

Roles and status of women in extractive industries in India: Making a place for a gender-sensitive mining development

Kuntala Lahiri-Dutt*

In tracing women's roles and analysing their low status in the extractive industries in India, particularly coal mining, this paper highlights the need of sensitizing the Indian mining establishments ranging from educational, research and training institutions to the Ministries and Bureaus as well as the industrial organizations so as to provide equal work opportunities for women. It shows that mining is not a 'non-traditional' area of work for women as is commonly thought. It also raises the importance of class, caste and locational juxtaposition in understanding institutionalized sensitivities towards gender.

The author argues that the formal extractive industries continue to exclude women and remain sites of rewards of production for men because of the entrenched social bias as traditionally those working in the collieries were largely from lower caste, poorer classes and indigenous communities.

INTRODUCTION

Mineral extraction from the surface of the earth or from shallow depths underground gave us the basis for the various metals to consolidate our human civilisation.¹ Such extractive industries are collectively known as 'mining' which, together with farming comprise one of the earliest areas of human enterprise. In terms of production, mining practices today offer a wide range of practices in a continuum – from digging and panning by peasants using the most rudimentary tools at one end to removing rocks and earth with the aid of most enormous and expensive machines funded by international capital at the

other. This entire continuum of mining practices of extracting ore or minerals is also an area of gendered work. Not much is known of early mining, but the colonial expansion was accompanied by a spread of extractive industries. Records, including oral histories, have revealed that women had in these early mines, laboured together with men (Gier and Mercier 2006). They still do so throughout the world. The roles of women and men vary and women's participation as producers often remains invisible.² Women's contribution in a range of work in and around the mines demolishes many myths about gender roles of men and women at work. Women's work in mining blur the rigid boundaries of gender roles and show that unlike conventional beliefs, the spheres of men and women's work are not necessarily separate but overlap. Women in mining also illuminate terms such as 'industrial work' or 'economic activities' with a gendered light. Above all, women's work in mining presents the mines as special workplaces; as the 'mineworker' becomes visible as gendered subjects, the mine-pits reposition themselves as gendered places.

In spite of women being part of the mining workforce, it is common for mining to be popularly perceived as a uniquely male world where the separation of men and women's lives is virtually total. The history of early industrial mining as a dangerous, risky, and hazardous job created a myth of masculinity around it. 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. The isolation of miners' work and the shared nature of risks have contributed to build over the years a particular form of male solidarity that has given rise to a working class image and traditions. Women are seen as belonging to this working class because of their men, as McDowell and Massey (1994) have shown in the colliery settlements of Durham, England. Here gender segregation in the mining industry had led men to view themselves as industrial proletariat but enjoying the ownership of home. The isolation, risks and solidarity of earlier mines have endowed the manual labour with attributes of masculinity (Burke 2006). Even when technology has contributed to improving the working situation in mines, the halo of risk and 'dirty' work has continued to surround mining (Lahiri-Dutt 2006). This masculinity associated with the work in mining has led to various myths around the entry of women in mines that are propagated to prove the unfitness of women. Above all, the culturally propagated myths are supported by formal laws that restrict women's work in mines³. Restrictions in any area of work for any individual based on either, sex, race, caste or creed is against the human right of the individual. Such restrictions result in a concentration of women only in lower level, manual, less safe and more insecure jobs.

* Fellow, Resource Management in Asia Pacific Programme, Research School of Pacific and Asian Studies, The Australian National University, ACT 0200. <klahiri_dutt@hotmail.com>

Better paid or technical jobs in mines do not usually go to women nor do women receive training in mineral sciences or engineering. Women do not own the mines due to limited access to and control over resources such as land, including what lies under or over it. The inequity gets transmitted from the industry to the community of its location; the unequal economic and social relationships between men and women imposed by the social organisation of mining industry reinforce the subordinate position of women in the mining regions.

Although India cannot be described as a 'mining country',⁴ the importance of extractive industries in India is two-fold: the gamut of mineral resources and the number of people who earn a livelihood from extracting them, and the enormous importance of minerals in building and sustaining economic growth in India. India is the world's largest producer of mica, second in chromites, third in coal and lignite, fifth in iron ore, sixth in bauxite and manganese ores and so on. In recent years, the share of the Mining and Quarrying sector in India's GDP grown at an average rate of 5 per cent, and this rate is expected to grow higher with liberalisation of the economy. The mineral sector is an important component of India's foreign trade (contributing to around 16 per cent in exports and 20 per cent in imports) (Singh and Kalirajan 2003). However, official data on mining employment and production may not necessarily reveal the full magnitude of mining activities underway in the country. For example, there is scarce data on the informal mining sector, but it may be easy to appreciate the enormous quantity of production at that end from a look at stone or marble industries' websites. The construction boom that has accompanied the economic growth has had a direct impact of increasing the pace of production of building material such as stones and even sand and gravel from the small mines and quarries in India.

In tracing women's roles and analysing their low status in the extractive industries in India, this paper highlights the need of sensitising the Indian mining establishment – beginning from the education/research/training institutions, to the Ministries and Bureaus and the industrial organisations themselves – to the need to provide equal work opportunities for women. The paper shows that mining is not a 'non-traditional' area of work for women as is commonly thought. It also raises the importance of class and caste in understanding gender as mining is not a work for urban-based educated women such as those in Information and Communication Technology (ICT) whose work-demands have inspired changes in Indian labour laws.⁵

I hope that the paper would form the basis of a more informed debate on how women can be integrated in the production process in India's extractive industries. The coal mining industry is the main focus of the paper, which is intentional because coal in India represented colonial 'modernity' and in post-colonial times also represented the philosophy of 'command and control' of centralised planning under nationalisation (Kumarmangalam 1973).⁶ In the early colonial collieries, women came to work together with men like they did in plantations. Women had helped the continued growth of the coal mining industry of India till India's independence, but their numbers have fallen since then. Interestingly the participation of women in Indian collieries has declined rapidly in the post-colonial period, with the most significant decline being recorded during the last three and a half decades of State ownership. I will show that the exclusion of women from the formal mining sector has social bias: women who traditionally worked in the collieries were commonly from lower castes, poorer classes and indigenous communities. Besides this formal mining sector, the paper also outlines women's participation in a large range of mining practices in the small mines and quarries that are spread throughout India. Again, as is well-known, the mines and quarries in India are a repository of the poorest workers whose invisibility has given rise to extreme forms of exploitation such as bondage and child labour (Mendelsohn 1991).

The paper illuminates *three* differential aspects in gendering the extractive industries in India: gender roles, gendered social identities in the mines, and gendered status of workers. It locates women workers in the hierarchy of extractive industrial production in India, notes the ethnic and class composition of women, and observes how technology operates as a social relation being conditioned by gender relations. Gender plays an important part in my discussion: that women are largely employed in the less secure and more sporadic forms of employment within the extractive industries is not biologically determined. Not all women working in extractive industries are the same: whereas mine offices tend to have women as secretaries and typists, early history shows that women from lower castes and indigenous groups worked in the mine sites. It is important to bring these ethnic and social identities into our periphery of vision while discussing gender in extractive industries. Again, many women workers in many informal mines are also part of the family labour units; it is important to recognise the work of women in mines as part of livelihood strategies and ensure that this work is not undermined. Efforts such as ILO-IPEC's Child Labour eradication projects in India have actually hindered women's rights to improve conditions at work because 'women and children' are viewed to belong to the same category. Above all, mining in India is an industry with strong working class traditions.

Given that strong trade union movements had flourished in the past in the extractive sector and might continue to play an important role as the industry globalises, it is important to note the roles played by trade unions and indicate possible directions to furthering women's right to work. The male miner, as a more or less powerful or conscious agent of the working class, is also a psychologically, emotionally and politically powerful agent of patriarchy. Traditionally, the history of female exclusion has been represented as a working class victory, protecting the gentler sex from the rigours of dangerous and heavy work. A gender perspective will deepen our understanding of the labour dynamics of the extractive industry⁷. It will show how the differential positions of women and men in the spheres of industrial production reflect the social relations of gender and are perpetuated by gender ideologies, whereas economic differences among women result from the inequalities of class and ethnicity, structured by the mode of production as observed by Mohgadam (1999).

As I show in this paper, women played in the past and still play an important productive role in Indian extractive industries sector. These roles at present are neither visible, nor supported through Equal Employment Opportunity regulations. Even to the National Commission for Women (1993) investigating the impacts of economic reforms on women's work and equality, the presence of women in the extractive industries was largely invisible. However, it has been observed time and again that no development can be either efficient if it does not benefit both women and men, and mining is not an exception (Lahiri-Dutt and McIntyre 2006; Labonne and Gilman 1999). Hopefully, this paper would provide an evidence base for the Indian extractive industries to engage with gender-sensitive approaches to development within the industry. There is also a rich body of literature that largely fall within the broad category of mining and development, dealing with the social impacts of extractive industries in the areas of their operation, that has pointed out to the negative impacts of new mining projects on women (Ahmad and Lahiri-Dutt 2006; Parthasarathy 2004). That is, however, beyond the subject of the present paper.

MINING IN INDIA

India has a long history of artisanal mining, evidenced from old texts such as Kautilya's *Arthashastra*, written in circa 250BCE (Shamasastri, 1956: 82-89), 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. Such historical documents show that mining was an activity that supported many lives. It continues to do so in India; in traditional and non-

formal mineral production systems mining is undertaken by individuals and families at on a small scale. However, the formal mining sector that exists in India today began its journey during the colonial period with the establishment of collieries, institutions like the Geological Survey of India, and education and training institutions. It is this formal mining sector in India that is gradually becoming a capitalised enterprise, opening up to private investment since economic reforms, and processes are underway to further liberalise it⁸.

Minerals in India are owned by the State, and India offers a large range of minerals, the main resource-rich areas running almost in a belt along the eastern part of the country from Jharkhand, Orissa, Chhatisgarh and Andhra Pradesh. Rajasthan also gets significant parts of its income from mining and there are mining hotspots elsewhere. The Industrial Policy Resolution of 1956 put great emphasis on mineral exploration. The Government of India established the Indian Bureau of Mines to look after the scientific development and conservation of mineral resources in the country. Later in 1972, the Mineral Exploration Corporation was set up to conduct exploration work. This philosophy of centralised planning and control also resulted in the establishment of several companies under the public sector⁹. As fuel minerals dominate the total production of minerals in the formal sector in India (over 80 per cent of the total value of mineral production), the 'command and control' approach has been such as to retain the dominance of State enterprises.

Since the economic reforms, especially since the declaration of the new National Mineral Policy in 2002¹⁰, Indian extractive industries sector has been gradually opening up to private sector investment, including multinational investments. Even though a sizeable segment of extractive industries sector are still under State ownership, such as the collieries and oil extraction, the connections between the Indian mining sector and the global players has somewhat increased. This increase, however, has remained primarily focused on capital flows, and the global trends in the industry, particularly the self-regulatory and compliance mechanisms that have been developed have largely failed to influence the modus operandi of the Indian extractive industries sector. For example, the World Bank and the Australian developmental aid agency AusAID have funded, in the recent past, major projects in the Indian extractive industries sector: the Coal Sector Environmental Mitigation Project (CSEMP) and the large open cast Piparwar colliery are examples. Similarly, the Coal India Limited has been planning to open up collieries in other countries following the example of some private companies that have purchased mining interests in other countries. However, multi-party international processes such as Mines, Minerals and Sustainable Development (MMSD), Global Mining Initiative, Extractive Industries Review have received either poor engagement

or cold silence from the Indian mining industry¹¹. International good practice guidelines such as the International Council of Minerals and Metals' series on biodiversity protection or community development have not been fully acknowledged except in passing (such as that in the 2007 report of the Government of India's Planning Commission). Also, the Indian mining industry has been characterised by poor environmental care, gross neglect of social concerns in displacing rural communities and negligence in community engagement and development.

Whether the Indian bureaucrats and engineers influencing policy-making in the Indian extractive sector acknowledge it or not, one thing is true: now as never before in our history, extractive industries constitute an economic sector with geographical and socio-cultural ramifications from the local economy to the regional, national and international levels. It is thus only expected that the contemporary international approaches, such as gender-sensitive development and gender mainstreaming, would be relevant for Indian mines. Unfortunately, this has so far not happened. For India, it is even more important to have a 'gender lenses in mining in view of the important economic contributions of women in spite of their overall low status in society. Experts have repeatedly shown that women play a crucial role in the primary industries in Indian – as per 2001 census, more than 72 per cent of women workers are engaged in this sector.

However, it is important to bear in mind that mining is not only a capital-intensive and formalised industry; although it is difficult to define clearly, there is a large and amorphous informal mining sector in India. Part of this informal sector can be termed 'artisanal', where traditional practices such as panning or gemstone mining in inclines or shafts have continued since hundreds of years. The term 'quarry' popularly implies shallow or surface workings, whereas 'small mines' may also mean deep underground but unmechanised operations. The government commonly uses the term 'quarries' to imply licensed informal mining operations. I have used the terms 'informal mining' or 'small mines and quarries' to mean all licensed small, medium and some large mechanised enterprises, unlicensed and unregulated and small operations, scavenging operations, and finally non-legal (beyond the legal domain) practices of small-scale mining. A range of minerals is mined this way in India, but except for some scattered gold and gemstone extractions, the largest segment of the minerals are low value and high volume - building/construction materials (such as stones of various sorts, gravels, sands and clays, and limestone) and even coal with only one or two exceptions such as some export-oriented marble and mica. If mining or extractive industries can be defined broadly in India to

include these mineral extraction practices and both formal and informal mines can be taken into account in official data, and then the modes, forms and structures of production analysed, the resultant picture of workers would be more indicative than the Census or IBM data can provide.

WOMEN IN ECONOMIC PRODUCTION IN INDIA

Women's involvement in mining work is a critically important challenge in 'engendering' the extractive industries sector in India besides examining the gender impacts of mining and the need to incorporate a gendered outlook in the community outreach projects undertaken by mining companies¹². It is well-known that the labour of women is concentrated in the rural areas and in marginal jobs¹³. Krishna (2004) pointed out that large numbers of women essentially provide livelihoods, food security and subsistence for the family. Yet, in most parts of the country, and in almost all natural resource management sectors, the lack of equity is evident in their poor status in formally determining resource utilisation. Throughout India women comprise a disproportionate segment of the chronically poor population, face gender discrimination throughout their lives within the family, society and at places of work, have low levels of control over property and resources, and bear shocking burdens of work. Again, women are at work throughout India, comprising a significant part of the workforce, with an overall labour force participation rate of 33 per cent (as per 2001 census). As noted before with mineral production, the data on women's workforce participation take into account mainly the organised forms of work, and fail to fully reveal the extent of women's economic contribution. Gender division of labour prevails in all sectors of employment. A large number of rural households are now de facto female headed (about 25 per cent), whether due to widowhood, desertion or male out-migration, especially in the hilly and backward areas.

Krishnaraj and Shah (2004: 44) identified four important aspects of women's work in their Millennium Study of Women in Agriculture: predominance of rural workers, the dominance of primary sector in rural areas, a significant set of subsidiary workers within the primary sector, and higher incidence of casual labour. These are important to bear in mind when talking about women in another primary industry such as mining. The need to provide subsistence or cash incomes can drive women into unsafe and extremely hard work such as stone breaking and carrying headloads; similarly the stagnant agricultural sector and male out-migration or desertion can force women to seek casual jobs in the small quarries that are usually located in remote rural areas. The focus of national policies and programmes has been more on employment

generation for women rather than ownership and control over resources. In general, these policies tend to pay least importance in addressing women's needs and priorities or to involving them in decision-making roles.

In determining who holds more power in mining, gender differences with respect to access to and control over the mineral resources will need to be taken into consideration. The lack of women's ownership rights over land lies at the core of disenfranchisement of women in almost all natural resource management sectors. FAO (1996) note: 'Land rights can serve multiple functions in rural women's lives, which are not easy to replicate through other means.' Lack of rights over resources reduces women to a poor bargaining position (Agarwal 2002). Agarwal (1994: 2), noted:

Land defines social status and political power in the village, and it structures relationships both within and outside the household. Yet for most women, effective rights in land remain elusive, even as their marital and kin support erodes and female-headed households multiply. In *legal* terms, women have struggled for and won fairly extensive rights to inherit and control land in much of South Asia; but in practice most stand disinherited. Few own land; even fewer can exercise effective control over it. Yet the voice of the disinherited female peasant has until recently gone largely unheard, not only by policy-makers but also by grass roots groups and academics.

The conceptual links between gender and property derived from the gender and land rights debate apply to minerals, and other wider natural resource rights. In extractive industries, this lack of access to mineral resources in terms of lack of property rights put women in a position of poor bargaining power both as a group and as individuals. This has been observed in the mining areas of other countries such as Kenya; according to Amutabi and Lutta-Mukhebi (2001: 5] women's disempowered status relative to men can be explained by their lack of land rights, 'women have access to, but do not control land. This does not make it possible for women to have full control over the mining activities effectively. The traditional social system deprives women of control of mining pits and only allows them access through men. Thus, their overall status in the production process is low'. In India too, the generally lower social, economic and legal status of women as compared to men in the extractive industries can be attributed to lack of land ownership which gives access to the minerals. For example, in case of new mining projects women are generally left out of the Public

Hearing processes or any consultation for compensation. In resettlement and rehabilitation, women's concerns are neither voiced nor heard (Ahmed and Lahiri-Dutt 2006). Women cannot use land as collateral to access credit or apply for mining leases. Indeed equality in land rights is the most critical element in women's economic empowerment and in challenging the various social and political inequities that women face on a daily basis in India.

In extractive industries in India, however, *two* other crucial factors limit women's voices and bargaining power. These are restrictive laws and poor representation in and support by the trade unions. Let me discuss these briefly.

Several ILO measures – the 1919 Convention on Night Work (Women), the 1935 Convention on Underground work (Women) – inspired the Indian Mines Act of 1952 to restrict employment of women workers in surface work during the day time only (ILO, 1997; Coal Handbook, 1997)¹⁴. The Act prohibits the employment of women underground and above ground between 7 pm and 6 am. These hours may be relaxed slightly 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. Venkata Raman and Jain note (2002: 282) that the employers perceive these measures as liabilities and hence refrain from hiring women altogether. The prohibition from night work deprives women of the opportunity to participate in large open cut mines that are run on shift work and that pay better wages than many other industrial sectors. The prohibition from working in underground mines is clearly discriminatory against the fundamental human rights of women. In observing that women as such have poor access to education and skill development which result in their great numbers in low-paying sectors/occupations with limited opportunities for career advancement, Venkata Raman and Jain noted (2002: 278): 'Banning women from working on night shifts and in underground mines has further reduced the scope of employment for women'. The overall effect of these laws on women has not been positive. In giving out Voluntary Retirement, the Coal India Limited actually prefers to selectively retire women. Similarly, in giving out jobs on compensation basis or for land-losers cases, it is the male child that receives priority. In one case in eastern India, after the husband's death, the woman who was the only heir was asked by Company officials to stay at home and receive a pension rather than claiming a job.

Such discrimination is unfortunate and against the human rights to work by any individual. Indeed India was one of the countries to give women the right to vote at an early date. Commitment to freedom, equality and social justice lie at the core of India's nationhood, ensuring equality for women and men before the law, and prohibiting discrimination against any citizen in Articles 14, 15, 15(3), 16, 39 (a, b, & c), and 42. The Indian State ensures constitutional guarantees to women's equality, and there have been significant state efforts in promoting women as agents and political actors in the country. From time to time, the state has sponsored reports, established commissions, participated in international forums and subscribe to international norms of gender equality. Yet, the laws of the country restrict women's work to certain types of mining and to certain times of the day.

Under the circumstances, one would expect that the trade unions would uphold women's rights to work in extractive industries. Trade unionism has a long history in the Indian extractive sector; all important trade unions have their representation in the formal mining sector. In general, these unions are neither led by women, nor do they have a significant number of women workers as their members. This reflects the facts that women are concentrated in unorganised sectors and that trade unionism is predominant in the formal or organised sectors of production. Trade unions in the coal mining industry have also been less responsive to women workers' needs and interests than their male members' interests. The attitude to women workers tends to be condescending and in their 'noble' efforts to 'protect' the weak women, trade unions often fail to look after women's issues and interest in a substantive way. According to Venkata Raman and Jain (2002: 279): 'Trade unions are generally opposed to lifting the ban on working of women on night shifts'. Trade unions have failed to act as a useful weapon in supporting the women's cause in Indian mines. For example, there are multiple, party-based trade unions with considerable bargaining strength operating throughout India (Bhattacharjee 1999). In coal mining, trade unions began in the mid-1950s, but the public sector collieries provided a fertile ground for union activity. However, they have not yet raised the issue of restrictive legal frameworks around women's work. In the absence of trade union support, in places such as the Bhowra colliery in eastern India women workers themselves have stood up and claimed their rights at work (Barnes 2006).

These restrictions over women's work and their invisibility as valid workers to trade unions raise the wider question of citizenship. Feminists have

widely debated the critical issues surrounding women's presence in the public domain in India (see for example, Krishnaraj 1998). Technically, women in India are equal citizens to men, and hence one needs to view the gender inequality in light of capabilities, according to Martha Nussbaum (2000: 14). The right of non-discrimination on the basis of sex is guaranteed in the list of justiciable Fundamental Rights, as is the right to the equal protection of the laws – which, as in the US, has been interpreted to be incompatible with systematic gender-based hierarchy. Consequently, the approach that the extractive industries sector in India use is that of 'protection' of women and children from the risky and unsafe work of mining. With regard to this protectionism, Nussbaum (2000: 14-15) notes that 'India has a uniform code of criminal law, in most respects a relic of the Victorian colonial period...But the code's Victorian understanding of women (as either modest or depraved) is ultimately a barrier to full sex equality'. Commonly women in India are not treated as ends in their own right, but as mere instruments for the ends of others. It is desired that they perform various roles within the household as reproducers, caregivers, sexual outlets, and agents of a family's general prosperity. Such deification of women can have strongly positive instrumental values. However, sometimes it may actually be negative and result in restrictions on women's mobility and rights to work as in the case of mining.

Gender equality means that the fruits of development reach equally to men and women. It is central to all development goals, including extractive industries whether owned by the State or by individuals or multinational companies. Yet, women continue to be seen as non-participants in mineral production, with declining job opportunities, restrictions of job opportunities, and no legal claim or right to land and the jobs that land ownership could possibly bring. Thus, to put on a gender lens in the extractive industries sector, it would mean not only making visible women's work in mining, but also involve thrashing out the various social and cultural impediments in enhancing the equity that is enshrined in the Constitution. It would mean changing the laws that restrict women's right to work and make women equal partners in the development process that extractive industries promises to bring to India.

WOMEN IN INFORMAL MINING OR ASM

The percentage of women engaged in informal mining jobs globally such as panning, processing, transportation and related work, is estimated to

vary from 10 per cent to 50 per cent (Jennings 1999; Hinton *et al.*, 2006). In Ghana, Hilson (2001; 2002) found women comprise approximately 15 per cent of the legal small-scale metal mining labour force and about 50 per cent of the illegal or '*galampsey*' industry. Women are represented more heavily in the extraction of lower value industrial minerals, the proportion rising to over 75 per cent in salt mining. It has been noted that economic reforms, while opening up the mineral resources of developing countries to multinational mining companies, have triggered off an informalisation of women's work in small mines and quarries (Hentschel 2002). Informal work in small mines and quarries is an unsafe, insecure, low-paid and physically demanding activity (Heemskerk 2000). Although women are present in large numbers in such mining and quarrying jobs, there is a distinct gender division of labour in which men undertake the 'heavy jobs' and women take care of most day-to-day chores including transportation¹⁵. For example, in Latin American communities, women perform roles as labourers, undertaking the most physically-intensive and informal jobs in Bolivia (called '*palliris*'), or are associated with subsistence activities such as in Colombia (Veiga 1997). Hinton *et al.*, (2003: 13) have noted that gender roles and the status of women in ASM reflect the levels of gender equity and women's empowerment found generally within a given society or culture, including: 'women's and men's access to and control of, resources; their ability to attain knowledge of resources, their decision-making capacity or political power; and beliefs or attitudes that support or impede the transformation of gender roles.'

The Mines and Minerals (Regulation and Development (MMRD) Act of 1957, the principal legislation governing mineral prospecting, exploration and mining besides the Indian Mines Act of 1952 (which is primarily meant for labour welfare and safety and health issues), classify all minerals either as 'major' or 'minor'. The minor minerals are the lower value or scattered or isolated or uneconomic mineral resources, and their governance (in terms of granting leases) is the responsibility of individual states. In other words, the minor minerals are meant for exploitation by local entrepreneurs, on a smaller scale, using lower levels of technology, although these mines too come under a range of environmental laws. Throughout India, there are innumerable small-scale mining operations, some fully licensed but others non-licensed, and some beyond the perimeter of the law (such as gravel or sand quarrying). No exact data can be provided on the number of such small mines and quarries in India, or the numbers of people working in them. According to Chakravorty (2002), small mines, such mines together constitute about ~88 per cent of the reported mines producing

about 10 per cent of the total value of mineral production of the country. Some of these small mines are important locally and nationally for India: India is the world's largest stone producer, an important mica and marble producer, gem stone producer and so on. Large numbers of people are engaged in sedimentary stones and gravel quarrying in the Himalayan foothills in the north as well as gravel collection from river beds throughout India. Women are found throughout India working on stone quarries and associated crushers (Lahiri-Dutt 2003). Taken together, it appears that there are at least a total of 3 million people working full time in informal mining in India (Lahiri-Dutt 2006b). It is best to call these small mines and quarries broadly as 'informal' mines as they are an extension into mining of the informal economy of India. These mines have been studied by Chakravorty (2002), Sahu (1992), Rudra (2002) and Ghose (1986), but only a few of them have mentioned women's presence in large numbers in these mines. The proportion of women, in my view, varies between 10-40 per cent depending on the nature of the mineral, production technology and the physical location of the quarry. This figure is in opposition to Chakravorty's (2001) observation that around 12 per cent of mine workers are women. It is also unclear if women and children are lumped together in Chakravorty's figure – a practice not uncommon in enumerating child labour in small-scale mining (CASM 2004).

My field-based observation is also in agreement with the fact that women constitute a large segment of workers in the artisanal, small and informal mines all over the world (WMMF 2000). In most cases quarry workers come from rural and agricultural backgrounds, approximately 30 per cent of whom are women (Krishnaraj and Shah 2004: 44-45). The proportion of women in the mines and quarries reflects a similar proportion. In fact, approximately 85 per cent of women workers are employed in primary sector activities in India (*ibid.* 2004: 46). While there are no reliable data on women's participation in the unorganised mines and quarries in India, women's proportional employment in the formal sector has been steadily declining since independence (Ministry of Labour's Statistical Profile on Women and Labour 1998) – from 1.02 per cent in all mines in 1901 to 0.05 per cent in 1991 and from approximately 50 per cent in coal mines to only 4 per cent). Since women's employment in all industrial categories has increased in recent years, this decline can be attributed to their substitution by men in formal and large mines. Consequently, small mines and quarries have been able to absorb the cheap labour of women in large numbers as contract workers under conditions of bondage and exploitation. It has been noted that throughout Asia the numbers of women engaged in

informal mining have been rising (Caballero 2006; MMSD 2002:21). In India, with the booming economy resulting in a flurry of building and rise in the numbers of quarries, the numbers have skyrocketed in the last few years. Given the seasonality of these jobs, insecurity and low wages, and the global trend of feminisation, informalisation and casualisation of women's labour, it can safely be assumed that the work participation of women in the informal mines will also rise.

WOMEN IN FORMAL MINING: COAL

The existence of coal has been known in India and some authors have noted the existence of archaeological evidences of the use of coal since ancient times (Murty and Panda 1988). However, it was during the British raj that coal mining in the modern sense of the term began in right earnest. A significant amount of historical information is available on the participation of women in the coal mining industry from colonial reports and gazetteers, as well as post-independence records and studies besides the census material. The coal-bearing tracts of India, located primarily in the eastern part of the country, underwent a process of transformation of society and culture as coal was 'discovered' by the British. The abolition of the East India Company's trading monopoly in 1813, the opening of Raniganj mine under European supervision, and the introduction of railways to facilitate coal transport to the market in Calcutta in the first part of the nineteenth century provided the initial stimuli for growth of the coal mining industry. Two-thirds of the total workforce in the mining industry was 'locally born', and lower caste and indigenous communities such as the Bauris, the Santhals, Kols, Koras and Bhuinyas joined the mining workforce along with their women (Paterson 1910). Collieries located in the Raniganj and Jharia regions remained the main supplier of coal for about hundred years since coal was first struck by Suetonius Grant Heatly and John Summer, two employees of the East India Company. The two Englishmen worked on six mines, three of which were at Chinakuri, Aituria and Damodar (Paterson 1910). Initially the Company showed little interest in developing the coal resource in India and considered Raniganj coal as inferior and unsuitable for ordnance works.

Coal mining in India remained sporadic until it was discovered that instead of transporting British coal to India by steamships, it is economical to extract this resource in India. By the time of Hunter's visit to the region it was 'practically treeless' (1872 reprinted in 1973), and a change in the region's social fabric had become palpable. Indigenous entrepreneurs, however, eventually came to dominate coal production; as many as 13 of

the 17 companies were owned by Indian operators. The low levels of technology and capital investment ensured that Indian landowners could make an easy entry into the industry (Rothermund and Wadhwa 1978).

Women in collieries were initially employed as 'gin girls' (from the term 'engine'), but switched to various other kinds of surface and underground work when the mechanical system of lifting coal from shallow shafts was phased out. The main job for women till the early decades of the twentieth century was that of a loader of coal cut by their male partners – father, brother or husband (Ray Chaudhuri 1996). This 'family labour' system was suitable in view of the rudimentary techniques used in the shallow open cut mines called *pukuriya khads*. The family labour system was rooted also in social attributes – the sentiments of family attachment and the unwillingness of women to carry coal for men of another caste. However, the dominant economic reason was that it provided uninterrupted maintenance of work schedule. The proportion of women employed in collieries from 1901 till 1936 is listed in Table 1 where it can be seen that the majority of female employees worked underground.

TABLE 1
Women workers in Indian collieries in the early 1900s

<i>Year</i>	<i>% women in total coal mining workers</i>	<i>% of women working underground</i>
1901	32	65
1904	30	50
1908	38	59
1913	37	67
1918	38	67
1921	38	60
1926	34	80
1931	19	65
1936	8	43

Source: B.R. Seth (1940); Ray Chaudhuri (1996); Despande Report Table 9, p 189

Col. Frank J. Agabeg, the General Manager of Apcar and Co., and the pioneering coal mining concern in the Raniganj coalfield provided an account of coal mining in Raniganj in the late nineteenth century. Collieries located at a distance from the railway transported their coal by bullock carts across unmetalled roads. Only the collieries adjacent to the railway tracks were served with sidings, the entire cost being borne by the companies using them. It was only later that the Bengal-Nagpur Railway extended their lines to the collieries.

In the mines, shafts were sunk every few hundred feet and quarries were often opened below the high water mark whenever an outcrop was found near a waterway. The mining appliances, tools and methods were simple. For example a 'Gin', operated by 24-28 women, carried in head loads, raised coal in 6-7 maund (about 250 kg) buckets and the coal to the pit bottom. Small 'beam' engines were occasionally employed to do the combined work of pumping and winding and were manned by three women. Steel tipped curved pieces of iron were used as picks with shapeless wedges and hammers and one inch round crowbars.

Workers in the collieries were recruited initially through *sardars* or muscle men, who were the indirect labour recruitment contractors, visiting from village to village to form groups to bring into the mines. In return, they received cash from the selected labourers and the unwritten debts of this kind were often paid by the labourers throughout their service life. In addition, the *sardars* received money from the colliery owners for being responsible for retaining the job, approval of leave, reinstatement after retrenchment, wage increases, etc, and thus acted as intermediaries between the colliery owners and labourers. The kin relations were also strong; Pramanik (1993) noted that nearly half of the workers in a colliery came into the mines through a relative, and if the employee fell sick, the post was commonly filled up by a kin.

Till the late nineteenth century, intra-state migration was comparatively smaller in volume. The local tribal and lower caste groups however, tended to leave the collieries to return to their villages during sowing and harvest times. These seasonal migrations from the collieries to the agricultural fields interrupted mining operations. As a result, collieries began to employ 'upcountry labour' to create their own captive workforce. Contractors or *thekedars* brought hardworking able-bodied males from eastern Uttar Pradesh, Bihar and even Madhya Pradesh (Mahindra 1946). The 'outsider' workers or upcountry labourers were single males as against the family-system of local indigenous labour, and upset the local workers. Many Santhal and Bauri workers as a result left the collieries with their families to work in the plantations in North Bengal or Assam, and gradually a large segment of the workers in the collieries began to be typically immigrant and male. Still, Pramanik (1993: 79) listed the names and circumstances of mineworkers such as Nuna Manjhi and Bhaban Bhar, aged 30 and 32 years respectively were born in the same colliery, whereas Ugan Bhuiya, aged 50 years, came to it with his mother who worked in the mine along with her husband. Ashu Singh came with his mother-in-

law who was a 'garryminer', Samar Etwar is a miner working along with his wife, and his son is a shotfirer, whereas the daughter-in-law is a stone cutter, Tejwa Nonia is a mineworker working with her husband who is a cutter. Thus, the collieries soon began to breed a generation of their own 'specialist' labourers, many of whom were women. This community was constantly changing too; Mohan Ahir came to the mines as a milkman but subsequently moved from his traditional occupation to take up a job in the mines. According to Srivastava (1970), the uneconomic holdings of cultivable land combined with better economic prospects drew the rural indigenous and semi-indigenous people into the mines and created new social mores. Women workers were an essential part of this emerging social mosaic of an Indian proletariat, and it was common to find women working as loaders or transporters to subsidise family incomes.

The hierarchy within the collieries was intricate and this meant that gender codes were imported from outside and inscribed on to the workers through the power structure. The *gomosta*, usually a Bengali or Bihari upper caste male was a representative of the manager, usually a European or less frequently, an upper caste Hindu. The *basti* (mineworkers' quarters) life was shaped largely by the hierarchies within the mines. Often workers lived in small hutments locally known as *dhaowras*. Life for women in these *dhaowras* was anything but easy. Immigration of upcountry male workers and the creation of a new generation of colliery-borns were changing the social and gender composition of the region. The jobs in the mines were not permanent and did not come with many perks. Safety and security were unimportant, and the Coal Mines Provident Fund Scheme Act introduced in 1948 did not improve matters. Some large collieries such as Giridih had hospitals and could arrange regular bazaars for their workers.

TABLE 2
Proportion of women workers in eastern Indian collieries, 1901-'96

<i>Year</i>	<i>Female</i>	<i>Male</i>	<i>% Females</i>
1901	26,520	55,682	47.6
1921	70,831	115,982	61.1
1981	15,451	172,705	8.2
1986	14,703	176,094	7.7
1991	12,804	165,085	7.2
1996	9,879	151,855	6.1
2007	8,392	90,798	8.5

Source: Compiled from B.R. Seth (1940) *Labour in the Indian Coal Industry*, Bombay; and ECL Reports, Personnel Department; <http://www.easterncol.nic.in/corporate.html>

The decline in the proportion of women workers over the past century or so is shown in Table 2¹⁶. The fall in the participation of women in the pre-nationalisation coal mining industry was for three main reasons: first the influx of single male migrant labour from eastern UP and Madhya Pradesh, second the ILO conventions and the Indian Mines Act of 1952, and third changes in technology. The first occurred around late nineteenth and early twentieth centuries. The second, legal interventions to restrict women's labour in mines took place between the wars and just after India's independence¹⁷. Till the end of World War I, Indian coal mining had remained 'extensive' in nature. Technology did not undergo any decisive changes, the units of production did not grow in size, and mines of similar size were added to each other. We also see that till this time, women workers were treated as part of the family team in the production process. Changes in the technology of coal production in India led to the replacement, around the inter-war period, of open cast mines by deep shafts, which were considered 'unsuitable' for women.

In post-nationalisation times, women's participation in the Indian coal mining industry has declined rapidly. New technologies such as dragline and shovel for the open cast mines, and longwall for underground mines have been introduced to mining coal during this time, and since running these are designated as 'skilled jobs', women have been either encouraged to retire or not hired at all. Consequently, women still employed in mines or hired on compassionate grounds are usually assigned the unskilled tasks such as sweeping floors, making tea or guarding the mine office gates. There have been only a few attempts to impart training and skills so as to enable them to adjust to the reorganisation of work. According to Ghosh (1984), women began to occupy a marginal position in the Indian coal industry because they were made redundant in the labour process.

Within the Indian coal industry, the proportion of women's employment varies regionally, as evident from the Company-wise data on employment of women in mines for the year 1999-2000 (Table 3). Older coal mining areas have a greater percentage of women in general. Although Raniganj (ECL) does not have the largest number of women in higher positions, it has the largest fleet of women workers amongst the CIL companies. It also has the largest percentage of women in daily-rate or piece rate work, which is at the lowest level amongst all colliery jobs. The two other areas with high concentration of women are contiguous to Raniganj-Dhanbad-Jharia-Hazaribagh under BCCL and CCL. In general, women in the older coal mining areas are more concentrated in the lower ranking jobs whereas the newer colliery areas have more women in higher ranks.

TABLE 3
Female employment in Indian coal companies, 1999-2000

<i>Company</i>	<i>Total employees</i>	<i>Females</i>	<i>% Females</i>
ECL	129,177	9,360	7.2
BCCL	115,758	9,813	8.5
CCL	79,016	6,034	7.6
WCL	78,413	3,573	4.6
SECL	96,277	3,221	3.3
MCL	22,610	856	3.8
NCL	17,191	390	2.3
NEC	4,130	291	7.0
CMPDI	3,639	138	3.8
DCC	680	22	3.2
CIL (HQ)	1,422	175	12.3
TOTAL	548,313	33,873	6.2

Source : Coal India Limited, Calcutta Head Office.

A case example would give a clearer picture. In Kunustoria colliery, ECL, in 2001, there were 11,478 workers. Out of this number, only 705 were women. Of the 705, 3 were 'officers', the highest level of workers. They were doctors who could have worked for any other company and for whom restrictive regulations were not relevant. Of the 51 'monthly-rated workers' 43 were clerks working in offices. The 347 women working as 'time-rated workers' were mostly now engaged on surface jobs such as shale-picking, or motor-coil winding a low-level skill that was actually imparted to them in a workshop¹⁸. The remaining 304 women workers were 'piece-rated' working in various manual jobs such as wagon loaders and clay cartridge makers. Looking at caste break up of these workers, the number of Scheduled Castes (SC) and Scheduled Tribes (ST) was highest in the lower job categories. None of the 3 women doctors was from lower castes or tribes, only 2 of the monthly rated (salaried) workers were SC, but 72 and 65 were SC in the time-rated and piece-rated categories respectively.

CONCLUDING REMARKS: MAKING A PLACE FOR WOMEN

Significant efforts to ensure women's rights are yet to be made and even then, they need to reach the women at the bottom of the hierarchy within Indian extractive industries. There are some scattered examples of interest group formation; in 1997, Coal India Limited encouraged the formation of an organisation called 'Women in Public Sector' (WIPS) with the

objective of 'optimising the full potential of its women employees and to play a catalytic role in improving the status of women' within the industry. However, the organisation is a city-based one and has had limited outreach and impacts. The representation of women from lower castes and tribes, who actually work in mining on mine sites are absent also from this grouping. Trade unions, faced with the onslaught of liberalisation, imminent privatisation and job losses, VRS and shrinkage of compensatory jobs, are yet to take up women's agenda. With regard to such social processes at work, Marx-Ferree *et al.*, noted (1999: xix) that 'Constructing "men" and "women" is a social process at all levels...Gender is itself now understood as a dynamic process, one that (is called) "doing gender" and ...referred to as "gendering". It is also understood simultaneously as structure, that is a latticework of institutionalised social relationships that, by creating and manipulating the categories of gender, organise and signify power at levels above the individual, from cultural meaning to government policies'.

What is needed for the extractive industry of India is a public effort on making women's work visible in mining, and an active debate on rights of women's: right to work, right to own land and to participate in mining. This will require revising of laws surrounding women's work, and significant improvements of the work itself. Engendering the extractive industries would also require a greater understanding of technology as a gendered process. The introduction of shafts to mine coal from underground restricted women to surface work, machines restricted them to unskilled work, and the process of mechanisation generally reduced their opportunities in coal mining. In informal mines, women's roles are limited to unskilled and physical work. The overall mining industry in India shows how technology and economic organisation of mineral extraction can combine with a rigidly hierarchical and patriarchal society to restrict women to the lowest place. A need of the day is the sensitisation of a large range of stakeholders who are conventionally men, and believe in the gender-neutrality of such 'hard' science and technology areas such as mining. It will be an uphill task to make them take seriously the understanding of gender as a relation, a process and a structure, and using it to illuminate the workings of the extractive industry. To take a gender perspective seriously would mean that the conventional categories used for analysis at all levels are questioned. For example, not only the category of 'women' and 'men' but also place and space, political and non-political, and public and private need to be put under the lens to see how they might fall apart.

Following Marx-Ferree's argument (1999: xx), one can note that gendering the extractive industries in India would thus not imply creating the categories as 'homogeneous wholes', but rather 'a process of creating and using such categories to order our social world'. The division between the mine site, mining and livelihoods and households would break down in this kind of analyses. We have been brought up to think that 'economic activities' comprise a world of work and markets that have nothing to do with the domestic realm. Work and family occupy separate spaces exemplifying segregated spheres of human lives, production or making things, and reproduction or procreating family. However, as we have seen in this paper, mining production is a highly gendered process and its sites too tell us a great deal about these processes. In collieries, the masculine productive activity makes sense historically and economically, whereas women's work remains invisible. The compulsory distinction between masculine and feminine, the marginalisation of women in production, and the justification of both difference and subordination through appeals to anatomy or evolution mark the division between production and reproduction in terms of gender. Gender segregation and discrimination in extractive industries imply that these are sites of male domination where the rewards of production are largely for men. □

Notes

- 1 Mining has played a major part in the development of human civilisation, probably more than is usually recognised. Mining is one of the earliest of human enterprises and its development correlates with cultural progress; people in historical times were associated with minerals or their derivatives (such as Bronze Age). Mining began with Paleolithic people, perhaps 300,000 years ago, during the Stone Age, when flint implements were sought for agricultural and construction purposes. Early miners first extracted and fashioned the stone raw materials that they needed from deposits at the surface, but by the beginning of the New Stone Age (c. 40,000 BC), they began to mine underground as well. Human fossils and artifacts provide evidence to early mining which originated in Africa. We do not yet know the extent of women's involvement in early mining. Stone Age mining was done without many tools, but technological sophistication meant that early miners gradually devised ways to chip and free fragments from the solid rocks, to hoist ores by simple lifts, to illuminate their workings by torches and lamps, and even to ventilate underground openings (see http://www.dmtcalaska.org/course_dev/intromining/01history/notes01.html accessed on 1 October, 2007).
- 2 Brush (1999, p.162) comments, 'industrial societies organise gender. Men are workers, women are mothers' or again (p. 162) 'Workers are men, mothers are women'. At the same time, Lorber notes (1994), gender organises industrial societies.
- 3 In Indonesia, for example, a woman needs to produce permission letters from her father or husband to work in open cut mines. Things are changing, however. Equal Employment and Opportunity laws had opened up the better-paid mining jobs for women in the USA

- and Canada in the 1970s. In South Africa, a recent law ensures that at least 10 per cent of all new jobs created in the mines must be reserved for women.
- 4 Such definitions are restricted to those countries a major part of whose incomes are derived from the extraction of mineral resources. Australia, Canada, Papua New Guinea are amongst such countries.
 - 5 The 2002 Report of the National Commission of Labour in India notes in its several recommendations in point 6.121 of the Review of Law section ((NCL, 2003: 95-96): 'We would recommend enactment of a general law relating to hours of work, leave and working conditions, at the workplace.' However, this 'omnibus law', according to the Commission, 'should' incorporate the 'prohibition of underground work in mines for women workers, (and) prohibition of work by women workers between certain hours'. This well-intentioned report completely ignores women workers in mining although urban-based working class women such as rag-pickers, construction workers and *bidi* workers do get their due consideration. It does consider the question of night work by women at some length, although the focus of this attention is clearly the ICT workers.
 - 6 Indian collieries were brought under State ownership in phases from 1971-1973. Although some captive and contracted mining is currently permitted, the coal industry of India still remains largely state-controlled.
 - 7 By gender, I imply an asymmetrical social relationship between women and men based on perceived social differences, and an ideology regarding their roles, rights, and values as workers, owners, citizens, and parents. I understand it as a process and a structure and use it to draw attention to the gendered nature of mine production in India's extractive industry.
 - 8 The Planning Commission had set up a Commission and its recommendations are now being considered by a Parliamentary Committee.
 - 9 A list of these companies would indicate the dominance of State enterprises in Indian Mining: National Coal Development Corporation (established in 1956), National Mineral Development Corporation (1958), Bharat Aluminium Company (1965), Pyrites, Phosphates and Chemicals (1960), Hindusthan Zinc Limited (1966), Neyveli Lignite Corporation (1957), Hindustan Copper Limited (1967), Bharat Gold Mines Limited (1972), and Steel Authority of India Limited (1973). The greater part of coal, lignite, petroleum and natural gas, copper, lead-zinc ores, gold, silver, diamond, tungsten concentrates, pyrites, rock phosphates still come from the mines owned by the public sector.
 - 10 The first National Mineral Policy was announced in 1993. It attempted to facilitate the growth of minerals-based industries through private sector investments. This was revised in 2002 to further open up the minerals sector to private investment.
 - 11 The India country study for MMSD was done by the Tata Energy Research Institute in 2001. This report gives an overview of the minerals industry based on IBM data, whereas in many other countries, the reports dealt with more serious issues such as the denial of human rights to local communities by mining companies. This gives a false impression that such issues do not exist in India. A look at the mines, minerals and people's website would indicate that it is not the case. In fact, the NGO sector and the academics have done extensive research on the poor environmental and social performance of the extractive industries in India (Vagholikar 2003; Bengara 1996).

- 12 The concept of 'Community Development' has not quite matured in the extractive industries sector except for a handful of (usually) privately owned companies taking up developmental projects in surrounding communities. That does not necessarily mean that the public sector companies do not have social awareness at all: many of these responsibilities have been ingrained either in precedence or tradition although only a few are written into formal laws. For example, jobs have traditionally been offered to 'land losers' although the number of these jobs have been declining and the awareness that besides those losing land (that is directly affected), there are a large number of people who are 'project affected'.
- 13 Women account for about 65 per cent of household food production in Asia, playing a critical role in agriculture managing land, water and livestock resources.
- 14 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.
- 15 However, Moretti (2005: 5] has observed in Papua New Guinea that limited female participation is not exclusively a matter of personal preference, but the outcome of male domination of the contemporary space of production and social reproduction. Moretti's work gives the example of Mount Kaindi's extractive landscape, where in accordance with 'traditional' principles of land ownership, almost all registered mining leases, tributary rights and customary land are held by men and transmitted patrilineally.
- 16 The slight increase in the latest data reflects not manual workers on minesites but educated, urban-based women working in white-collar jobs in offices.
- 17 Despite the general ILO ban on women's work in mines, their participation picked up during the mid-1940s to meet war-time coal demands.
- 18 This is actually an unusual phenomenon – the sympathetic manager's contribution to the mine.

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