

# Women in Mining – Workforce participation status today in India

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## Abstract

**Background** - This research paper is aimed at to understand women workforce participation status in Mining sector in India. The focal point of this study is understanding the structure and nature of women workforce participation. Participation of women in mining is considered as the important point of concern to bring in diversity. Gender diversity adds new skill, innovation and creative workforce to the sector to channelize the sector growth and technological advancement.

This paper has analyzed the participation of women in Mining in India. Capacity in which they participate and roles they play. Mining is important sector for growth of any economy hence gender diversity is equally important from employment perspective of the whole economy.

Few distinct observations made During the study are, First - women workforce in mining, in India is not studied as full time active workforce but largely as marginal worker or impacted community perspective. Women workforce in mining is largely neglected area of study in India. Second Women participate as artisanal small worker where in reality they are involved in high risk job which are not recorded as skilled jobs. It is the main reason keeping women workforce out of the formal worker study preview. Third there is lack of documentation and data availability about women workforce in mining, neglected area. Fourth, serious policy revision is required to encourage and support women workforce participation in mining sector. This research study elaborated workforce participation status and reasons hindering the same.

**Key Words:** Women empowerment, mining, policy, work force participation

## Opening

News released on May 11, 2015, in times of India, caught the attention of the nation, which said, “ 28 years after introduction, Women finally allowed to apply for Mining Engineering at Anna University”. For the first time since the inception of the course in 1987 Anna University allowed girls to seek admission in Mining Engineer course. Girls have demanded equal opportunity of studying the mining and was awarded with conditional declarations. This news is indeed important proclaiming the equal opportunity battle for females to acquire the skillset to venture into only Men industry of mining.

The Centre for Monitoring Indian Economy (CMIE) published Indian Employment Report in, 2017 which said that jobs for men increased by 0.9 million where 2.4 million women fell off the employment map<sup>3</sup>. India development Report released by World Bank<sup>4</sup> in May, 2017 said that, India ranks 120th among 131 nations in women workforce. despite having 42% women who are graduates with overall increase in job creation, most of the new jobs are grabbed by men only given the social norms for women.

It is evident from different studies conducted across the globe that, participation of women in workforce is one of the most important concern for the advancement of any country. Economic Growth of the nation is directly proportionate to equi-gender workforce participation. Talent is one of the most essential factors for growth and competitiveness of the country. To build future economies that are both dynamic and inclusive, it is must that population eligible for employment has an equal opportunity.

When women and girls are not integrated—as both beneficiary and shaper—the global community loses out on skills, ideas and perspectives that are critical for the nation to address global challenges and harness new opportunities. Research studies also underlined the reality that globally Socio-economic norms, culture are often made it challenging for women to participate in economic activity, across the width and breadth of economies and sectors.

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<sup>3</sup> <https://cmie.com/kommon/bin/sr.php?kall=warticle&dt=2017-07-11%2011:07:31&msec=463>

<sup>4</sup> <https://www.hindustantimes.com/india-news/india-ranks-120th-among-131-nations-in-women-workforce-says-world-bank-report/story-Q5AVD5aRlmLHA1RAFpnZuJ.html>

**Facts :**

World Economic Forum's Gender Parity report published in 2015 that women workforce participation in manufacturing sector is very low as compared to services and agriculture sector. Sarah Iqbal, program manager of the World Bank's Women, Business and the Law project<sup>5</sup> stated that there are 104 economies with labour laws that restrict the types of jobs women can undertake, and when and where they are permitted to work. It is estimated to affect the employment choices of 2.7 billion women. Analysis prepared on sectoral gender workforce participation by World Economic Forum, stated that Infrastructure sector which includes, Extraction, Mining, Heavy metal processing, Capital goods manufacturing, industrial construction as subsectors shows remarkably low employment of women. (Ref. Table 1: Gender and sector workforce participation, 2017)

Table 1: Gender and sector workforce participation, 2017<sup>6</sup>

Industry group	Current female workforce participation
Basic and Infrastructure	13%
Consumer	27%
Energy	15%
Financial Services and Investors	29%
Healthcare	38%
Information and Communication Technology	21%
Media, Entertainment and Information	30%
Mobility	16%
Professional Services	30%

As compared with other industry sectors woman workforce participation in Basic and infrastructure sector is just 13%. The highest female's workforce participation is reported in Healthcare sector.

**The Mining Industry**

Extraction industry broadly covers Oil, Gas and Mining. Mining takes place in all the world's continent. Mining sector have the potential to deliver significant growth and economic development opportunities for host countries. The total industrial development is always boosted by the performance of the mining sector. Mining industry includes the main activities in the mining process. It can be classified into 1. extractive related (exploration, development) 2. mining; processing related (processing or beneficiation, smelting and refining), and 3. value added activities (transport and storage)<sup>7</sup>

As per The Bloomberg World Mining Index<sup>8</sup> the well-known role of mining as an economic catalyst is re-affirmed, particularly in terms of national revenues and jobs. It further stated that each mining-generated job can lead to creation of 3–5 additional jobs outside the mining sector.

As per OECD 2015 report the mining sector employs 30 million to 35 million people worldwide (approximately 1% of the total global force), and in some mining countries like Botswana, Chile and Peru that percentage varies from 3% to 0.7% of the local work force. Mining represents more than 50% of national exports in 16 developing and emerging countries, generating the critically needed foreign exchange credits. Oxford Policy centre report on Mining mapped Macro-level contributions of mining in low- and middle-income countries. It stated that mining can be pivotal in employment, national income and exports of the nation to channelize total economic growth.

**Women In Mining**

When whole world is awakening to create gender equity and accepting equal participation of women in every business function, across the sectors, mining is amongst those few sectors in extraction industry<sup>9</sup>, where women are still fighting the battle to have acceptance at large from the industry itself. In many countries women have been largely excluded from employment opportunities in extractive industry sectors. As per Extractive Industries for Sustainable Development Global and Regional Activity Report 2015, these asymmetries of participation of women in extractive industries, in employment can impact positive development of the business and economy. These asymmetries are resulting in denial of opportunity for women at process, policy and people level.

While men and women have certain biological or sex differences, in most cultures, men and women also have different socially determined roles and responsibilities in workplaces, households and society. These socially constructed roles are referred to as

<sup>5</sup> <https://www.weforum.org/agenda/2018/08/104-countries-have-laws-that-prevent-women-from-working-in-some-jobs/>

<sup>6</sup> <http://reports.weforum.org/future-of-jobs-2016/chapter-2-the-industry-gender-gap/>

<sup>7</sup> [https://unctad.org/en/PublicationsLibrary/suc2012d1\\_en.pdf](https://unctad.org/en/PublicationsLibrary/suc2012d1_en.pdf)

<sup>8</sup> <https://www.mining-journal.com/tag/bloomberg-world-mining-index>

<sup>9</sup> Extractive industry can be defined as a process that involve different activities that lead to the extraction of raw materials from the earth (such as oil, metals, mineral and aggregates), processing and utilization by consumers. These processes take place within host countries and home countries of operating companies, as well as consuming markets.

“gender.” These roles are often constructed around power relations that give men and women different levels of access and control of resources and capital, and experience different impacts and benefits.

Mining has often been upheld as the most ‘masculine’ occupation which traditionally prevents women from entering in it. In Historical studies of, be it in sixteenth century Peru or twenty-first century South Africa scholars have demonstrated, there are restrictions from ancient times and much of social in nature. With tremendous complexity in the world’s mining enterprises, the occupation evidently become singularly male-centric.

Laurie Mercier, Associate Professor of History, and Jaclyn Gier, Director of European Studies and Associate Professor of History in the Pennsylvania State, USA sated in their book published in 2006, that it cannot be pinpointed as particular historical moment when gender exclusions emerged. It gender exclusion existed and it was hardly uniform across the world. For example, women in precolonial Africa mined below and above ground, while in the precolonial Andes it was considered ‘bad luck’ for women to work underground although they were central to mining work. Attitudes towards women and mining were uneven in industrial societies as well. For example, the British parliament officially prohibited women from underground work as early as in 1842, although women miners continued to work in some regional pits in the early twentieth century.

Elsewhere in the British Empire, Indian women laboured in British-owned mines for a fraction of the wages paid to their male counterparts. And even in societies such as Japan, where gender roles were rigidly enforced, surprisingly, women continued to mine underground until the mid-twentieth century. And even in societies such as Japan, where gender roles were rigidly enforced, surprisingly, women continued to mine underground until the mid-twentieth century.<sup>10</sup>

In China though communism was prevailing socio-cultural Confucian gender restrictions prevented women from participating in mining till late 1950. Even in Australia though mining was considered as to be born there, it has been a non-traditional industry for women. Mining operations have traditionally been male-only. Before the 1970’s women had virtually no place in mining, and operators faced fines for employing females in the workplace. Women’s involvement in the mining industry was almost non-existent.<sup>11</sup>

The study ‘Mining for Talent,’ published early in 2013, conducted by Women in Mining (UK) and Price-Waterhouse Coopers, stated that the mining industry has the lowest number of women on company boards of any industry group worldwide. South Africa is one country which is leading the rest in terms of employing women in the mining and minerals sectors<sup>12</sup>.(Ref: Table 2 : Global women in mining workforce participation)

Table 2 : Global women in mining workforce participation

Data as per stock exchange listed companies	% Top management	% Managerial	% Skilled technical – semi skilled – above the ground	% Skilled below the ground	% of women Total women workforce	Gender Gap global ranking – WECF – 2017 <sup>13</sup>
South Africa – JSE <sup>14</sup>	21	20	35	30	12%	18 - 0.7527
Canada – TSX/TSXv <sup>15</sup>	6	25	30	39	12%	19 - 0.7464
Australia – ASX <sup>16</sup>	12	30	33	25	14%	24 - 0.7409
USA – NYSE	7	42	43	8	12 %	20 - 0.7463
Hong Kong – SEHK <sup>1718</sup>	6	40	44	10	9%	87 - 0.6830
United Kingdom – LSE/AIM	4	66	27	3	9%	26 - 0.7383
India – NSE	2	28	70% Marginal workers	-	14%	114 - 0.6455

The study conducted by UNDP in 2015<sup>19</sup>, tried to explore the relationship between dependence of the economy on extractive industry and prevailing gender gap in the country. It shows negative relationship. Countries like Australia having high dependency on extractive industry shows high rates of gender inequalities<sup>20</sup>. Further report says that in high extractive dependent countries, the average unemployment rate for women is 15%. In the low extractive

<sup>10</sup> <http://press-files.anu.edu.au/downloads/press/p112091/pdf/ch0311.pdf>

<sup>11</sup> <https://www.miningreview.com.au/women-of-mining-part-1-the-history-of-women-in-the-australian-mine-community/>

<sup>12</sup> <https://www.worldwide-rs.com/blog/lets-talk-about-women-in-the-mining-industry-62652113142>

<sup>13</sup> [http://www3.weforum.org/docs/GGGR14/GGGR\\_CompleteReport\\_2014.pdf](http://www3.weforum.org/docs/GGGR14/GGGR_CompleteReport_2014.pdf)

<sup>14</sup> <file:///D:/HZL/New%20folder/mcsa-women-in-mining- fact-sheet.pdf>

<sup>15</sup> <https://mining.ca/sites/default/files/documents/Facts-and-Figures-2015.pdf>

<sup>16</sup> <https://www.workpac.com/blog/women-in-mining-infographic/>

<sup>17</sup> <http://press-files.anu.edu.au/downloads/press/p112091/pdf/ch124.pdf>

<sup>18</sup> [http://worldstockexchanges.org/files/Listing\\_HK\\_Mineral.pdf](http://worldstockexchanges.org/files/Listing_HK_Mineral.pdf)

<sup>19</sup> <http://www.undp.org/content/undp/en/home/blog/2015/7/28/The-gender-gap-in-extractive-dependent-countries.html>

<sup>20</sup> <http://reports.weforum.org/global-gender-gap-report-2014/rankings/>

dependent countries, this ratio is 8% for women. Similarly, in high extraction dependent countries, the ratio between unemployed female to male with tertiary education is 4 to 1. In low extractive dependent countries, the ratio is 1.3 to 1. It is evident that overall participation of women in extractive industry is less compared to male counterparts, globally.

Mining operations are broadly divided as “above the ground” and “below the ground”. Above the ground operations include direct mining related jobs and indirect jobs. Above the ground jobs includes leadership roles, planning and designing roles, administrative roles, physical labor, support jobs like logistics handler, navigation and community service jobs. Below the ground jobs are direct extraction, exploration and navigation operation jobs. Report published on ‘Mining for talent - A study of women on boards in the mining industry’ by WIM (UK) and PwC studied 100 mining companies globally to understand participation of women at board level- leadership roles, administrative roles, engineering roles and below the ground<sup>21</sup> The report suggested that it is apparent that globally women workforce participation in mining is still significantly low. We see some participation of women in above the ground jobs but not in below the ground work. South Africa, Canada having progressive mining policies show inclusion of women in below the ground jobs. Hongkong, India which are poor in gender gap ranking shows insignificant participation of women at different levels of employment in the mining sector. (Ref. Table 2: Global- Women in mining workforce participation)

### Women In Mining In India

Asia has a long history of mining metals, mineral ores and gemstones. Historical records about Asian mining, have revealed that protective legislation prevents women’s fuller participation in mining but they do participate in above the ground mining labours. India has a long history of artisanal mining, evidenced from old texts such as Kautilya’s *Arthashastra*, written 250BCE , which gives detailed instructions on the methods of testing gems and extracting minerals from hard and soft ore bodies to make gold and silver coins<sup>22</sup>.

Such historical documents show that mining was an activity that supported many lives. Although India is one of the leading mineral producers in the world, India cannot be described as a ‘mining country’<sup>23</sup>. The gamut of mineral reserves which serves large number of people to earn a livelihood and the importance of minerals in sustaining economic growth has made mining a key sector. In recent years, the share of the Mining and Quarrying sector (as referred to by the Census of India, 2001) in India’s gross domestic product (GDP) has grown at an average rate of 5% and this rate is likely to continue to grow.

It is this formal mining sector in India that is gradually becoming a capitalised enterprise, opening to private investment since economic reforms. Processes are underway to further liberalise it.

India’s Mineral Production Snap shot (Ref: Table no 3 )

Table 3: India’s Mineral Production

Mineral	India’s Production	India’s rank	India’s Reserves	India’s Rank
Iron Ore	6 %	4th	4 %	6th
Manganese	5 %	6th	8 %	5th
Bauxite	5 %	6th	3 %	8th
Chromite	14 %	3rd	12 %	3rd
es	19 %	2nd	13 %	2nd
Zinc	6 %	6th	5 %	5th
Talc	15 %	2nd	8%	6th

Under the newly announced National Mineral Exploration policy, 2016, about 100 blocks have been identified by GSI for auctioning for regional exploration. Currently with reference various minerals India is globally ranked in first 10 numbers. Mining sector is fundamental sector to push the industrial growth but as per global mining employment statistics women workforce participation in mining in India is critical.

### Gender Participation Pattern In Mining Sector –

Annette Dixon, World Bank South Asia Vice President for the Economic Times Women's forum, stated that India’s rapid urbanization has not yet encouraged more women to join the labour force.

Women form an integral part of the Indian workforce. According to Registrar General & Census Commissioner of India, As per Census 2011<sup>24</sup>, the total number of female workers in India is 149.8 million and female workers in rural and urban areas are 121.8 and 28.0 million respectively. Out of total 149.8 million female workers, 35.9 million females are working as cultivators and

<sup>21</sup> <https://www.pwc.com/gr/en/publications/assets/mining-for-talent.pdf>

<sup>22</sup> [http://www.indianscience.org/essays/t\\_es\\_shah\\_m\\_minerals.shtml](http://www.indianscience.org/essays/t_es_shah_m_minerals.shtml)

<sup>23</sup> Such definitions are restricted to those countries whose wealth is largely derived from the extraction of mineral resources.

Australia, Canada and PNG are amongst such countries. Only around three per cent of India’s GDP comes from mining and minerals

<sup>24</sup> <https://labour.gov.in/womenlabour/about-women-labour>

another 61.5 million are agricultural labourers. Of the remaining females workers, 8.5 million are in household Industry and 43.7 million are classified as other workers.

Woman workforce mining participation pattern in India is four-dimensional consideration. First dimension is women are working as physical labour on every above the ground unskilled job. They are considered as marginal workers hence not reflecting in any policy data. So, they are present but not recognized. Second, Mining Policy of India is not allowing women to participate in underground mining jobs. Third, gender disparity and gender role limiting the decision-making freedom of a female to opt for mining job, which demands staying away from the family or at the location where all facilities for education or senior members of the family may not be available. Fourth, Mining Industry in India is still hesitant to employ the women in technical roles.

As per Indian Census data 2011 India women comprise around 14% of the labour force in the mining sector. There is predominant feature of women labour force in mining is informalisation of women's labour.

### 1. Participation as informal labour

It is evident from the studies that the women in India are employed largely as informal labour, mainly for above the ground jobs. The actual proportion of women working in the mining industry is 33%. The report also underlines the category of women labour in mining as category of 'Marginal workers. Women's participation in the mining industry of India is mainly seen concentrated in sub sectors. (Ref: Table 4: Women in mining – subsector workforce participation)

Table 4: Women in mining – subsector workforce participation<sup>25</sup>

subsector	women % participation
dolomite mining	33
mica mining	25
clay mining	23
stone quarrying	23
salt extraction	23
manganese ore mining	21
gem stones mining	19

However, due to lack of official data on mining employment of women in private sectors, it's difficult to understand full extent of women's participation in mining activities in India or in other Asian countries for above the ground labour work. Participation of women in other areas of above the ground operations is very insignificant.

As per Mining census data 2014, from the total male female labour employment in mines, only 4.5 % women are employed in open cast mines, 3% are employed in supportive labour jobs and 0.3% are employed in various administrative roles. (Ref: Table 5: State wise Distribution of Mines, Average Employment and Output for Metalliferous Mines During The Year 2014<sup>26</sup>)

Table 5: State wise Distribution of Mines, Average Employment And Output For Metalliferous Mines During The Year 2014<sup>27</sup>

State	Number of mines submitting the returns	Below the ground	Opencast mine female workers	Above the ground		Total men + women
				Labour Loader/handler	Administrative staff	
Andhra Pradesh	281		622	340	8	13474
Assam	6	0	0	0	0	129
Bihar	14	0	3	15	0	358
Chhattisgarh	57	0	165	40	0	9631
Gujarat	118	0	392	50	5	3791
Himachal Pradesh	37	0	12	3		1217
Harayana	42	0	0	0	0	4417
Jharkhand	192	0	298	500	0	15768
Karnataka	251	0	335	381	35	17199
Kerala	37	0	135	185	30	1733
MEGHALAYA	11	0	0	15	0	540
MADHYA PRADESH	116		737	297	0	10524
MAHARASHTRA	99	0	700	533	0	9147
ORISSA	224	0	2616	2212	100	45532

<sup>25</sup> Indian Census data 2011

<sup>26</sup> STATISTICS OF MINES IN INDIA - VOLUME - II (NON-COAL)-2014

<sup>27</sup> STATISTICS OF MINES IN INDIA - VOLUME - II (NON-COAL)-2014

Rajasthan	288		982	396	125	25149
Telangana	72	0	12	10		4426
Tamil Nadu	214	0	1290	40	0	10560
UTTARANCHAL	28	0	50	0	0	1908
UTTAR PRADESH	12	0	49	0	0	845
WEST BENGAL	33	0	0	26	0	1382
Total	2132		8398(4.5%)	5041(3%)	605(0.3%)	183041

Despite women being part of the mining workforce, mining in India is perceived as a uniquely male world. The history of early industrial mining about mining work as a dangerous, risky, and hazardous job created a myth of masculinity around it and hence restricted women participation as formal labourers.

From the table 5 its clearly visible that women don't participate in under the ground operations and also not much into administrative roles. Women largely participate as above the ground labour workers.

The report published in 2015 by Mines and Communities (MAC)<sup>28</sup> tried to explain the nature of women workforce participation India. Women mining workforce is broadly unskilled, underaged and from economically backward strata of the society.

The driving force of such women to participate in mines jobs is mainly poverty, early marriages and migrating to the mining areas. While men participate as formal labour in mining operation women either stay back and take care of family. Or participate in unskilled physical labour. Consequently, mining is seen as a job in which men go down the mines every day, endangering their lives, to earn the bread for their families. In India women from SC, ST and tribes are high in percentage to participate in mining operations workers.

## 2. Gender inequality

Another feature about Women workforce participation is being an informal marginal worker. Women participate as Informal workers mostly in small mines and quarries. Even when technology has contributed to improving the working situation in mines, the halo of risk and 'dirty' work has continued to surround mining<sup>29</sup>, making it Men's only job. The culturally proliferated myths supported by social norms are restricting women's participation in mines. This masculinity associated with the work in mining has led to various myths around the entry of women in mines propagating the unfitness of women to work in the sector. From various study reports it is observed that women mainly work in lower level, manual, less safe and more insecure jobs. Better paid or technical jobs in mines do not usually go to women nor do women receive formal training in underground mining.

Gender disparity is seen in mines ownership patterns largely in Asia, and India where women do not own the mines. Gender discrimination and patriarchal culture are the main limiting factors to women to limits access and control over resources such as land, including what lies under or over it.<sup>30</sup>

## 3. Social restrictions

Women are predominantly governed by gender roles. Traditional primary roles they play of taking care of family, children and looking after household limits their strategic decision making about employment choices. Societal norms, cultural norms restrict their choices about kind of jobs they should do or should not be doing. Gender disparities in the family give less freedom to female or girls child to opt for her education or employment choices. Most marriage their choices are controlled or partially governed by marital family or husband primarily. Actual Mines are located at remote place. Though women get relocated after marriage for them on their own choosing remote location is very difficult decision. Family, children's education, elderly care these are critical considerations for women to opt for job in Mining sector for above the ground jobs. Considering the burden of the gender role and social norms mines are the least prefer choice of an employment for women.

## 4. Restrictive Laws

The next crucial factor In extractive industries in India which limits the women participation and overall bargaining power is the restrictive laws, policies and poor representation in the trade unions.

Several ILO measures – the 1919 Convention on Night Work (Women), the 1935 Convention on Underground work (Women) – reflected on the Indian Mines Act of 1952, resulting in restriction on employment of women workers in surface work during the day time only.<sup>31</sup> The Indian Mines Act, 1952 and the provisions by Ministry of labour and Welfare<sup>32</sup> for safeguarding the interests of working women, prohibits the employment of women underground and above ground between 7 pm and 6 am. These hours

<sup>28</sup> <http://www.minesandcommunities.org/list.php?f=14> - Background Paper by Mines, Minerals and People (MMP) for the Indian Women and Mining seminar, Delhi April 2013

<sup>29</sup> Roles and Status of Women in Extractive Industries in India: Making a Place for a Gender Sensitive Mining Development - Kuntala Lahiri-Dutt -Fellow, Resource Management in Asia Pacific Program -Research School of Pacific and Asian Studies, The Australian National University, ACT 0200

<sup>30</sup> <http://www.indianet.nl/pdf/WomenMinersInRajasthan.pdf>

<sup>31</sup> (ILO) 1997; Coal Handbook, 1997)- This was in accordance with the prevailing attitude at the time, in which a series of mining countries restricted women's work in mines: Germans banned women in 1878, North America in 1890, Sweden in 1900, Russia after the revolution in 1917, and Japan in 1933 (Alexander 2007). One of the earliest in the list was Britain, the British Mines Act of 1842 banned women and under 10 boys from working underground.

<sup>32</sup> <https://labour.gov.in/womenlabour/about-women-labour>

may slightly be relaxed with Central Government approval, but no concession is allowed for work between the hours of 10 pm and 5 am.

This Act also requires employers to provide separate toilets for men and women, and requires that women are given a break of at least 11 hours between termination of employment and its resumption the next day. The Mines Act ensures that the periods of absence on maternity leave are included in the calculations as 'periods of service'. Some of these legislations aimed at protecting women workers have proved to be counterproductive to the interests of women workers.

In the recent verdict of The Central Government allowed women to work in underground coal mines and do night shifts in open cast or over ground mines, in a bid to bring about greater gender equality and generate more employment opportunities for women. The government in a notification said it had decided to exempt the women employed in any mine above and mine below ground from the provisions of section 46 of the Mines Act, 1952, which restricts the women from working in mines.

This is considered as the most important verdict to open the mining sector to the women to work as formal skilled labour for the mining sector.

### 5. Industry acceptance

The Mine owners and employers perceive provisions made for women in Mines Act, 1952 as liabilities<sup>33</sup> and hence refrain from hiring women altogether. Further According to The Mines Act 1952 - Chapter VI rule 46, Women are allowed in the underground mines for practical training purpose, visiting purpose. But women are not allowed to enter underground mine for working purpose. The prohibition from working in underground mines is clearly discriminatory against the fundamental human rights of women.

In India women were not admitted for the Mining Engineering degree course and admissions were restricted as per employment guidelines by Coal Mines Regulations, 1957, This has restricted participation of women in other allied skilled above the ground operations.

No core mining PSU in India allows women to get employed as mining engineer. majority of the private mining companies do not allow women candidate to sit for campus placements. Chandrani Prasad Verma, India's First Female Mining Engineer, stated that mining sector in India is not yet open for female employees. Women candidates who pursue masters/ doctors in mining can continue to be in research, training, teaching or documentation, but not in core mining operations. She quoted that, "Many Companies have been sceptical about capacity and efficiency of women workers. Further industries have denied jobs to women saying, the biological setup and structure of a woman is not suitable for mining jobs. Few private companies like Vedanta allows women to work in their open cast mines or for mine planning and GIS based mine development"

Globally extractive industry is playing the role of solid foundation to economic growth of any nation. Woman workforce comprises average 50% of the total population. Growth of economy is very much dependent on the equal participation of every employable person of the population. Its critical to have inclusive approach towards employment and open the doors to women. Studies have proven the biological efficiency of women and they are no less than men. Depriving women of any economic opportunity will be resulting in loss of talent, skill and creativity hampering the larger growth opportunity of the economy.

Industry, Policy and society needs to work together cohesively to make the mining sector from "only men's industry" to "Industry for all"

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<sup>33</sup> Venkata Raman, C.S. and Harish C. Jain (2002) Women in trade unions in India, International Journal of Manpower, Vol 23, no. 3.