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Workplace accidents in the mining industry: a comparative analysis of social security laws and jurisprudence in India and the USA

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Abstract

The mining industry is an important source of economic development for a country but remains one of the riskiest, with workers often facing accidents and long-term health problems. The researchers through this paper examine workplace accidents in the mining sector, focusing on the comparative frameworks of social security laws in India and the USA. Despite the differences in the socio-economic contexts, both countries share common challenges in addressing the safety and welfare of the workers. In India, social security measures like the Mines Act of 1952, the Employees' State Insurance Act of 1948 and the Code on Social Security of 2020 aim to safeguard workers but often fall short due to poor implementation and limited coverage. On the other hand, the USA has a more robust system, including the Mine Safety and Health Act of 1977 and programs such as the Black Lung Benefits Program, which provide better protection through stricter enforcement and funding.

The paper explores the historical evolution of mining laws, the impact of privatization, and the role of laws and technological advances in making mining safer. The analysis highlights the need for India to strengthen enforcement mechanisms and for the USA to address residual gaps in worker health protections. Learning from each other's strengths can help both countries create safer and fairer workplaces. The paper concludes that more comprehensive laws, stricter enforcement, and improved training are essential to ensure that social security systems in mining are both preventive and responsive, reducing accidents and ensuring the long-term welfare of workers.

Keywords: *Mining safety, Social Security, Workplace Accidents, Welfare, Accident prevention.*

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Introduction

Mining is the process of extraction of useful minerals and metals from the earth. The prevalence of mining dates back to prehistoric times from flint being the first mined tool to modern-day mining of gold and copper. The process of mining can be broadly categorized into surface mining and underground mining. Although surface mining makes up a huge percent of the mining project due to its convenience, the impacts it has on the environment are also equally degrading. Underground mining, on the other hand, is done through tunnels thereby causing lesser environmental degradation but at the same time causing more accidents as it traps workers underground.

Mining is man's one of the earliest occupations and the use of minerals has increased both in quantity and in variety ever since then. Be it developing countries like India or developed countries like the USA, both are equally dependent on the mining sector to boost the nation's economy. Mining not only boosts a nation's economic growth but also financially uplifts a society from its lowest levels by providing employment and opportunities. Some communities benefit more than the other due to the targeted social intervention of mines. The immediate and long-term contribution of mining is crucial to the socio-economic upliftment of rural economies. The wide range of opportunities mining offers creates thousands of direct and indirect jobs which reaches even the least developed corners of developing countries. However, the increase in the number of accidents with the increase in the number of years in the mining industry requires immediate attention. Even though the workforce of the mining industry comprises 1% of the total workforce, it accounts for 8% of the fatal injuries in the world.[3] The number of casualties in the mining industry has sky-rocketed even after cases from small-scale industries went unreported. The causes of accidents are many including rock falls, lack of ventilation, misuse of explosives, poorly maintained equipment, lack of knowledge, and training, and violation of regulations.[4] The recent years have seen a steep rise in Uranium mining to meet the increased energy demands of society. Uranium not being a rare element adds to its benefits as it occurs potentially in recoverable concentrations across various

[3] Mining: a hazardous work (*International Labor Organization,* 23 March 2015) <https://www.ilo.org/global/topics/safety-and-health-at-work/areasofwork/hazardous-work/WCMS_356567/lang--en/index.htm> accessed 10 November 2024.

[4] 'Social and labour issues in small-scale mines Report for discussion at the Tripartite Meeting on Social and Labour Issues in Small-scale Mines' [1999] International Labor Organization < https://www.ilo.org/resource/social-and-labour-issues-small-scale-mines-report-tmssm1999 > accessed 10 November 2024.

geographical locations. The rise in uranium mining can also be attributed to the global efforts to tackle climate change.[5] But the benefit comes with a greater cost. Uranium which eventually decays to form radon is radioactive in nature. The continuous accumulation of it without proper air ventilation leads to serious health hazards for the miners when inhaled over a long period of time.[6] The prolonged exposure to alpha radiation can lead to lung cancer in the subsequent years along with delayed cancers and genetic effects.[7]

The International Labour Organization (ILO) has claimed social security as a basic human right to protect against certain life risks and social needs.[8] Still, the evils of the mining industry not only affect the workers' lives during their employment years but continue to be perilous even after their retirement due to different diseases due to their past occupation and sudden termination of wages after retirement creates economic hardships among the workers. The workers also face economic insecurities during accidents or disabilities because of their low income and low savings. Although various direct and indirect social security benefits are entitled to mining workers in the form of employee provident fund (EPF), pension, etc. the lower implementation of such benefits causes a high degree of negative externality on the community. The lesser implementation can be attributed to the privatization of mines, rampant corruption, and profit maximization which leads to neglecting the social security and developmental needs of the workforce.

The broad objective of the study is to examine workforce accidents in the mining industry and analyze the implementation of social security laws for the workforce. Specifically, the study addresses such implementation in developing countries like India and developed countries like the USA for the upliftment of the mining workforce community in all spheres of society.

Historical overview of mining accidents

[5] Jim Robbins, 'A Nuclear Power Revival Is Sparking a Surge in Uranium Mining' *(Yale Environment,* 4 April 2024) < https://e360.yale.edu/features/us-uranium-mining-nuclear-power > accessed 11 November 2024.
[6] 'Radioactive Waste From Uranium Mining and Milling' *(EPA,* 15 February 2024) < https://www.epa.gov/radtown/radioactive-waste-uranium-mining-and-milling#:~:text=Underground%20mines%20can%20present%20a,exposure%20to%20naturally%20occurring%20radiation. > accessed 11 November 2024.
[7] J. Leigh, 'OCCUPATIONAL HEALTH AND SAFETY IN URANIUM MINING AND MILLING' *(Parliament of Australia,* February 1997).
[8] Pradeep Kumar Sahoo et. al., 'Social Security of Mining Workers: Policy Versus Practice' [2022] 8(2) Journal of Human Rights and Social Work 1.

India and the USA faced several significant mining accidents since the 20th century which posed severe risks to the associated workforce, localities, and the environment. These accidents or disasters cause substantial loss of life which often goes unrecorded or less publicized. Such accidents over the years have caused rapid growth in the formulation of laws in the USA however the growth of such laws in India has been slower but steady.

One of the considerable accidents in the history of the mining sector was the first Red Ash Mine Disaster which occurred on March 6, 1900, in the Fayette County of West Virginia when a ventilation trap door was left open overnight which allowed methane gas to accumulate. The next morning when miners entered the mine before the gas checks were completed, the open flames from their headlamps ignited the methane which led to an explosion igniting the coal dust in the mine air and kegs of blasting powder. This led to the immediate death of some of the miners while the majority of them died from the suffocation of the poisonous atmosphere.[9] Five years later, on March 18, 1905, a disaster was triggered at the same mine when a mine cart ran over loose explosives, causing a concussion that ignited coal dust suspended in the air which caused the death of thirteen miners. The following day eleven members of the rescue team were killed when another explosion was set off by the open flame lights of the members.[10]

Layland No. 3 which was considered one of the safest mines in New River George witnessed one of the deadliest explosions of all time killing a total of 112 people. The cause of the explosion was listed as the ignition of methane propagated by coal dust. The powerful nature of the explosion blew off the mine entrance killing miners not only from the explosion but also from the suffocation due to afterdamp.[11] The Monongah Mine Disaster is still considered one of the worst mine disasters in the American history of mining. The explosion in mines No. 6 and 8 of the Fairmount Coal Company wrecked the mine completely and killed almost four hundred workers. The force of the explosion in mine No. 8 was so great that the concrete roof of the engine house was torn into fragments spreading deadly gases within the entire area. The original cause of the disaster is still unknown as the reports of the Ohio State inspectors stated

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[9] 'Mining and Industrial Disasters, (*National Park Service,* 14 Sept 2023) <https://www.nps.gov/neri/learn/historyculture/mining-and-industrial-disasters.htm > accessed 11 November 2024.

[10] 'Rush Run - Red Ash Mine Explosions' (*U.S. Mine Disasters)* < https://usminedisasters.miningquiz.com/saxsewell/rush_run.htm > accessed 11 November 2024.

[11] 'Layland No. 3 Mine Explosion' (*U.S. Mine Disasters)* < https://usminedisasters.miningquiz.com/saxsewell/layland.htm > accessed 11 November 2024.

that there were no survivors left to give reliable information about the condition of the mine or the defects in the ventilation.[12]

The Granite Mountain Speculator Mine disaster of 1917 still stands as one of the most devastating events in the history of the mining industry. The accident claimed 168 lives the headlamp of one of the miners accidentally ignited the oil cloth sheathing on a long cable in a shaft after which fire spread throughout the mine. The fire further pumped smoke and toxic gases, filling the vast networks of tunnels. Among the dead were even those who died trying to rescue others. The incident struck the demand for better safety reforms and better pay.[13] Since this incident, the Sunshine Mine fire of 1972 has been the largest disaster of the hard-rock mining industry where ninety-one men perished due to the smoke and carbon monoxide that filled the area after a fire broke out in the mine. This incident exposed the weak administrative setup of safety which led to the formulation of the Mine Safety and Health Act of 1977.[14]

However, according to the database by the United States Department of Labor, the number of fatalities has decreased over the years, both in metal and non-metal operations and coal fatalities.[15]

The mining accidents in the USA show the risks faced by the workers of the mining industries. However, the perils that the workers face are not just restricted to the USA but the problem is universal. In the USA the accidents often show the challenges of managing advanced mining operations. While in India the issue lies with weak safety enforcement of mines and outdated practices by the management.

The Chasnala Mining Disaster occurred on December 27, 1975, near Dhanbad, then in Bihar now Jharkhand, India. An explosion caused the wall to collapse, allowing 110 million gallons of water from an abandoned mine to flood the active mine, which trapped workers inside. 375 Miners were killed and the death was instantaneous and horrible. Investigations found serious safety failures and the negligence of the management. There was no safety equipment available

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[12] 'The Monongah coal mine disaster' *(History,* 20 July, 2010) < https://www.history.com/this-day-in-history/the-monongah-coal-mine-disaster > accessed 11 November 2024.

[13] James D. Harrington, 'A Re-examination of the Granite Mountain Speculator Fire' [1998] Historical Commentary < https://mhs.mt.gov/education/docs/CirGuides/Harrington-Butte-1998.pdf > accessed 11 November 2024.

[14] 'Sunshine Mine Disaster' (*Mine Safety and Health Administration)* <https://www.msha.gov/sunshine-mine-disaster> accessed 12 November 2024.

[15] 'Fatality Reports' *(Mine Safety and Health Administration)* <https://www.msha.gov/data-and-reports/fatality-reports/search > accessed 12 November 2024.

on the site. A memorial called Shaheed Smarak was built in Dhanbad to honour the victims of India's worst mining disaster.[16]

The Goda Open Cast Mine Accident occurred on December 29, 2016, in Jharkhand's Godda district which resulted in the deaths of 23 miners. The disaster happened when a massive overburden dump collapsed due to previous warnings about cracks and instability. Despite alerts from workers, management insisted on continuing operations. The dump, 650 meters wide and 110 meters high slid down, burying the miners beneath approximately 9.5 million cubic meters of earth. Investigations revealed the negligence by Eastern Coalfields Limited (ECL) and the operating contractor.[17]

The Bharatpur Open Cast Mine Accident occurred on July 23, 2019, in Odisha and resulted from a controlled explosion that triggered a landslide, which trapped 13 Miners. Three workers were confirmed dead. Concerns arose over management negligence, as local unions had previously warned about safety issues. Following this tragedy, Coal India suspended the senior mine manager and announced compensation for victims' families, while several protests came along to improve safety measures.[18]

The Chinakuri Colliery Disaster occurred on February 19, 1958, in Kulti, West Bengal, which resulted in the deaths of 175 to 182 miners due to a methane gas explosion. The disaster happened because of inadequate safety measures, poor emergency preparedness, and management negligence. Rescue operations also faced challenges with explosions and fires, where only 20 miners were rescued alive.[19]

The Kolar Gold Fields incident in 1989 marked a rapid decline in one of India's richest gold mining regions, Karnataka. While specific casualties from this year are not well-documented, the site had a notorious history of unsafe conditions, resulting in numerous mining fatalities over the years. The decline in gold reserves rendered mining operations increasingly unprofitable and hazardous, with reports of high temperatures and toxic gases. The KGF mines

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[16] Disaster Case Report, 'INDIA- Mine Explosion' [1975] Office of U.S. Foreign Disaster Assistance < https://pdf.usaid.gov/pdf_docs/PBAAH092.pdf > accessed 12 November 2024.

[17] 'ECL Rajmahal Mine Dump Failure' (*MSIA,* 29 December 2016) < http://www.mineaccidents.com.au/mine-accident/239/ecl-rajmahal-mine-dump-failure > accessed 12 November 2024.

[18] 'Bharatpur Opencast Mine' *(Directorate General Of Mines Safety)* < https://dgms.gov.in/writereaddata/UploadFile/Bharatpur%20OCP-FA-230719-alert.pdf > accessed 12 November 2024.

[19] 'Chinakuri Colliery Disaster' [1959] MOTION TO CONSIDER POLICY OR SITUATION OR STATEMENT OR ANY OTHER MATTER < https://eparlib.nic.in/handle/123456789/904099 > accessed 13 November 2024.

were closed in 2001, whose abandonment symbolizes the end of an era, reminding of its legacy and human cost of gold mining in India and ongoing issues related to labor rights and safety.[20]

USA Social Security laws in mining industries

The discussion of the social security of miners cannot be started without mentioning the United Mine Workers of America which is best known for representing coal miners. It was the Union's long struggle that enabled the workers today to work in a safe environment. The struggle of UNWA can be dated back to 1890 when the members started their fight for safe workplaces, good wages, and benefits. The first federal statute for mine safety was enacted in 1891, and it applied only to mines within the US territory. Although not expansive in nature, the legislation established minimum standards of ventilation for underground coal mines and also prohibited the employment of children under 12 years of age.

With the number of coal mine fatalities exceedingly annually, the United States Bureau of Mines was established in July 1910 to ensure the adequacy of supplies of nonfuel minerals for security. The Bureau was mainly based on research and fact-finding to provide technologies for various mining operations.[21] The Federal Coal Mine Safety Act of 1952 was signed by President Truman to allow the Bureau of Mines to inspect the coal mines annually and they were also empowered to impose civil penalties in case of non-compliance of operations.

Later in 1969 the Federal Coal Mine Health and Safety Act, commonly known as the Coal Act was passed which encompasses all the aspects of underground and surface coal mining. The enactment of this Act seems to be due to the inability of the Bureau of Mines to improve the health and safety of coal miners after the shocking mine disaster which killed seventy-eight miners in Farmington, West Virginia in 1968 as stated by the Senate Committee on Labor and Public Welfare.[22] The Act mandated federal inspection twice a year for surface mines and four times for underground mines. It strived to create strong enforceable safety protections and sanctioned fines for violations and criminal penalties for wilful violations. Apart from safety measures the Act also added health protections and established federal benefits for victims of

[20] Deepa Alexander, 'KGF: Memories of a mining town' *(The Hindu, 23 April 2023)* < https://www.thehindu.com/society/history-and-culture/kgf-memories-of-a-mining town/article31406062.ece > accessed 13 November 2024.

[21] 'Mines Bureau' *(Federal Register)*< https://www.federalregister.gov/agencies/mines-bureau > accessed 12 November 2024.

[22] Ralph E. Bailey, 'The Federal Coal Mine Health and Safety Act of 1969: Its Impact on Safety and Coal Production' [1969] 14(9) Duquesne Law Review 671.

black lung disease.[23] However, there were debates regarding the extent to which the Act accomplished its objective as the safety record of the bituminous coal industry showed no improvement since its enactment as the lost-time accident frequency rate per million man-hours worked in the industry did not show considerable change.[24] The deficiency in the effectiveness of the Act was attributed to the approach the Act made towards the problem.[25]

The Federal Mine Safety and Health Act also known as Mine Act was enforced in 1977 as an amendment of the 1969 Act to include all mines in the U.S. within its jurisdiction.[26] It was enforced by the Mine Safety and Health Administration (MSHA), which is an agency of the Department of Labor with a statutory goal to protect the most precious resource of the U.S. mining industry- the miners.[27] The Mine Act lays down minimum health and safety standards to be executed by the Secretary of Labor and authorizes the MSHA to conduct inspections at mines.

Occupational Safety and Health Administration (OSHA) established by the Occupational Safety and Health Act in 1970 is a part of the United States Department of Labor. It assures safe and healthful working conditions for all workers by enforcing standards. The Act was designed to ensure that workers are protected from the hazards involved in their work.[28]

The mining accidents in the USA show the persistent dangers of the mining industry, even with such advanced legal safeguards. However, these risks are not just confined to one nation; they reveal a global challenge. In the USA, gaps remain in addressing health-related risks, despite such strong enforcement. On the other hand, India faces issues of poor implementation, limited reach of laws, and challenges posed by outdated practices and weak regulatory oversight.

There has been an evolution of social security laws in India which shows a significant transformation influenced by historical, social, and economic factors. It began in the pre-independence period with laws like the Fatal Accidents Act of 1855[29] and the Workmen's Compensation Act of 1923[30], which aimed to protect workers. The establishment of the

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[23] Mine Safety and Health Administration, 'Federal Coal Mine and Safety Act of 1969' *(U.S. Department of Labor)* <https://www.msha.gov/federal-coal-mine-and-safety-act-1969 > accessed 12 November 2024.
[24] Ralph (n 22).
[25] Ibid.
[26] Karen L. Johnston, 'The Federal Mine Safety and Health Act of 1977: Is It Suffering from a Mid-Life Crisis' [2001] 78(6) Denver Law Review 441.
[27] 30 U.S.C. §801(a) (1994).
[28] OSHA, 'OSH Act of 1970' *(U.S. Department of Labor)* <https://www.osha.gov/laws-regs/oshact/completeoshact> accessed 13 November 2024.
[29] The Fatal Accidents Act, 1855.
[30] the Workmen's Compensation Act, 1923.

International Labor Organization (ILO) in 1919 further emphasised the need for worker protection. Post-independence, The Constitution of India enshrined the right to social justice, through the Directive Principles of State Policy which emphasised the state's duty to provide social security to its citizens and laid a foundation for future laws.

Such as The Employee State Insurance Act of 1948,[31] which is designed to provide social security and health insurance to employees in the organized sector. It applies to non-seasonal factories and establishments with ten or more workers. It provides medical care for employees and their dependents from the day they enter insurable employment. Cash compensation of 70% of wages during certified sickness for up to 91 days per year, contingent on prior contributions. Female employees are entitled to up to 26 weeks of maternity leave. Financial support for temporary and permanent disabilities due to employment injuries and financial assistance for dependents in case of the employee's death due to work-related causes.[32]

The Employees' Provident Funds and Miscellaneous Provisions Act of 1952 (EPF Act)[33] also aims at providing social security and retirement benefits to employees in the organized sector. It applies to factories and establishments employing 20 or more workers. This act mandates both employers and employees to contribute 12% of the employee's basic salary and dearness allowance towards the provident fund. This fund accumulates over time, providing financial security upon retirement. A portion of the employer's contribution (8.33%) goes towards the EPS, which provides pension benefits to employees after retirement. This scheme offers life insurance coverage to employees, ensuring financial support for their families in case of untimely death. However, the employees can make partial withdrawals from their EPF for specific purposes such as housing, medical emergencies, or education. [34]

The Mines Act of 1952[35] regulates labour and safety in India's mining sector, ensuring health, safety, and welfare for mine workers. It prohibits women from underground work, allowing only above-ground work during specified hours. The Act mandates medical care at the mine owner's expense for injured or unfit workers, with continued wages during treatment, alternative employment, or disability allowances for those unable to resume work. It provides compensation for workplace injuries, limits work to 48 hours per week, ensures overtime pay,

[31] The Employee State Insurance Act, 1948.
[32] https://labour.gov.in/sites/default/files/Chapter%20-%206.pdf pg 68.
[33] The Employees' Provident Funds and Miscellaneous Provisions Act,1952.
[34] Ministry Of Labour & Employment, 'Annual Report 2015-16' [2015] <https://labour.gov.in/sites/default/files/Chapter%20-%206.pdf > accessed 13 November 2024.
[35] The Mines Act, 1952.

and enforces safe working conditions, including sanitation and protection against occupational hazards.

The Metalliferous Mines Regulations of 1961[36] also ensures the social security of miners by mandating health, safety, and welfare measures. These include initial and periodic medical examinations, accident reporting, and welfare facilities like housing, sanitation, and medical care to improve miners' living conditions. The regulations also ensure employment security through provisions like disability compensation, alternative employment, and protection against dismissal during medical treatment. They emphasize safety training, emergency preparedness, and awareness to minimize workplace hazards.

The Payment of Gratuity Act of 1972[37] provides for the payment of gratuities to employees in various sectors, including factories, mines, oilfields, plantations, ports, railways, and shops. The Act aims to ensure financial security for employees upon termination of their service. It covers all employees engaged in specified sectors. Employees become eligible for gratuity after completing five years of continuous service with the same employer. This requirement is waived in cases of death or disablement. Gratuity must be paid within thirty days from the date it becomes due. Failure to comply can result in penalties. The Act safeguards gratuity amounts from being seized in legal proceedings against the employee, ensuring that it is primarily for their welfare.[38]

The Unorganised Workers' Social Security Act of 2008[39] provides social security and welfare for unorganized workers, who constitute a significant portion of the workforce, particularly in sectors like mining. This Act was an important step towards recognizing and addressing the vulnerabilities faced by workers in the informal economy. The Act empowers both the Central and State Governments to formulate schemes that provide various social security benefits, such as Life and Disability Cover, Health and Maternity Benefits, Old Age Protection, Education, and Housing Assistance.[40] This Act mandates the establishment of a National Social Security Board and State Social Security Boards to advise on and monitor the implementation of social security schemes for unorganized workers. Not just the Central Government, but also state governments made efforts to ensure the social security of the gig workers. The Rajasthan

[36] The Metalliferous Mines Regulations of 1961.
[37] The Payment of Gratuity Act, 1972.
[38] Ministry (n 34).
[39] The Unorganised Workers' Social Security Act, 2008.
[40] Ministry (n 34).

Platform-Based Gig Workers (Registration and Welfare) Act[41] passed by the State Government of Rajasthan became the first state-based legislation to ensure labor rights, social security, and welfare programmes for platform workers. A petition for the violation of statutory rights, payments, or benefits of registered workers can be filed under this Act. Recently, the Karnataka Government passed a bill, the Karnataka Platform-based Gig Workers (Social Security and Welfare) Bill, 2024[42] which places an obligation to ensure social security, occupational health and safety, and transparency to platform-based gig workers.

The Coal Mines Regulations of 2017[43] ensure social security for miners by prioritizing health, safety, and welfare. They mandate safety management plans, regular audits, and risk assessments to minimize hazards. Miners undergo medical examinations for early detection of health issues, with guaranteed compensation and medical care for work-related injuries or illnesses. Provisions for alternative employment are included for those deemed unfit for their roles. It also provides training programs to enhance miners' safety awareness and job security.

The Mineral Conservation and Development Rules of 2017 (MCDR)[44] provides social security to miners by establishing health, safety, and welfare standards that protect their rights and enhance working conditions. The rules mandate regular health monitoring and medical examinations to identify occupational risks early, while also enforcing stringent safety protocols to minimize accidents. The mine operators are required to provide essential welfare facilities such as clean drinking water, sanitation, and housing. The MCDR also ensures economic security by stipulating compensation for work-related injuries and promoting training programs to enhance miners' skills.

The Unorganised Workers' Social Security Act was eventually repealed by the Code on Social Security, 2020, which aimed to consolidate various social security laws and extend benefits more comprehensively across both organized and unorganized sectors. The Code on Social Security, 2020 aims at consolidating and reforming social security laws. It seeks to extend social security benefits to all workers—both in organized and unorganized sectors, including gig and platform workers.[45]

[41] The Rajasthan Platform-Based Gig Workers (Registration and Welfare) Act, 2023.
[42] The Karnataka Platform-based Gig Workers (Social Security and Welfare) Bill, 2024.
[43] The Coal Mines Regulations, 2017.
[44] Mineral Conservation and Development Rules, 2017.
[45] The Code on Social Security, 2020.

This Code integrated nine existing labour laws, such as the Employees' Compensation Act and the Maternity Benefit Act, into a single framework to simplify and enhance access to benefits. It provides various benefits including life insurance, disability insurance, health care, maternity support, provident funds, pensions, and skill development programs. The Code mandates the registration of unorganized workers and establishes a National Social Security Board to oversee the implementation of social security schemes. For the first time, definitions for gig and platform workers are included, ensuring they receive appropriate social security protections.

Comparison of Social Security system in USA and India

The social security system is meant to serve and extend benefits to all workers who are socially deprived with conditions such as poverty, old age, unemployment, disability, etc. Social security is an important arena whereby a state provides benefits to its workforce. Be it any occupation the primary focus of social security is to prevent people from poverty and reduce the consequences of life risks.[46] The role of social security policies in developing countries should not be limited to serving as a mere 'safety net' instead it is important to focus on prevention that would reduce the risk of increased deprivation and on promotion to enhance equal opportunities among all population groups. The extent of poverty and destitution in developing countries makes it impractical for social security policies to be implemented, similar to those found in developed nations, as they would be too costly to put into practice among the poor economies. A successful comparison of the social security systems adopted by the USA and India and the extent to which they have achieved their objective is possible only after analyzing the population concerned.

The social security in the USA is primarily a social insurance program funded through payroll taxes, which are calculated based on the aggregate earnings of an employee. However, in India the social security framework not only includes insurance payments of premiums into government funds, but it also includes lump sum obligations on employer.[47] Unlike a pension, a lump sum payment is a one-time cash disbursement at retirement. Owing to the economic condition and mindset of the population in India it is found that workers after retirement with pension income remain financially more stable than those getting lump sum.

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[46] Ingo Stamm, 'The human right to social security and its impact on socio-political action in Germany and Finland' [2017] Journal of Human Rights and Social Work, 2, 25–33.

[47] Dezan Shira & Associates, 'Introduction to the Social Security System in India' *(India Briefing,* 6 May 2022) <https://www.india-briefing.com/news/introduction-social-security-system-india-6014.html/ > accessed 14 November 2024.

The social security system in America is administered by the Social Security Administration (SSA) which can be categorized on the basis of benefits after retirement, benefits to survivors, and benefits in case of disability. Mining, as an occupation being intrinsically related to all three categories, can derive benefits under these schemes. The Social Security Child's benefits offer the benefits earned by the workers to be paid to their child in case of death or vegetative condition. The Social Security Disability Insurance Benefits are paid to the people who have enough hard-earned Social Security credits but are unable to work because of their disability. The nature of work that the miners are required to perform involves the inherent risk of ending up being disabled which makes them eligible to derive benefits under this scheme. In Social Security Lump Sum Death Payment, a surviving spouse or child may be eligible to receive a special lump-sum death payment from Social Security. This payment is granted to the surviving spouse who lived in the same household as the deceased worker at the time of their death. Similarly in the Social Security Spouse's Insurance Benefits the benefits are paid to the spouse of a worker who receives Social Security Retirement or Disability benefits. The Social Security Medicare Program is a health insurance program for people who are of 65 years or older. Those qualified for Social Security Disability benefits, and people with kidney failure may also qualify for Medicare. Social Security Parent's Insurance Benefits provides financial benefits to dependent parents of a deceased worker who had accumulated enough Social Security credits.

The Black Lung Program is a federal initiative in the United States designed to provide benefits to coal miners suffering from coal workers' pneumoconiosis (CWP), commonly known as black lung disease. The program offers monthly compensation and medical treatment benefits to miners who are totally disabled due to black lung disease. As of 2023, the monthly benefit for a miner without dependents is approximately $737.90, which can increase to $1,475.80 for those with three or more dependents.

However, India opts for a different approach when ensuring the social security of workers. Most of India's workforce is in the unorganized sector, where pension provisions are voluntary. The Directive Principles of State Policy (DPSP) in the Indian Constitution[48], serve as guidelines for the country's governance, which aims to establish a just society and promote the welfare of the people.

[48] The Constitution of India, 1950.

India has also enacted several laws to provide social security to its workforce, especially focusing on unorganized workers. Employees' State Insurance Act of 1948[49] provides medical care and other benefits during sickness or maternity which is beneficial for female miners working in adverse conditions during pregnancy. Employees' Provident Funds Act of 1952[50] and Workmen's Compensation Act of 1923[51] established a retirement savings scheme for employees along with compensating them for workplace injuries.

Payment of Gratuity Act of 1972[52] regulates gratuity payments of workers employed in mines, oilfields, railways, etc. upon termination of employment. It is a form of lump sum payment paid as a form of gratitude for the service rendered by the workers. Recognizing the need for social security among unorganized workers, the Unorganised Workers' Social Security Act of 2008[53] was enacted. This Act established a National Social Security Board to recommend schemes like life insurance, health benefits, and old age protection tailored for unorganized workers.

The government of India has also launched several schemes aimed at providing social security and employment generation for unorganized sector workers, like, Rashtriya Swasthya Bima Yojana (RSBY), which provides, health insurance schemes for miners as the majority of them are below-poverty-line families. Death and disability which comprise the major risks of the occupation are addressed by the Aam Aadmi Bima Yojana which provides cover for rural landless households.

The Government of India has implemented the Employees' State Insurance (ESI) Act of 1948[54] and the Employees' Provident Fund (EPF) Act of 1952[55] to enhance the welfare and economic security of workers, particularly in sectors like mining. These acts aim to address the healthcare and financial needs of workers who face significant occupational hazards and economic challenges.[56] Mining workers experience substantial risks and financial burdens, making their inclusion in social security programs important for their protection and well-being.

The situation is similarly dire for the ESI program, where coverage is minimal across both public and private mining operations. Many mining companies argue against the necessity of

[49] Employees' State Insurance Act, 1948.
[50] Employees' Provident Funds Act, 1952.
[51] Workmen's Compensation Act, 1923.
[52] Payment of Gratuity Act, 1972.
[53] Unorganised Workers' Social Security Act, 2008.
[54] Employees' State Insurance Act, 1948.
[55] Employees' Provident Funds Act, 1952.
[56] D. Kruijt, 'Mining and miners in central Peru' (1982) Boletín de Estudios Latino americanos y del Caribe, 49.

ESI services, claiming that they provide adequate healthcare support through company-operated hospitals. However, this assertion overlooks the broader need for comprehensive social security that extends beyond workplace facilities.

Providing social security benefits for mining workers in the event of accidents or disabilities is important, given the inherently hazardous nature of their work environment. Mining workers often face significant economic insecurities due to inadequate incomes and low savings, making financial support during such incidents essential for their livelihoods. Research indicates that while 39% of mines offer free medical care, only 2% provide cash benefits, and a mere 1% offer ambulance services and paid leave in case of accidents or disabilities. Alarmingly, over 57% of mining workers do not receive any form of accident or disability support from their employers.[57]

The primary reason for this lack of support can be attributed to poor implementation of mining laws and a general lack of awareness among workers regarding their rights. Many mining companies argue that they do not need to provide additional ESI services because they offer healthcare through company-operated facilities.[58]

Conclusion

Mining can be considered to be one of the most hazardous works around the world that has threatened the social security of the workers involved. The intervention of a comprehensive social security system can help protect the mining labor's rights. Developing countries, due to the lack of job opportunities in the organized sector force a major part of the population residing in the poverty line to take up informal work with a lack of social security coverage. The primary aim of the social security system is to protect every individual from all the adverse situations that may arise, be it workplace or health problems. The social security system in advanced countries is able to meet the wider needs of the population, covering the majority of the labor force and adversaries arising out of physical disability, unemployment, and health risks. While, on the other hand, developing countries fall behind due to the lack of such wide social security systems that could incorporate situations of poverty and unemployment, including protection of those involved in hazardous work.

[57] Pradeep (n 8).
[58] S. Sarkar 'Extending social security coverage to the informal sector in India' [2004] Social Change 122.

Regardless of the country, the aim of the government should be to protect the entire population, with special attention to the vulnerable population. A minimum social security net should be ensured that should be implemented irrespective of the number of employees in an enterprise or the minimum amount of wage earned. A strict monitoring system should be enforced to ensure proper compliance with the labor legislations. Creating a common database would help informal workers from unorganized sectors get social protection from multiple welfare schemes for which they might be eligible. Implementing such interventions across the nation can help address the limited reach and scope of social protection in developing countries and further strengthen the system in developed countries.