt at the age of 13, then a Grade seven pupil at one of the primary schools in Hwange. He was bird-hunting in the woods with three of his peers during the 2016 August school holidays. He had moved from Madumabisa compound in Hwange Colliery trekking birds to the coal ash dump sites near Area A residential area. While at Area A residential site, the top surface suddenly gave in partly swallowing young Dube to knee level and exposing him to burning underground coal seam fire.

Obedient, now 21, was burnt on both feet as he frantically moved them up and down hoping to escape from the red-hot coal ash. He was admitted at Hwange Colliery Hospital for more than three months and had to write his Grade 7 examinations from the hospital bed. Although he was injured eight years ago, Obedient still feels the pain on his left foot and the hallux has been moving backwards as the muscle tightens, presumably to heal the internal injuries. The shift in his hallux, he says, is making it increasingly difficult for him to walk.



## Simba Mulezu

Simba Mulezu was burnt in 2009 as a ten-year-old while driving cattle from his mother's fields when the ground gave in under his feet, sinking him into the burning coal underground. Simba who now lives with a permanent handicap was left with deformed limbs. He spent several months in hospital and Hwange Colliery Company did not assist with hospital bills and other necessities. To date, Simba still suffers from the effects of the burns and can no-longer spend much time outdoors because the aching cannot cope with the region's scorching weather. His injury marked the end of schooling for him as he could not walk to the nearest school. His widowed mother also could not afford a wheelchair and had no means to facilitate his daily movement to school.

## Luckson Tembo

Luckson Tembo was injured in 2012 while playing with friends at a place called Brick Fields. He was doing Grade 4 then. According to Luckson, the topsoil looked reddish with some whitish patches and he did not know that there were underground coal fires beneath. The ground opened as he was playing, he fell in and was burnt up to the thighs. He was helped by the women who were tending to their fields close by. He was later sent to Hwange Colliery Hospital and later transferred to United Bulawayo Hospitals where he got treatment. Luckson is hurt by his predicament and says it breaks his spirit to see his age mates up and about. He is not able to wear normal shoes anymore because he still feels the pain although the accident happened 9 years ago. He wishes to teach other children about the dangers of the coal fires.



## Steven Nyoni

Steven, now (37) share similar experiences with the children profiled in this report. He was injured in 2019 at an old mining site at Number 3 in Hwange. Unlike the young victims who were burnt while either playing, bird-hunting or picking mangoes, Steven was burnt while evading the Zimbabwe Republic Police Officers who had descended the old mining site to chase away artisanal coal miners. He spent three months in hospital and lost six toes after they were amputated due to the degree of injuries sustained. Due to unemployment, Steven survived on artisanal coal mining. He would sell coal to travellers and other locals who use it as a source of energy for cooking. He suffers from loss of balance, nagging pain in both legs and post-traumatic stress disorder. He has no source of income to sustain his family.

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### Eight-year-old girl (minor)

The latest victim of coal seam fires is an eight-year-old Makwika village girl doing Grade one at a local school in Hwange. The child met the tragic fate on the evening of the 8th of November 2021. As she was walking to relieve herself at a nearby bush the ground gave in and she landed on burning coal. In the suburbs built for the workers by Hwange Colliery Company Limited (HCCL), residents use community toilets that were never fitted with a lighting system. This, coupled with water challenges has forced residents to resort to using the bush as toilets. The child was in the company of her aunt who quickly rescued her, but not before she was severely injured. She was burnt from the feet up to the chest and from the graphic pictures seen by CNRG, pieces of flesh were falling off. The child was immediately admitted to Hwange Colliery Company Limited hospital before being moved to St Patrick's Hospital in Hwange. Hwange residents are currently pulling resources together to assist the girl's family to move her to a referral hospital in Bulawayo.

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### Teenager dies at an old mine dump site

On the 12th of November 2021, a 16-year-old boy died when a tunnel collapsed on him while scavenging for coke within the Hwange Colliery concession. The tragic incident happened at an old mine dumpsite, in an area called New Coke Plant Reclaim. The teenager was reclaiming coke for resale. The old mine dumpsites are not secured and thus a death trap for locals who are desperate for livelihoods amidst increasing poverty levels in Zimbabwe. Many lives have been lost at the unsecured old mine dump sites. In February 2020, Simelweyinkosi Dube, aged 31 died after a tunnel she was using to sneak into Hwange

Colliery Company's premises collapsed on her and her colleague. Hundreds of people from Hwange survive on artisanal coke extraction due to high levels of unemployment in the coal mining town. They use the coke to make fire at home and to bake bricks which they mould for sale in a bush between Cinderella suburb and Baobab Hotel. The cheaper bricks are sold as far as Victoria Falls and Bulawayo. They have become a source of income for a lot of residents due to lack of better, non-coal based livelihood options.

## Hazards of open pits left by mining companies

Besides coal fires, there are dangers of open bitumen pits and deep water reservoirs that are not fenced to prevent children from getting close to these mine hazards. Children swim in these water reservoirs unmonitored. It has been noted that one of the water reservoirs that attract children during the hot season is adjacent to a pit that collects bitumen from a nearby factory. In September 2021, a child fell into the bitumen pit and was lucky to be rescued by adults who rushed him to hospital.



*Children swimming in a water reservoir for the coal mine (left) which is adjacent to a pit of hot bitumen from the factory (right). Two month ago (September) a child fell in the hot bitumen and was lucky to be saved by adults who rushed him to hospital. The arrow shows the spot where the child was stuck in the bitumen.*

### **Crocodile attack on a minor**

On the 22<sup>nd</sup> of February 2020, a 12-year-old boy was attacked by a crocodile while swimming in a pond near their home. The pond developed from a pit that was dug and left open by Hwange Coal Gasification Company. During the rainy season, water collected in the pit forming a large pond which attracted children for swimming. One day as the children were playing in the pond a crocodile, that had found a habitat in the pond, attacked the boy whom it grabbed by the shoulder. The youngster was saved by his father who was at home, about 200 meters away. The father ran to the pond to save his son after being alerted by other kids. The boy sustained serious injuries on the left shoulder and arm. He was admitted at Hwange Colliery Company hospital for more than 3 months, resulting in him missing school. The injuries continue to trouble the youngster. A year after being discharged from hospital, he started complaining about serious pains and had to undergo a surgical operation.

Hwange Coal Gasification Company, which was responsible for creating the hazard, refused to pay the \$12,000 medical bills nor to compensate for the injuries.



*The injuries sustained by the 12 year old after a crocodile attack while swimming in a pond created by Hwange Coal Gasification Company, a few metres from his home in Hwange.*

Studies have shown that the survivors of burn injuries often suffer from chronic pain and sensory problems, pruritus, and loss of strength. Psychosocially, a certain proportion may develop depression and posttraumatic stress disorder (PTSD) after being discharged from hospital and this can go on for several years after the incident. Some of the signs of PTSD that have been observed include shyness, withdrawal, moods, physical pain, loss of balance, loss of sleep, hallucinations and ultimately a sharp decrease in the children's learning ability. The emotional trauma caused by burns can affect all aspects of a person's life; that is stress in relationships, substance abuse and depression and giving up on childhood dreams.

Some of the families told CNRG the affected children feel shy and try to hide their disabilities from their peers. They are also very sensitive about how they look. The children now need special shoes or walking aids, which their families cannot afford. The parents also narrated their agony of having to cope with the unexpected disabilities that befell their children, some of whom had promising sporting careers. They also bemoaned the lack of support from either Hwange Colliery Company Limited (HCCL) or the Government of Zimbabwe which owns HCCL. The pain is felt by all members of the affected families who also now live with guilt and many unanswered questions.

The unmitigated underground coal seam fires present serious hazards for children. Most of them experienced grave accidents in places no one ever expected such disasters could happen. There were no danger warning signs to keep people away. For instance the coal seam fires that swallowed the little boy driving away cattle from their field had never been detected as there was no sign of fire on the surface. The mother who sent the boy to drive away the cattle now lives with a permanent sense of guilt over an accident she is not responsible for. Similarly, those who met their fate whilst playing suddenly found themselves trapped in an underground lake of fire with no slightest idea of what was happening or how they ended up there.

Section 19 of the Constitution of Zimbabwe obligates the state to adopt policies and measures to ensure that in matters relating to children, the best interests of the children are paramount. There is need for Zimbabwe to make laws and policies that, among other things, protect children from harmful industrial practices and hold perpetrators accountable. Often children's rights are discussed in the context of physical abuse or parental custody in matters pertaining to divorce or separation of parents.

Poor Health, Safety, Environment and Community (HSEC) practises by the coal mining companies in Hwange violates Section 73 of the Constitution of Zimbabwe which guarantees every person the right to

an environment that is not harmful to their health or wellbeing. The violation of Section 73 of the Constitution by the mining companies invariably violates a basketful of other rights of children, such as the right to education, the right to protection from physical harm and the right to life, among others. .

The sad stories of the tragedies encountered by children in Hwange are incomplete without highlighting what mothers endure when their children fall into life-changing calamities. Women endure nursing the burns and raising handicapped children and they are forced to start providing the same care they provided when the children were infants. For most of the unlucky victims, coping with their disabilities has been hard. It is left to nursing mothers to provide both physical and psychological therapy.

Poverty also compounds the situation as parents could not afford wheelchairs. It can also be concluded that poverty exposes older people to risky livelihoods as they enter unsecured old mining and dump sites to eke out a living. Some of the people who have been burnt are adults who were venturing into artisanal coal mining as a livelihood option.

The sites which are prone to fire are not protected and environmental experts revealed that in line with the Health, Safety, Environment and Community (HSEC) practises, mining companies are supposed to secure the old mining sites and erect warning signs to alert members of the public.

Despite clear evidence of the huge risk posed by the coal mining activities in Hwange, the government, HCCL and Environmental Management Agency (EMA) have not done anything so far to protect the children and the community. EMA is expected to execute its mandate of monitoring adherence of mining companies to environmental management regulations without fear or favour.

## Recommendations

Whilst this report only focused on Hwange, it reflects the risks every child in mining-affected communities face in Zimbabwe. The solution to some of the hazards is not only with mining companies and regulatory authorities but also families and schools where children should be taught not to play in hazardous places.

- There is need to have clear child safeguarding policies by all mining companies in Hwange and even beyond
- Coal mining companies must carry out awareness raising campaigns in schools and communities on the dangers of coal seam fires
- The Department of Social Development should consider providing psychosocial support to all the victims and their families, including support for treatment of posttraumatic stress disorder
- There are opportunities for social researchers to conduct a study on how poverty is driving risky behaviour in Hwange leading to fatal and near fatal disasters for vulnerable groups
- The government and mining companies should capacitate local health centres to deal with victims of coal seam fire disasters
- Government need to come up with rehabilitation programs for victims coal seam fire victims and also how to manage the coal seam fires
- The mining companies should develop Information Communication Technology materials for awareness raising on the dangers of coal seam fires.
- The government need to align its progressive climate change response strategy and policy to practical reduction in coal activities in Hwange.

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