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MINING - A PATH TO DEATH EVIDENCES FROM INDIA AND WORLDWIDE

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ABSTRACT

Minerals constitute the backbone of economic growth of any nation. And India has been eminently endowed with this gift of nature. A number of minerals of economic and commercial value abound in this country. There is a many evidence that exploitation of minerals like coal, iron ore, copper, lead-zinc, has been going on the country from time immemorial.

Mining is a one of the hazardous occupation in the world.so there is a many problems as for as mining laborers and society and mining environment was concerned. Mining is a one of the development activities of the country. And also it promotes the danger to the peoples of the country. The condition of the roofs and sides of underground mines can change without any prior indication. Dangers due to sudden in rush of water, release of lethal and inflammable gases or fall of roof and side are inherent to mining and it is essentially because of such unpredictable dangers that mining is considered the most Hazardous of all Pease-time occupations. So there is a necessity for study the mining adverse effects. So this paper mainly concentrated on Deaths, hazards and accidents due to mining in India and worldwide. So this is also taken in to account the more evidences, as for as mining calamities and deaths were concerned.

KEYWORDS : *Minerals constitute, rush of water, release of lethal.*

INTRODUCTION

Mining has its own history for dates back. However, the first recorded history of mining in India dates back to 1774, when English company was granted permission by the east India Company for mining coal in Raniganj. Coal mining got a boost in 1855. When railway line was laid from Howrah to Raniganj, M/S John tailor and son's ltd started gold mining in Kolar gold fields in the year 1880. The first oil well was drilled in Digboi in the year 1886. Just seven years after the first ever oil well was drilled anywhere in the world viz, in Pennsylvania state, USA in 1859. Mining activities in the country however remained primitive in nature and modest in scale up till the beginning of the current century.

Thereafter, with progressive industrialization the demand for and hence the production of various minerals gradually went-up. After India became independent the growth of mining under the impact of successive five year plans very fast. Growth of mining activities in India as follows.

GROWTH OF MINING ACTIVITIES IN INDIA.

Year	NO of reporting mines			Value of minerals (in million Rupees			Aggregate H.P (in 1000)			Explosive used (in 1000 tons)	
	Coal	Metal	Oil	Coal	Metal	Oil	Coal	Metal	Oil	Coal	Non-Coal
1951	893	1810	-	505	235	N.A	188	83	N.A	1.5	1.0
1961	848	2323	-	1141	487	N.A	438	159	N.A	4.5	3.8
1971	781	1995	13	2543	1080	756	732	282	25	12.3	9.4
1981	496	1768	8	18114	3620	2748	1841	925	35	46.3	15.3
1991	561	1787	24	79794	19076	18533	4292	1519	507	124.2	40.3
1992	567	1810	27	96377	21700	23104	4653	1644	583	140.o	44.1
1993	570	1845	27	107467	23392	31777	3942	1853	541	155.6	44.1
1994	576	1869	29	122216	24648	34302	4690	1891	548	156.9	43.3
1995	579	1930	32	133314	33611	37065	5218	1735	579	189.6	46.2
1996	576	1872	32	157474	36521	37388	5300	1877	523	207.8	47.2
1997	580	1834	34	193877	43758	32608	5314	2016	570	232.7	43.4
1998	594	1864	37	205307	45286	42851	5399	2020	602	247.0	47.1
1999	598	1957	44	219101	46415	72824	5660	2147	769	267.6	49.8
2000	595	2022	45	234531	53111	92954	5561	2371	757	290.5	57.0
2001	568	1907	43	261082	54032	106747	5586	2087	712	318.8	55.8
2002	567	1870	42	286390	64964	123326	5432	2175	757	315.3	55.6
2003	562	1716	49	2999547	77605	131897	5527	2129	621	304.8	63.7
2004	567	1764	47	348898	104283	166083	5409	2336	685	334.0	70.6

Source: Dgms standard note 01.01.2007.

This is an Era of competition 'Era', so in all countries moving towards the development of their own country, and also the countries moving to the concept of "welfare state". And welfare says itself emphasis the socio-economic welfare of the people and the term welfare stated chat "satisfactory state", Health and prosperity, well-being, usually of person and society. So all states or countries gives to more importance to the concept of welfare.

Minerals are depleting assets of a nation; Extraction of the same from below the surface of the earth is fault with innumerable dangers. Mining has been and continues to be a hazardous profession and has rightly been deemed to be a war with the unpredictable forces of nature.

In the development of the country mining plays very vital role, as for as developments is concerned. So all states concentrated on mining activities will have social benefits as well as social costs.

Mining have so minerals in the earth, there is a one word asbestos mining. Asbestos minerals are divided into two large groups. Serpentine and Amphibole minerals. There is an only one type of asbestos divided from serpentine minerals, chrysotile, which is also known as "white asbestos". Amphibole minerals include five asbestos species amosite, crocidolite, trimolite, anthophyllite and actinolite1.so asbestos mining have these minerals in its mining all forms of asbestos cause asbestosis a progressive fibrotic disease of the lungs, and they can all cause lung cancer and malignant mesothelioma diseases[2].

A leading asbestos researcher Julian peto and colleagues predict chat deaths from mesothelioma among men in Western Europe will increase from just over 5000 in 1998 to about 9000 by the year 2018.

The number of lung cancer deaths caused by asbestosis is at least equals to the number of mesotheliomas, suggesting that there will be more than half a million asbestos related deaths from cancer over the next 35 yeas[3].

Mining is a dirty, dusty operation by its very nature, but there is no doubt that mining is a vital sector of the economy in any country the bowels of the earth conceal vast riches of minerals and ores. Which man as learnt to extract and fashion into countless goods of daily use and several uses on which the wheels of industry depend[4].

The mine workers have to discharge their duties in confined workplace with substantial heat, humidity, high concentration of mechanical equipment and tool, heavy noise and vibration, poor illumination, air bone dust, and noxious gases. Moreover, the natural variability in the physical properties of rock and soil masses endangers the problem manifolds. As a result, mine workplace accidents and injuries. Goetsch documented accident death rate ranking by industries for a typical year and showed that mining/quarrying top the list followed by agriculture and construction[5].

The mining sector in India is plugged by several environmental and health and safety related problems. Several accidents taken place in underground and surface mines like coal and stone mines in the last few years. Which have killed scores of mine workers? An example of environmental damage by a mining company in India is kudremukh iron ore company limited [KIOCL] in the Western Ghats mountain ranges in Karnataka in southern India. The operations of KIOCL have caused large scale destruction of the hills, pollution of ground water in the neighborhood, and have severely affected the kudremukh national park.

Since 1973, seven mining disasters have taken place. The latest was in February 2001, when 30 miners lost their lives in an accident in the Bagdigi mines in the eastern Indian state of Bihar. Every year many mine workers lost their lives in mining accidents in India. Wide spread illegal mining and lack of effective government supervision in government and private mines accentuates the problem[6].

The mining creates acid mine drainages. Acidic water results in severe water pollution problems. Acid mine drainage [AMD] refers to distinctive types of waste bodies that originate from the weathering and leaching of sulfide minerals present in coal and associate strata. Environmental effects of AMD related to water pollution include the killing of fish and loss of aquatic life and corrosion of mining equipment's and structures as bridges, and concrete minerals.

A cumulative effect of all mining activities produces enormous noise and vibrations in the mining area, which constitutes a source of disturbance, the availability of large diameter, high capacity pneumatic drills, blasting of hundreds of tons of explosives etc. are identified as noise prone activities in pit crushing system with mobile crusher and large capacity materials handling plants or being installed to facilitate speedy handling of large quantities. All these activities are major sources of noise and vibrations in and around the mining complexes.

The obvious implication of noise is of course the potential for noise induced hearing loss. In addition, noise produces other health effects, influences work performance and makes communications more difficult besides, the fauna in the forests and other areas surrounding the mines/industrial complexes is also effected by noise and it has generally been believed that wildlife is more sensitive to noise and vibrations than the human beings[7].

A recent study of woman residing communities in Canadian asbestos mining area found a seven fold increase in the rate of death from pleural cancer [8].

From the iron ore mining the ingestion of large quantities of iron can have significant adverse effects on human health and may contribute to the development of haemochromotosis[9]. From the coal mining most evidence suggests that coal mining is associated with a decreased risk of lung cancer, but an increased risk of stomach cancer[10].

Asbestos mining in order to eliminate the burden of disease and death that is caused worldwide by exposure to asbestos, the collegium Ramazzini calls for an immediate ban on all mining and use of asbestos. Asbestos is an occupational and environmental hazard of catastrophic proportions. Asbestos has been responsible for over 200,000 deaths in United States, and it will cause millions more deaths worldwide. The profound tragedy millions more deaths related to asbestos epidemic is that all illness

and deaths related to asbestos are entirely preventable. So it has later banned by several countries like Sweden, Norway, Denmark, the Netherlands, Finland, Germany, Italy, Belgium, France, Poland, and Saudi Arabia[11].

Ukraine: In 2007, a coal mine in the Eastern Donetsk region collapsed after methane gas exploded deep underground. More than 100 miners were killed. US: 25 American miners were killed this April at Mont coal, West Virginia .China: The country sees more than 3,000 miner deaths each year. In 2005, a Sunjiawan mine killed 210 miners.

According to frank warner: "We are in the 21st Century and when we have these mining disasters, whether it is 90 [deaths] in Siberia or 70 in Colombia, these things should not happen at all because the technology is there, the training is there, to ensure that they do not happen".

He says that high price of commodities has not helped the situation, instead adding pressure on mines and workers to increase production. 'Dark industry' Furthermore, Mr. Drexler says, many disasters go unreported. "It is a very dark industry". In the US at least, accidents like the one in West Virginia this year, which killed 25 people, focuses the spotlight on enforcement of safety regulations,

Before that disaster, deaths caused by mining in the US had fallen to its lowest ever figure. Fatalities in the coal mining industry in the US had been declining since 2006, dropping steadily from 47 deaths to only 18 in 2009.

In the wake of the Chilean disaster, the largest union in South Africa has reiterated calls for tougher safety standards. Chile is one of the world's biggest copper producers.

South Africa has a chequered record of safety compared with other large industrialized countries, in part because its mines are so deep.

Senzeni Zokwana of The National Union of Miners (NUM) in South Africa told Reuters that the country had the capacity and the means to maintain safety, but said better laws were needed. Ms. Zokwana said that, "For miners to die in a situation where we think it is preventable is a lack of will on the part of employers,"

In Chile, 34 people have died every year on average in mining accidents since 2000. Smaller mines in the north of the country are widely seen as the most dangerous. According to Chilean President Sebastian Pinera, the 125-year-old San Jose mine had a "long history" of accidents. Only a month before the accident, Gino Cortez, 40, lost his left leg in a rock fall. He is taking legal action against the mine, arguing that it failed to put up the necessary metallic screens to protect workers. President Pinera has already said he will offering new proposals to ensure the safety of Chilean workers. The group of miners, now known as Los-33, will not be the only ones watching to see if that happens. Coverage as it happened from the rescue of 33 trapped miners at the San Jose mine in Copiapo, Chile [12].

International Coal Net reported that, based on a national coal production figure of 3.65 billion tons last year, the actual number of coal mine deaths in China in 2012 would be around 1,300, the lowest number since records began 60 years ago. The official figure for the number coal mine deaths in 2011 was 1,973. Although the official number of coal mine deaths has declined dramatically from the appalling highs of nearly 7,000 fatalities per year a decade ago, deadly accidents remain all too common, especially in the less-well regulated regions of southwest China. Moreover, a new study in the Harvard Business Review of 276 Chinese enterprises operating in dangerous industries such as mining found a startling correlation between worker fatality rates and the political "connections" of enterprise managers. The study revealed that "connected" companies had five times as many worker deaths on average as unconnected companies. As China Labour Bulletin pointed out in our 2008 research report on the coal mining industry in China, one the key reasons why local government officials fail to enforce coal mine safety standards is the intricate and almost impenetrable web of collusion that exists between the mine owners and those government officials. In many cases, local government officials have a direct economic interest in the mine and are far more interested in profit than safety [13].

At presently the whole world was facing severe problems regarding to mining deaths .China only produces 35% of the world's coal but accounts for 80% of the world coal mining deaths. Mining

deaths (recorded) in China in 2006 were 4746 people so there for world death estimates to about 5932 people per year[14].

Thirty six thousand men have been killed in accidents on the gold mines since the beginning of the century. Untold others have died from septicaemia and other diseases contracted as a result of accidental injury. Many more have lost limbs or eyes, or have been otherwise disabled. The annual death toll from accidents on South African mines fluctuates around 800. The figure for 1960 was close to 1,400 because of the Coal brook disaster of January 21. In Britain the number of deaths from mining accidents seldom exceeds 200 a year[15].

In United States, the Monongah Mining Disaster was the worst mining accident of American history; 362 workers were killed in an underground explosion on December 6, 1907 in Monongah, West Virginia. From 1880 to 1910, mine accidents claimed thousands of fatalities. Where annual mining deaths had numbered more than 1,000 a year during the early part of the 20th century, they decreased to an average of about 500 during the late 1950s, and to 93 during the 1990s [16].

In addition to deaths, many thousands more are injured (an average of 21,351 injuries per year between 1991 and 1999), but overall there has been a downward trend of deaths and injuries.

In 1959, the Knox Mine Disaster occurred in Port Griffith, Pennsylvania. The swelling Susquehanna river collapsed into a mine under it and resulted in 12 deaths. In Plymouth, Pennsylvania, the Avondale Mine Disaster of 1869 resulted in the deaths of 108 miners and two rescue workers after a fire in the only shaft eliminated the oxygen in the mine. Federal laws for mining safety resulted from this disaster. Pennsylvania suffered another disaster in 2002 at Quecreek, 9 miners were trapped underground and subsequently rescued after 78 hours. During 2006, 72 miners lost their lives at work, 47 by coal mining. The majority of these fatalities occurred in Kentucky and West Virginia, including the Sago Mine Disaster[17.18] .

On April 5, 2010, in the Upper Big Branch Mine disaster an underground explosion caused the deaths of 29 miners.

The U.S. Bureau of Mines was created in 1910 to investigate accidents, advice industry, conduct production and safety research, and teach courses in accident prevention, first aid, and mine rescue. The Federal Coal Mine Health and Safety Acts of 1969 and 1977 set further safety standards for the mining.

In Wales of United Kingdom, Crowd gathering at the pit head of the Senghenydd Colliery after the explosion in October 1913. During the period 1850 to 1930 the South Wales coalfield had the worst disaster record. This was due to the increasing number of mines being sunk to greater depths into gas-containing strata, combined with poor safety and management practices. As a result there were nearly forty underground explosions in the Glamorgan and Monmouth shire areas of the coalfield during this time. Each accident resulted in the deaths of twenty or more workers - either directly in the explosion or by suffocation by the poisonous gases formed. The total death toll from these disasters was 3,119 people. The four worst accidents in Wales were, 439 deaths at the Senghenydd Colliery Disaster at Universal Colliery in Senghenydd, Glamorgan, in a gas explosion in 1913. 290 deaths at the Albion Colliery in Cilfynydd, Glamorgan, in a gas explosion on 25 June 1894. 272 deaths at the Prince of Wales Colliery, Abercarn, Monmouth shire, in an explosion of 11 September 1878[19]. 266 deaths in the Gresford Disaster near Wrexham in North Wales on 22 September 1934. Some collieries,e.g. Morfa Colliery[20] . near Port Talbot, Glamorgan, and Black Vein Colliery, Risca, Monmouthshire, suffered three disasters before they were closed for being unsafe. The Department of Mines is investigating the first death in Western Australia's mining industry in almost two years.

The body of a 26-year-old man from New Zealand was found at Fortescue Metals Group's Christmas Creek mine at 8:00pm yesterday. The iron ore mine is located in the Pilbara region of WA, about 100 km north of Newman[21].

In United Kingdom a memorial is to be built in a Staffordshire village to recognize people who died in mining accidents. In a nine-year period between 1866 and 1875, 146 people were killed at two pits in Talke.

Andy Dean, from Alsager in Cheshire, who has conducted research into the incidents, has been granted planning permission for a memorial to be built. Friends of Talke group needed to raise about £20,000 to work on the project. Mr. Dean said there was one big disaster in Talke in 1866 in which 96 people were killed, but another 200 died over a period into the early 1900s. The UK's worst mining disaster happened in Senghenydd, Glam organ in 1913 when 439 men and boys perished in a gas explosion[22].

U.S. coal mining deaths: 1990-2009

Here are the number of coal mining deaths in the United States, from 1990 through 2009, and the fatality rate (deaths per 200,000 work hours).

Coal mining deaths in the United States, from 1990 through 2009, and the fatality rate (deaths per 200,000 work hours)

Year	Deaths	Per 200000 hours
1980	133	04
1990	66	04
1991	61	04
1992	55	04
1993	47	04
1994	45	04
1995	47	04
1996	39	03
1997	30	03
1998	29	03
1999	35	03
2000	38	03
2001	42	040
2002	27	028
2003	30	031
2004	28	027
2005	23	021
2006	47	040
2007	28	027
2008	30	030
2009	18	020

Source: file:///I:/Personal%20Data/mining%20deahs/BBC%20News%20-Mining accidents.

The above table shows that Coal mining deaths in the United States, from 1990 through 2009, and the fatality rate, as this was concerned most of the deaths occurred in the 1980 and least of the deaths occurred in the 2009. So this table also indicates that every year the deaths from the mining occurring in the United States.

For some comparison, check out China's coal-mining death toll over the last several years:

Year	Mining deaths
2000	5,300
2001	5,670
2002	5,791
2003	7,200
2004	6,027
2005	5,986
2006	4,746
2007	3,786
2008	3,215
2009	2,631

Source: file:///I:personal%20Data/mining%20deaths/BBC%20%20News%20Miningaccidents

The above table shows that comparison of the coal mining deaths last 2000 to 2009 , here is more number of deaths were occurred in 2003 in china and low number of deaths occurred in the year 2009. Because of the safety measures the china decreasing the deaths in the mining sector.

Data on Chinese coal miners' deaths per 200,000 hours of work aren't available, but statistics on deaths per 1 million tons of coal indicate China's miners are dying at a rate about 37 times America's fatality rate. China's fatality rate has declined since 2003, but it remains high.

In 2007: China: 1.485 deaths per 1 million tons of coal. U.S.: 0.04 deaths per 1 million tons of coal. In 2009: China: 0.849 deaths per 1 million tons of coal. U.S.: 0.02 deaths per 1 million tons of coal.

According to Frank Warner, he made a study on mining disasters and called mining industry as a "dark industry" because of its dangers. And for the proof also gave in terms of some statistics according to deaths concerned to the United States.

Frank Warner A few other statistics: Average annual United States mining deaths (not only coal), in five-year periods:

Year in between	Deaths
1936-1940	1,546
1941-1945	1,592
1946-1950	1,054
1951-1955	690
1956-1960	550
1961-1965	449
1966-1970	426
1971-1975	322
1976-1980	254
1981-1985	174
1986-1990	122
1991-1999(9Years)	93
2000-2004	67
2005-2008(4Years)	61

As shown in the above table in the united states average mining deaths between the various years, in the year between the 1936-1940 the average deaths were highest, that is 1,546 and because of the safety measures in the mining industry the average death rate was decreased year by year, finally in the year 2005-2008 it reached to only 61 average. As this shows that mining industry day by day adopting the various safety measures for the welfare of the laborers and people of the mine sites.

In Indian mining industry also having the tendency of the death rates concerned to the employers of the mine sites. The below table shows that trend in death rate per thousand persons employed in mining industry.

Table: Trend in death rate per thousand persons employed in mining (India)

Year	Coal	Oil	Copper ore	Gold ore	Iron ore	Lime stone	Mang. ore	Galena and Sphl.	Total metals	All Mineral
1997	0.33	0.07	0.10	0.29	0.49	0.30	0.31	0.56	0.43	0.34
1998	0.30	0.24	0.11	0.33	0.40	0.42	0.19	0.36	0.35	0.31
1999	0.29	0.08	0.00	0.68	0.22	0.44	0.24	0.18	0.44	0.32
2000	0.31	0.04	0.15	0.00	0.28	0.29	0.31	0.00	0.34	0.31
2001	0.32	0.37	0.25	0.28	0.37	0.45	0.07	0.00	0.53	0.37
2002	0.23	0.09	0.30	0.00	0.30	0.52	0.29	0.22	0.45	0.28
2003	0.27	0.05	0.00	0.00	0.39	0.33	0.08	0.00	0.45	0.31
2004	0.24	0.10	0.00	0.00	0.34	0.56	0.21	0.79	0.43	0.28
2005	0.30	0.10	0.00	0.00	0.44	0.40	0.00	0.26	0.41	0.32
2006	0.35	0.26	0.00	0.37	0.57	0.61	0.14	0.26	0.49	0.38

N.B. figures of 2005 and 2006 are provisional data for 2006 are as 31.12.2006.

The above table predicts that Trend in death rate per thousand persons employed in mining (India) between the period of 1997-2006 in various mines. In India the various mines have death rates among the persons in the mine sites. Here is most of the death rates occurred in the year 2001 and less was in the year 2000.

Trend in death rates, serious injury rates, in various mines, in India. (2007):

Year	Coal mines					Metalliferous mines				Oil mines			
	Number of persons		Rate per 1000 persons Employed		Death rate per million tonnes	No. of persons		Death rate per 1000 persons Employed		No. of persons		Death Rate per 1000 persons Employed	
	Killed	s/ injured	Death Rate	s/ injured		killed	S/ injured	Death	S/Injured	Killed	S/ injured	Death	S/ injured
1997	165	726	0.33	1.44	0.52	75	262	0.43	1.52	2	23	0.07	0.80
1998	146	560	0.30	1.14	0.46	58	252	0.35	1.53	7	21	0.24	0.71
1999	138	650	0.29	1.37	0.44	70	228	0.44	1.45	2	23	0.08	0.90
2000	144	707	0.31	1.54	0.43	54	166	0.34	1.06	1	28	0.04	1.19
2001	141	720	0.32	1.64	0.41	72	186	0.53	1.36	9	22	0.37	0.90
2002	97	665	0.23	1.57	0.27	62	178	0.45	1.30	2	31	0.09	1.39
2003	113	590	0.27	1.42	0.30	61	163	0.45	1.19	1	22	0.05	1.18
2004	96	991	0.24	2.45	0.23	62	163	0.43	1.14	2	40	0.10	2.09
2005	120	1125	0.30	2.78	0.29	59	98	0.41	0.68	2	15	0.10	2.78
2006	141	745	0.35	1.84	0.34	70	68	0.49	0.47	5	12	0.26	0.63

Source: Dgms standard note 1.1.2007

Mining deaths were quite common in its very nature, because mining was the dirty, dusty occupation in the world. The environmental damage and unhealthy living conditions made an industry as dangerous. As this was concerned because of the unsustainable, unplanned mining there were more number of deaths occurs in rest of the world. Some of the causes were as follows.

CAUSES FOR MINING DEATHS:

Mining is the one of the major economic activity in all over the world. As this was concerned most of the countries gave most importance to this activity. They mainly extracted there natural because of this activity and through this they were moving towards the development of their own nation. But as known that mining creates heavy loss and burden to the sustainable society of the state. Most of the countries adopted the welfare to the people of the country but the unsustainable mining activity made the country become the problematic in nature. Mining is a most dangerous occupation, it contains more risks as for as mining workers were concerned. So there are several causes for mining deaths. They are as follows.

1) Fall of roofs. 2) Fall of sides 3) Rope haulage. 4) Dumpers. 5) Truck tankers. 6) Other machinery. 7) Explosives. 8) Fall of person. 9) Fall of object. 10) Below ground. 11) Opencast. 12) Above ground.13) From Dust, Fire, Gas etc., as this was concerned the below table shows the results during the period of 2004- 2006.

As this was concerned in India between the years of 2004-2006 most of the accidents occurred in coal and non-coal mining were concerned. The below table predicts that cause wise accidents in coal and non-coal mining in the year 2007.

Cause wise Accidents in Coal and Non-Coal Mines in India-2007

		Coal mines		Non-Coal mines		Total		
cause	Year	Fatal Accidents	Serious Accidents	Fatal Accidents	Serious Accidents	Coal	Non-coal	Total
Fall of roof	2004	26	44	02	02	70	04	74
	2005	18	38	01	02	56	03	59
	2006	13	23	00	00	36	00	36
Fall of sides	2004	07	67	12	03	74	15	89
	2005	07	45	06	00	52	06	58
	2006	04	22	11	01	26	12	38
Rope haulage	2004	05	127	00	00	132	00	132
	2005	12	167	00	01	179	01	180
	2006	08	161	00	00	169	00	169
Dumpers	2004	13	15	11	06	28	17	45
	2005	16	23	10	08	39	18	57
	2006	12	15	10	01	27	11	38
Truck tanker	2004	08	05	07	05	13	12	25
	2005	05	11	03	02	16	05	21
	2006	02	19	08	04	21	12	33
Other machinery	2004	09	43	09	24	52	33	85
	2005	16	64	10	18	80	28	108
	2006	16	87	06	15	103	21	124
Explosives	2004	05	08	03	00	13	03	16
	2005	02	05	04	01	07	05	12
	2006	01	00	03	00	01	03	04
Fall of person	2004	04	307	06	41	311	47	358
	2005	09	277	14	22	286	36	322
	2006	02	190	14	19	192	33	225
Fall of object	2004	01	183	03	38	184	41	225
	2005	04	261	06	20	265	26	291
	2006	07	121	06	16	128	22	150
Other cause	2004	09	163	04	69	172	73	245
	2005	10	202	03	34	212	37	249
	2006	17	81	04	15	98	19	117
Below ground	2004	49	757	05	54	806	59	865
	2005	51	833	03	27	884	30	914
	2006	42	546	03	22	588	25	613
Opencast	2004	32	82	36	34	144	70	184
	2005	28	98	41	28	126	69	198
	2006	28	62	41	18	90	59	149
Above ground	2004	06	123	16	100	129	116	245
	2005	20	162	13	53	182	66	248
	2006	12	111	18	31	123	49	172
Total	2004	87	962	57	188	1049	245	1294
	2005	99	1093	57	108	1192	165	1357
	2006	82	719	62	71	801	133	934

Source: Dgms standard note 01.01.2007

The above table shows that cause wise accidents in coal and non-coal mines during the period of 2004-2006. The table showing the results of the cause wise accidents. Here is mainly concentrated on

fatal accidents and serious accidents as concerned to coal and non-coal mines as according to Dgms standard note 2007.

CONCLUSION:

Mining is the one of the developmental activity in all over the world. As well-known fact that it is also dirty, dusty occupation as compared to other sectors. As shown in this paper mining was the main cause for the deaths increased in the mining oriented areas. Most of the miners were died by the mining effects in the several states of the world. So there is an urgent need to control these death rates and implementing the safety measures for the peoples those who are living in the mine sites.

Mining exploits the natural resources and weather conditions of the mine oriented areas. The disruption of the habitat deterioration in the quality of the environment, emergence of new health risks and disturbance of the socio- cultural frame work may cause for the deaths occurred in the mine oriented areas.

REFERENCES

1] Dgms standard note 01.01.2007.
2] International program on chemical safety (1998). Environmental health criteria 77; man made mineral fibres, the world health organization; Geneva.
3] Peto.j.decatli A, lavecchia C, levi F, negri,E, (1999) - The European mesothelioma epidemic. Br lung cancer: 79:566-672.
4] Ruchi singh and Et.al- "Evaluation of land degradation due to coal mining a vibrant issue"-. Page-133.
5] DL.Goetsch (1996) - "occupational safety and health". Prentice hall, Englewood chiffs, New Jersey.
6] Pradeep.s. Mehta-"The Indian mining sector: Effects on the environment and FDI inflows"-. Page 3.4 conference on FDI and the environment CCNM global forum on international investment.
7] Dr.Gurudeep singh (June -2008) – "mitigating environmental and social impacts of coal mining". Mining engineers journal, Page 10-14
8] cumus m, siemiatycki j, meek b (1998)- " non-occupation exposure to chrysotile asbestos and the risk of lungcancer".N.Engl lung med,338;1565-71
9] Health Canada (1966) - "guidelines for Canadian drinking water quality Ottawa; Canada communication group".
10] swean GM, Meijers JM, slanger JJ (1995)- "Risk of gastric cancer in pneumoconiotic coal mines and effect of respiratory impairment", occup environ med, 52;606-610
11] Joseph Ladou, et, al. - "A call for an international ban on asbestos".
12) file:///I:/Personal%20Data/mining%20deahs/BBC%20News%20-Mining accidents.
13) China labour bulletin Report (29 Jan2013) claims coal mine deaths in China fell by one third in 2012. , http://www.clb.org.hk/en/content/report-claims-coal-mine-deaths-china-fell-one-third-2012
14) Number of people killed, worldwide, mining coal each year (2009)
http://cadlab6.mit.edu/2.009.wiki/anchor/index.php?title=Number_of_people_killed%2C_world-wide%2C_mining_coal_each_year
15) Dr. H.J.Simons (1960) - Death in South African mines managerial report Detained during the South African State of Emergency in 1960.
16) Historical Data on Mine Disasters in the United States U.S. Department of Labor
17) Mine Safety and Health Administration (15 Jan2007) - "All Mining Fatalities State U.S. Department of Labor"
18) Mine Safety and Health Administration (15 Jan 2007) - "Coal Fatalities by State U.S. Department of Labor".
19) Abercarn Colliery at welshcoalmines.co.uk
20) http://www.welshcoalmines.co.uk/GlamWest/Morfa.htm
21) AEST (16 Aug 2013) – "Worker dies at FMG's Pilbara mine site".
http://www.abc.net.au/news/2013-08-15/mining-death-in-the-pilbara/4888716
22) GMT stock Staffordshire news (17 Sept 2013)- "Talke mining deaths memorial to be built".

http://www.bbc.co.uk/news/uk-england-stoke-staffordshire-24099653