

It is Possible to Minimize Fatalities in Mining

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BY HARUNYAHYA

"Mining, which usually does not require a large investment and where even a single pickaxe, shovel and a group of workers are deemed sufficient, is also a sector with the world's highest number of fatal work accidents. The accident that took place in China on April 26, 1942, where 1,549 workers lost their lives, is considered to be the worst mining disaster in history"

From cell phones to residential heating, from commuter trains to tablespoons, minerals are used in all aspects of daily life. With this wide usage of minerals, the mining sector increasingly gains greater importance. As the sector grows and flourishes, it becomes more profitable and attractive.

Mining, which usually does not require a large investment and where even a single pickaxe, shovel and a group of workers are deemed sufficient, is also a sector with the world's highest number of fatal work accidents. The accident that took place in China on April 26, 1942, where 1,549 workers lost their lives, is considered to be the worst mining disaster in history.

Mining accidents due to various causes such as tunnel collapse, fire, flooding, gas entrapment, carbon monoxide poisoning and methane gas and coal dust explosions often result in mass deaths. It is, however, possible to reduce the frequency of accidents and prevent deaths.

For example, although Germany's coal production volume is several times greater than that of Turkey's, fatal mining accidents are an extraordinarily rare occurrence in the country as opposed to Turkey. This is because Germany has introduced a vital solution toward preventing mining accidents. The solution involves the use of fully remote-controlled, high-tech robotic systems and specialized machinery. Thanks to automatically operated mining systems, today it is possible to minimize accidents that occur during drilling, blasting, and hauling and hauling of minerals through tunnels. Operated via an automation system, these systems not only prevent accidents, but also drastically increase the efficiency in mines.

The Heerds Pitsch mine in South Africa, CODELCO's El Teniente mines in Chile and Rio Tinto's West Angelas Mine in Pilbara, Australia are among the first underground mines to adopt automated hauling and transportation systems.

In mines without access to these high-tech systems, it is also possible to take protective and preventive measures. The first and foremost among these is the utilization of detectors that give early warnings against

"In addition to all these measures, there is a key point that should always be remembered: human life is definitely far more precious than a chunk of minerals. The best preventive measure should be to avoid greed and the ensuing total disregard for human life for the sake of generating greater profits. And the primary way of achieving this is to implement an education system that will turn people away from the egoistical lifestyle that holds self-interest above all else and carry out a social life study that will change social perceptions. The greatest measure against disasters will be possible by first changing the human mentality"

toxic and explosive hazards. Capable of providing information on carbon monoxide, carbon dioxide and methane gas levels and maintaining a wireless communication link with headquarters aboveground, these detectors minimize the risk of an accident. Moreover, the utilization of systems that safely capture coal dust, which causes explosions and fires in coal mines and proves too risky to even inhale, is another key measure against accidents. GE's newly launched CoalPitix technology can reduce coal dust by up to 90% in different coal mining operations.

It is also possible to prevent fatalities caused by rock falls and mine pit collapse. For this, digging locations must be planned ahead well to begin with. In addition, it is also possible to keep mine holes, rock surfaces and cracks under constant check via electronic monitoring systems. In fact, there are already available systems that make pillars and beams redundant and can support and advance through tunnels without any human intervention. There are already companies in the mining sector that produce such technological solutions.

Apart from these, using proximity detection and hazardous area signaling systems that ensure a safe distance between workers and heavy machinery is another way to reduce work accidents in mines. Through rollover, collision and speed warning systems, it is possible to protect both machine operators and workers in the area.

Trucks also play a significant role in mine pits. Truck drivers being attentive and vigilant during working hours are crucial for accident prevention. At this point, fatigue monitoring systems can come in handy. These systems detect the onset of fatigue and instances of micro-sleeps in the truck operators and create an alert for them. Employing eye and head monitoring technology, an Australia-based company has developed a fatigue monitoring system called the Driver Safety System (DSS). Putting this system into action in mines will prove immensely helpful.

It is also possible to minimize accident risks by taking measures outside the mine pits. The first and foremost of these measures is proper training. It is of common knowledge that miners undergo various training classes at the beginning of their mining careers. However, miners should be put through compulsory and more extensive training programs. While novice miners are put through this training, the training that experienced miners have received should be periodically repeated through refresher courses; we can see examples of this in other industries. Employing machinery simulators and virtual reality technology during training sessions can help mine workers be better prepared for the working environment, improve their skills, and allow for better

implementation of safety measures.

With or without the use of all these technologies, the mining sector absolutely demands a strict regulation when it comes to protecting people's lives. In fact, the existence of such regulations alone is not enough. Mines must also be subject to frequent and meticulous audits to monitor whether the measures prescribed by the regulations are observed. These audits might also prove helpful in easing the tension caused by the suspicion of 'negligence' that comes to mind.

Another preventive measure often overlooked in the prevention of mining accidents concerns the freedom of the press. The fact that mining accidents are sometimes withheld from the public leads to a loose implementation of health and safety standards. Therefore, the media, unions and NGO's being able to freely express their thoughts on mining accidents will play a big role in increasing measures in mines.

The mining sector needs to see efforts made towards a transition to automated systems; investments must be planned accordingly without delay, new regulations must be laid out to this end and any necessary aid should be provided by states.

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1 Akanshu Gupta, *The world's worst coal mining disasters*, Mining Technology 15 May 2014, <http://www.mining-technology.com/features/features-world-worst-coal-mining-disasters-china/>

2 *Prevent Deaths, Mining safety - innovative technologies to prevent mining accidents*, Mining Technology 2 April 2014, <http://www.mining-technology.com/features/features-mining-safety-innovative-technologies-to-prevent-mining-accidents-420713/>

3 Ibid

4 Philippe Donohue, *What Can Be Done to Prevent Mining Accidents?*, The Balance 16 April 2012, <https://www.thebalance.com/what-can-be-done-to-prevent-mining-accidents-4367037>

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Adnan Oktar's piece in Kashmir Reader (India):

<https://kashmirreader.com/2018/02/13/it-is-possible-to-minimize-fatalities-in-mining/>

<https://www.harunyahya.info/en/articles/it-is-possible-to-minimize-fatalities-in-mining>