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Research paper

A sustainable livelihood framework to implement CSR project in coal mining sector

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ABSTRACT

Corporate social responsibility (CSR) in mining areas has increased momentum especially in countries like India where it has been made mandatory. The primary objective of this paper is to document actual social challenges of mining in field areas and find out how companies in the coal sector can work in a systematic manner to achieve uplift of affected communities. The first part of the paper draws evidence from three different bodies of literature, i.e. CSR and coal mining, capacity building and livelihood generation in mining areas. We try to converge the literature to propose a novel framework for livelihood generation work through capacity building with the help of CSR investments. The paper also documents a live case of planning and the implementation of capacity building activities in Muriadih coal mines in the Jharkhand state of India and offers lessons to both business and policy makers. The proposed framework has only been experimented in a local context, yet has the potential to be replicated in other mining areas.

1. Introduction

The mining industry is of utmost importance in the economic development of countries as over 20 million people in the world depend upon mineral resource extraction as a basis for their living (Jenkins, 2004). Since prehistoric times, mining has been an essential contributor to social development. Minerals have met uniquely human needs through the ages, including securing food and shelter, providing defence, enhancing hunting capacities, supplying jewellery and monetary exchange, enabling transport, heat and power systems, and underpinning industry (Hartman, 1987). Mines not only create direct and indirect employment opportunities but also generate foreign exchange earnings and tax revenues (Das & Mishra, 2015). While there are many economic benefits of the industry, it is also blamed for various environmental risks and socio-economic consequences affecting both people and the environment (Kemp, 2010; Jenkins, 2004); these effects include social disruption and dislocation, relocation and resettlement, and adverse impacts on heritage and livelihoods (Danielson, 2006; Kemp, 2010; Owen & Kemp, 2015). Mining activities also lead to various geological and environmental problems such as the deterioration of land and water resources, geologic hazards and destruction of the ecological landscape (Zhiguo et al., 2011).

Literature supports the view that most of the world's active mines and exploration activities are in environmentally and socially vulnerable areas. Once mining is completed, countries require reclamation plans for coal mining sites to undo the effects on the environment and the surrounding habitat. A vast scale of land disturbance and displacement of people is caused by mining activities (Mishra, 2009; Owen & Kemp, 2015; Whitmore, 2006). All these issues stress the need to consider how land reclamation can be performed in conjunction with the creation of sustainable livelihood opportunities for communities living in surrounding areas and many firms in different countries are working to ensure sustainable livelihood for the community and people at large. Both environmental and social issues need to be tackled in the context of minimizing environmental impacts and improving the quality of life of displaced people by means of increased livelihood opportunities. Literature highlights cases where these initiatives have been implemented in various countries and an account of this has been presented in subsequent sections. Yet, the existing literature is very limited, diverse and is written in different contexts which makes it difficult to draw any meaningful conclusions for both academia and in practice. To focus corporate efforts towards CSR and community development, it is pertinent that investments are made in more focused and meaningful livelihood activities. There

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are almost no examples, in the literature, of a specific development framework for guiding these activities in mining areas and our paper aims to fill this gap. This paper, therefore, contributes by reviewing the literature in three different domains and providing a novel framework for sustainable rural livelihoods in mining areas in the context of the changing CSR regime in India. The proposed framework has the scope and potential to be replicated in other mining areas and contributes to CSR frameworks as well.

The purpose of this paper is twofold:

Firstly, to examine the literature on CSR in the mining sector in the context of livelihood development. Secondly, to provide a framework linking CSR and the skill development needs of local communities with the help of a case study.

This paper consists of five sections. The section 1 provides background and describes the objectives. The section 2 talks about the methodology of the study. Section 3 concerns results and has been organized into two subsections. The first subsection sums up the literature review: namely sustainability challenges of coal mining, challenges of coal mining in India, capacity building trends in the mining sector and CSR in mining areas. The second subsection describes the case study of a skill development program being implemented in the Muriadih coal mining area of Jharkhand state in India. Section 4 provides discussions in the form of a summary and convergence of literature review from different areas. Section 5 provides conclusions and future research implications. A novel framework for livelihood and value chain development in the context of CSR work by mining companies is also discussed in this section.

2. Material and methods

As the focus of this study is to examine the literature related to CSR practices in mining firms, in the context of livelihood development and capacity building, the paper draws upon literature from leading academic journals from the following databases: Viz, Wiley (onlinelibrary.wiley.com); Science direct (www.sciencedirect.com); Emerald (www.emeraldinsight.com) and Google Scholar (scholar.google.ca). A group of scientific journals in the above-mentioned databases which were likely to include work in the field of CSR for the mining industry in the context of livelihood where searches were made related to relevant keywords were selected. The main keywords used for the bibliographic search are presented in Table 1 below. The next step included the scanning of the collected articles and their classification. First, all articles that were repeated in different databases were excluded, then, keeping the scope of paper in mind, the title and abstract of the retrieved articles were reviewed for their relevance to research questions by the authors and all non-relevant articles lying outside the objectives of the study were excluded. After the screening process and thorough analysis, a total of 62 papers including reports were selected for this study. The detailed keyword selection and papers under each category are presented in Table 1 and Fig. 1 below.

The study also presents the case study of Muraidih coal mining in the Dhanbad district in Jharkhand, India. The data for the case study was gathered through live experiences of the authors of the project. The timeline for data collection is from the start of the project in July 2015 to March 2017. Various research tools, such as conducting: a need assessment survey, socio-economic survey and resource assessment represented important inputs for the case study.

The selection of a mining site and the number of villages for this study is explained in detail in section four of this paper.

3. Results

This section of the paper is organized into two sub-sections. The first section presents in-depth literature review and the second section reveals the results of the case study being implemented in livelihood development in mining areas.

3.1. Literature review

The review of literature is focused on four areas based on the objectives of the study, i.e. environmental and social issues in the mining Sector; impact on local livelihoods; CSR and mining companies, capacity building and skill development in mining areas. Based on the existing literature, we have tried to identify research gaps and provide research directions in this emerging area of CSR and sustainable livelihoods in the context of changing the regulatory regime and emerging paradigms in corporate social responsibility and sustainable development goals. While this paper provides literature inputs from a global perspective, it has been written in the context of Indian coal mining scenarios. This paper also uses input from a case study implemented in the Muriadih coal mines of the Dhanbad district in the Jharkhand state of India and proposes a novel framework for livelihood development and implementation in the local context, yet has the potential to be replicated in other mining areas.

3.2. Sustainability challenges of coal mining

The major environmental problems at the mining stage consist of the degradation of land which is perhaps the most serious impact of coal mining operations. Mining projects not only affect the people whose land and houses have been taken away for mining but also people living in the general vicinity as they suffer from local environmental impacts, which include water scarcity, air, noise, and water pollution, health impacts, etc. Open cast mining causes much greater degradation to land than underground mining (Kemp, 2010; Kumar, Gupta, & Radhakrishnan, 2015). With a

Table 1
Keyword classification of articles.

Subject area	Key words Used	No of Papers selected for review
CSR and Mining	• CSR (5) • CSR and Mining industry (9) • CSR and Community development (7) • CSR and Stakeholder engagement (5)	26
Capacity building and Mining	• Capacity building (8) • Skill development and Training (6)	14
Livelihoods and Mining	• Livelihood (5) • Livelihood security (4) • Gender equality (4) • Poverty eradication (4) • Employment and Sustainable rural livelihood (5)	22

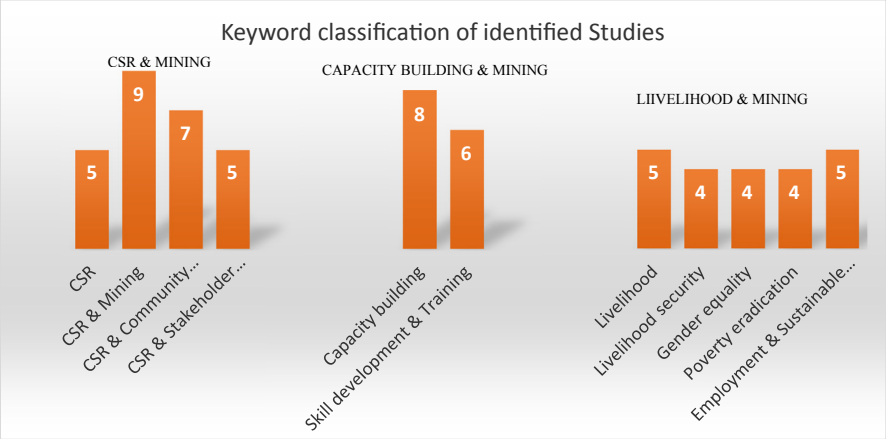


Fig. 1. Keyword classification of articles.

prominent emphasis on large scale mechanized opencast mining in India, large tracts of land are left degraded because of activities like excavation, stacking of waste dumps, discharge from workshops, construction of tailing ponds, etc. Underground mining operations also lead to the problem of the subsidence of land and result in changes in topography and drainage patterns (MoC, 2005).

Social impacts take the form of displacement, loss of livelihood, and social exclusion. The impact of mining on the livelihoods of local communities is largely neglected. Often, all the benefits accrue to the mining industry and its workforce, depriving the rest of the population in the locality. From the perspective of mine affected communities, they continue to suffer ill effects to their ways of life, health and environment (Whitmore, 2006). These populations bear only the costs, while the provision of benefit is lopsided (Das & Mishra, 2015; Owen & Kemp, 2015). Coal mining operations are also subject to safety and health hazards for mine workers, some of which include the inhalation of dust, toxic fumes and gases; exposure to radiation; noise induced hearing loss; heat stroke; exhaustion, etc.

To mitigate these risks, various agencies are working within the sustainable development framework to provide infrastructure and services for health and education, economic opportunities in the form of compensation and royalties, direct or indirect employment (such as a small business enterprise), capacity building and other community development programs to those affected (Idemudia & Ite, 2006; Owen & Kemp, 2015).

3.2.1. Challenges of coal mining in India

Coal is a predominant source of energy in India and has contributed significantly to the rapid industrialization of the country. India is currently the third largest producer of coal and contributes 8% of the total coal production in the world (IBM, 2012). An MoC (Ministry of Coal) expert sub-group estimated a shortfall of 330 MT in 2006-07 and 503 MT in 2011-12 if the entire coal requirements were to be met from indigenous coal, and of 322 MT in 2006-07 and 472 MT in 2011-12 if the shortfall were to be met from the import of superior quality coal. The coal industry has a turnover of Rs 340 billion, which is around 1.2% of India's GDP (ICRA, 2006). The contribution to the government through various duties and taxes is over Rs.35 billion or 0.2% of GDP. Coal currently accounts for 55% of India's total energy consumption, and according to most projections, it will remain the most viable fuel for driving sustained economic growth for many years to come. Coal mining in India constitutes a share of 80% of total mining, with the remaining 20% distributed among various raw materials such as gold, copper, iron, lead, bauxite, zinc, etc. It has been predicted that the next 4–5 years will be years of pronounced coal shortages in India. The increase in demand is expected to be driven almost entirely by the power sector. Research shows that open cast mining displaced many people from their ancestral land. It was recorded that during 1950–1991 around 25.5 million people have been displaced in India; out of these 52% belong to a tribal community (MoC, 2005). However, the figures reported are not comprehensive because there is no guardian agency to maintain official records of displaced people in India (IDMC, 2016).

Open cast mining also adversely affects natural resources directly through deforestation, the digging of land, changes to river flow by its deposition, etc. This loss is felt even more in the case of coal mining in India, as most of the regions rich in coal reserves are in remote forest areas and hilly regions which are inhabited by indigenous communities and/or thickly populated. The problem is compounded due to the dominance of open cast mining which requires larger tracts of land and hence results in larger losses of habitats and livelihoods. As per the MoC (2005), a minimum of 170,000 families involving over 850,000 people are likely to be affected by future coal projects. The total manpower of the largest coal company Coal India Ltd., including its subsidiaries as on December 2015 is 326,032, while there are about 67,000 contract workers employed in mines through registered contractors for various outsourced work, the total employment in the coal sector is about 550,000 and hence the total number of dependents are about 5,500,000 (Saxena, 2008).

Literature provides evidence of livelihood studies being conducted in mining areas of India. For instance, a livelihood study was conducted in Ib Valley coalfields in Odisha by Mishra (2009) wherein different livelihood options were studied based on the model developed by UK DFID (1999). This framework identifies five core asset categories or types of capital upon which livelihoods are built which consist of human capital, natural capital, financial capital, physical capital and social capital. These different forms of capital are different forms of livelihood assets that households can use to make a living. The question of what will happen to the surrounding villages when mining stops, however, remain unanswered. The authors suggested that there should be an attempt to minimize environmental degradation by introducing modern technology and equitable distribution of resources so that there is a positive effect on the livelihood of poor people. Another study in India by Kumar et al. (2015) based on DFID livelihood framework, to test the sustainability of dairy based livelihoods in the tribes of Ranchi and Dhanbad reported that the livelihoods of tribal

communities in the area have traditionally been dominated by Dairy Production System (DPS). DPS, prevalent in these areas, substantially contributed to the sustainable livelihoods of the respondents and was an integral part of day-to-day livelihood activities, nutritional security and the traditional lifestyles of tribal people in the area. Among the sustainable livelihood components, human capital was minimal owing to low educational levels of tribes and their families, low access to information, awareness of rights, policies and regulations.

There are also various pieces of evidence globally where mining activities have resulted in negative socio-economic impacts. In the US, between 1930 and 2000, coal mining altered about 2.4 million hectares [5.9 million acres] of the natural landscape, most of it originally forests. Attempts to re-seed land destroyed by coal mining are difficult because the mining process causes huge damage to the soil. For example, in Montana, replanting projects had a success rate of only 20–30 percent, while in some places in Colorado, only 10 percent of oak aspen seedlings that were planted survived. In China, coal mining has degraded the quality of land of an estimated 3.2 million hectares. The overall restoration rate of mine wasteland was only about 10–12 percent (MMSD, 2002).

Another study was conducted on livelihood opportunities for women in the Kitui county of Eastern Kenya who were affected by mining disruption. This study reported the disproportionate impact of mining on women as toxic waste from mining activities causes water pollution which directly impacts health due to exposure to contaminated water (Neumann, 2015). The study by researcher Lahiri-Dutt (2008) on the South Asian Survey of women's livelihoods in small mines and quarries also highlighted the need for interventions to improve the well-being of women working in mines. The need to raise the standard of living for women and development of pro-poor livelihood policies effective in sustaining economic benefits and raising the well-being of poor people in conjunction with Millennium Development Goals was also suggested.

3.2.2. *Corporate social responsibility (CSR) in the mining industry*

As illustrated above, coal mining companies by the very nature of their job are under scrutiny for environmental and social concerns. Furthermore, the problem of mining-induced displacement and resettlement poses a major risk to social sustainability (Kemp, 2010; Rakowska & Cichorzewska, 2012). Therefore, coal mining companies have a special responsibility towards environment protection and social development. Global actors aware of this situation are encouraging mining companies to become more accountable to local communities (OECD, 2008; Fonseca, McAllister, & Fitzpatrick, 2014; PDAC, 2014).

Corporate social responsibility is a concept whereby organizations serve the interests of society by taking responsibility for the impact of their activities on customers, employees, shareholders, communities, and environment in all aspects of their operations. The World Business Council for Sustainable Development (WBCSD) define “Corporate Social Responsibility” as the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as the local community and society at large. For the mining industry, CSR is about balancing the diverse demands of communities and to protect the environment with ever present need to make a profit (Jenkins, 2004). Existing accountability mechanisms state explicit corporate commitment to local communities, sustainability, and sustainable livelihood opportunities.

In India, CSR activities by Coal India have adopted social development criteria for spending funds under CSR. It covers the economically backward and needy sections of society living in various parts of India. As per the guidelines, it is mandatory for a company to spend 80% of the budgeted amount within the radius of 25 km of the projects in Coal India Limited (CIL) case of Coal mines) and 20% of the budget should be spent on CSR activities within the states in which subsidiary companies, if any, are operating. In 2013, CIL spent Rs 950 million in CSR activities.

Global mining companies argue that corporate initiatives must be intended to raise a community's quality of life (Anglo American Chile, 2008), diversify local economies, foster community development & engagement (BHP, 2009), and build more sustainable communities. Researchers are also of the view that companies are becoming more accountable to communities, and that actions undertaken in compensation for the extraction of natural resources are reducing poverty and fostering employment in local populations (Alizar & Scott, 2009; Pegg, 2006).

We have tried to compile the initiatives undertaken by mining firms to combat the environmental and social damage of mining operations. We found that most of the CSR initiatives undertaken by firms are targeted towards community development, environment protection and stakeholder engagement. The literature complied on community development in mining areas depicted that community concerns are treated with great prominence by most mining companies. Involvement of the community at the initial stages of resource extraction has the potential to mitigate resource issues (Kepore & Imbun, 2011). Firms’ focus should be on identifying what socially responsible outcomes community development programmes deliver (Jenkins, 2004). Mining companies and practitioners need to strengthen community relations to improve social performance (Kemp, 2010). Consultation is the predominant method for community engagement. Input given by community members must be included while framing laws and especially the input of members who have lost their lands due to mining activities (Essah & Andrews, 2016).

We came across a study where authors have highlighted the result of consulting with communities towards community development (Walsh, van der Plank, & Behrens, 2017). The results of the study showed that the community's experience of the consultation led to the negative perception of the proposed mining project due to procedural factors such as: timing, consistency in consultation, lack of two-way dialogue and personal and contextual factors such as: mistrust of the company and its representatives, community disenfranchisement, and failure to meet community expectations.

From an environmental perspective, there is a need to focus on building local capacities, which can focus on rehabilitating land and imminent dangers to human livelihood (Harfst & Wirth, 2011). Authors have suggested engineering measures such as vegetation restoration to reduce mine environment related geology problems (Zhiguo et al., 2011). A study from a stakeholder's perspective concluded that a proactive attitude towards environmental issues can lead to social acceptability of technologies and environmental management (Mutti, Yakovleva, Vazquez-Brust, & Di Marco, 2012). Co-existence of mining and managerial sub-culture acts as a barrier for CSR in the mining industry. There is a need for top managerial support to overcome the cultural barrier of introducing CSR practices in mines as highlighted by the authors Rakowska and Cichorzewska (2012). An effective communication strategy to promote CSR activities and establish a relationship with a community, media and environmental groups can bring positive results. Firms also need to focus on strengthening internal firm resources in the form of commitment by management and employees which can play a dynamic role in building trust with stakeholders to carry out CSR activities rather than focussing on external factors (Dobele, Westberg, Steel, & Flowers, 2014).

The discussion above shows various actions and initiatives undertaken by mining companies towards the maintenance of the

environment as well as in developing socioeconomic factors to raise the living standard for the benefit of people living in the vicinity of a mine. It can be concluded that to a considerable extent the mining industry has become aware of its responsibilities towards society. Most firms are engaged in community development activities with only a few working towards environmental restoration. Still, there is a need to proactively engage with the local community in affected areas to understand the social, environmental and cultural dynamics of the local area and thereby work towards creating livelihood opportunities.

Some of the key issues emerging from the discussion above are as follows:

- The need for more a proactive attitude on the part of firm managers towards greater acceptability of environmental and social issues, the strengthening of community relations and improving social performance.
- Strengthening of internal firm resources by embedding CSR practices in a company's culture, strategy, and corporate image, etc. In order to become socially responsible. There is also a need to consider whether the community development programs implemented by mining companies deliver socially responsible outcomes, or whether they just act as mechanisms of dependency to control communities.
- Mining companies should incorporate CSR strategies into their management policy at the commencement of mining activities to avoid it becoming a mere reactive action. Companies should also have clear policies to create awareness in the local communities of how the mining activities will impact their lives and how to be prepared to overcome these challenges.

3.2.3. *Capacity building in the mining sector*

The term was first coined by the United Nations Development Program (UNDP) in 1990 and defined as a "long-term process by which individuals, organizations, networks, and societies increase their abilities to solve problems and achieve objectives" (UNDP, 1997). Since then, it began to be introduced in developing countries as part of technical assistance programs to help communities cope with the changes caused by globalization and economic restructuring (Amin & Thrift, 1992). Although capacity building has applications in several sectors, this section focuses on exploring definitions and the characteristics of capacity building in mining communities.

As defined by the United Nations, capacity building is a long-term process that involves the commitment of multiple actors. Veiga, Nichols, and Holuszko (2015), for instance, state that "the first step to community sustainability may relate to local capacity-building and local governance". Similarly, the Institute for Environment and Development (IED) (Gibson, 2001) argues that capacity building needs to be understood as a multi-stakeholder collaboration process that lasts before and after mining operations, intended to enhance existing skills in local communities. In addition, Loza (2004) defines capacity building as an ongoing process that improves existing conditions in local communities and that requires the development of partnerships between corporations and communities. Indeed, capacity building cannot be considered as a reactive response from mining corporations to tackle community problems, but as a long-term process that takes into consideration community aspirations (Alizar & Scott, 2009). These characteristics suggest a mutually agreed framework of capacity building implementation; however, there is a lack of understanding about the roles and interactions of the participants that take part in the implementation of these initiatives in mining regions. While the idea of capacity building as a long-term process is appealing from a theoretical standpoint, there are major difficulties in its real-life application. Research in a Columbian context show capacity building initiatives lack continuity due to the absence of long-term commitment, resources, coordination and collaboration amongst stakeholders. This is reflected in the existing conditions of local communities adjacent to mine-sites operating in the north of Colombia. Despite the past implementation of several capacity building initiatives in areas, such as training and education programs, mining communities are still experiencing joblessness and a lack of opportunities for forging sustainable livelihoods (Cardenas, 2011).

The inclusion of capacity building in this sector started with the discourses on corporate social responsibility (Jenkins, 2004; Tracey, Phillips, & Haugh, 2005) and sustainable development. Scholarly debates about community development (Alizar & Scott, 2009; Hilson, 2006; Veiga et al., 2015) and business (Loza, 2004) have also contributed to this notion in the mining sector.

The mining sector has placed strong emphasis on capacity building in recent years. In fact, voluntary global norms that guide the corporate mining sector (ICMM, 2005; PDAC, 2014; Responsible Jewellery Council, 2013) and mining companies operating in Latin America (Anglo American Chile, 2008; BHP, 2009) have employed the notion of capacity building in their corporate rhetoric. However, at global and corporate levels, their concept of capacity building is clearly a top-down rather than a bottom-up approach.

The Guidance on Social Responsibility, ISO. (2010), defines capacity building as a process that assists communities to achieve social and economic development standards. In addition, it is stated that capacity building is one of the most sustainable legacies that mining companies can deliver to local communities (ICMM, 2005). This notion is also regarded as a valuable legacy that fosters community development (Rio Tinto, 2011) and engagement (BHP, 2009), and forges sustainable communities (Barrick, 2008). These interpretations of capacity building, position mining companies as the major providers of capacity building initiatives, and neglect the participation of other stakeholders in the implementation of these initiatives. This top-down approach may, in fact, prevent the mining sector from impacting communities meaningfully (Mate, 2001). Capacity building initiatives have the potential to foster community resilience and, therefore, increase the possibilities for mining companies to gain and maintain an SLO in the expansion of mining operations (Warhurst, 2001). These initiatives can also provide sustainable outcomes for communities, mining companies and other stakeholders involved. Therefore, it is important that mining companies, communities, national and local governments, educational institutions and other relevant stakeholders in the mining sector take part in their implementation so that they can create shared value, hopefully, for all parties. Certainly, capacity building involves important challenges in its implementation, since multiple interactions amongst stakeholders might foster or hinder this implementation. However, despite the difficulties that capacity building might experience in practice, empirical research has shown the potential of such approaches in Latin American contexts for creating value for communities, mining companies, local governments and other role-players in mining contexts (Gibson, 2001).

Whilst global norms and mining corporations posit a top-down approach to capacity building, other approaches to corporate social responsibility and sustainable development implement capacity building as a bottom-up approach to assist mining communities in improving their living conditions (Alizar & Scott, 2009; Loza, 2004) Most importantly, capacity building is considered a sustainable legacy for mining communities (Lahiri-Dutt, Alexander, & Insouvanh, 2014; Veiga et al., 2015). In the literature, it is also stated that the implementation of capacity building initiatives involves the participation of several actors and that it cannot rely on

communities alone, since they often lack education and the capacity to communicate their aspirations and become active participants in their development (Bridge, 1999; Lanzi, 2007; Mate, 2001). In these cases, where the underdeveloped conditions of local communities prevent the employment of a capacity building approach, government participation might overcome these obstacles.

Hence, capacity building initiatives should not bypass the participation of other stakeholders, such as governments (Gibson, 2001). In this sense, it is important to explore the collaboration of stakeholders in the mining sector and the way in which their expertise and resources can become the drivers to achieve capacity building that is meaningful for all stakeholders. Although the subject of capacity building has been well covered in scholarly literature, there are few scholars that deal with its implementation, particularly with the roles, interactions and responsibilities of stakeholders in capacity building implementation in mining contexts (Cornelius, Todres, Janjuha-Jivraj, Woods, & Wallace, 2008; Jenkins, 2004; Tracey et al., 2005).

3.3. Livelihood development through skill development: the case of Muriadih coal mines

Skill development of local untrained communities is expected to add new livelihood opportunities, especially for people living in rural mining areas. It is equally a good opportunity for mining companies to work for communities and provide new livelihood opportunities through skill development and CSR activities. One such model has been trialled in Muriadih coal mines in the Jharkhand state of India with the help of TERI University, Bharat Coking Coal Ltd, Dhanbad and Central Mine Development Research Institute, Ranchi. This activity has been implemented under the project named 'Technology enabled Eco restoration and Livelihood Opportunities for Mining Areas' funded by the Ministry of Coal, Government of India.

The objective of this component is to develop entrepreneurship and vocational skills among members of local self-help groups (SHGs) for community empowerment through access to new economic opportunities (with a focus on women and other weaker sections of society). To achieve this objective, proposed work elements of the project consisted of:

- Studying the socio-economic needs and capability assessment of local communities; assessment of market linkages, local value chains, micro credit requirements, etc.
- Liaison with forest and other government agencies.
- Identifying community mobilization; formation of SHGs (if non-existent at present); sensitization and exposure visits for SHG members.
- Launch of monthly vocational training programmes including training of trainers.
- Training (once per year) on entrepreneurship development for SHGs (marketing, book-keeping, banking etc.)
- Refresher training on livelihood activities (once per year).

3.3.1. About the project site and adjoining areas

A team of researchers from TERI University, the implementing agency of the project, visited the selected area from 7–9th October 2015 and 9–12th December 2015. The objective of the visit was to gather preliminary socio-economic information about the residents of villages surrounding the SITE C (Map 1) allotted to Teri University and plan for the proposed household survey and capacity building activities in adjacent villages under the livelihood component of the project.

After the discussion with the surveyor, the villages lying in the core zone and buffer zone for Muraidih colliery site C were taken into consideration.

After discussion with the officials and surveyor, 10 villages were selected alongside Hirak Road (23o47′49.05″N 86o13′06.09″E) namely MuraidihBasti (23o48′31.12″N 86o13′58.30″E), Chitahibasti, Baghmara (23o47′36.96″N 86o12′13.40″E), Barora (23047′34.91″N 86013′41.62″E), Nawaidih (23o49′21.64″N 86o24′28.51″E), Jamunatanr (23o47′55.70″N 86o13′20.24″E), PhulwariTand (23o46′54.74″N 86o13′15.25″E), Mandra (23o46′54.74″N 86o14′39.45″E), SindhwaTand and Behrakudar Village (23o48′53.06″N 86o16′24.59″E) lying in the core zone and buffer zone within the range of 2–5 KMs from the project site.

3.3.2. Need assessment study

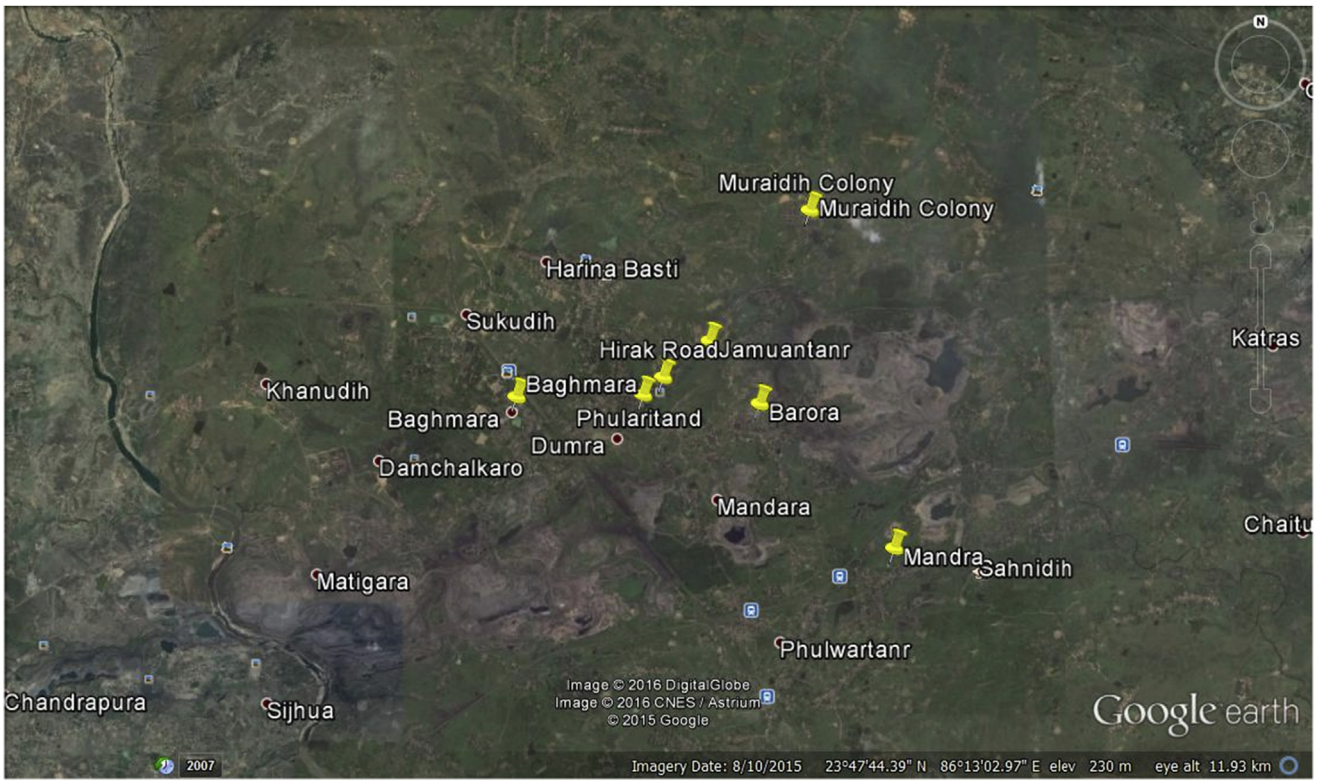
The preliminary data were collected through focused group discussions. A total of 11 focused group discussions (FGD's) including seven female focused group discussions were administered and each focus group consisted of 8–10 villagers. The focused group discussion technique was adopted for this study as this method allows a group discussion amongst people of similar backgrounds or experiences (e.g. young women, young men, handicapped people, the elderly, etc.) to discuss a specific topic related to their day to day issues. Under this method, a skilled facilitator assembled representative groups from the community and creates an atmosphere where individuals feel free to express opinions openly on topics that concern them. The facilitator is armed with key questions, but the conclusions emerge from the group's open discussions and lead to ideas for actions (IRC, 2010).

For the aforementioned study, the purpose of the focused group discussions was mainly to become acquainted with the site and nearby villages and to understand the rehabilitation and restoration policy of BCCL and existing livelihood and capacity building activities in the region. Additionally, data was collected from other stakeholders, such as producers, NGOs, and traders in nearby markets. All these focused group discussions were audio recorded and supported by handmade notes and the audio data was transcribed for further analysis.

From the detailed focused group discussions with the villagers, the team found a huge skill development gap. Even if there were people who had formal education, they were not trained enough to find employment or start an enterprise of their own. Efforts were made to explore what skill sets they would be interested in and that could match with the existing resource set in the area. The team could discern that the men of every village were working as contractual labour and were more interested in poultry activities rather than agriculture due to non-availability of irrigation facilities and some were interested in making bamboo baskets. The generation of young men were inclined towards receiving training in computers which could help them obtain a good job in future rather than engaging in agricultural activities. The women were more engaged in household activities and a large segment of women were keen to learn tailoring and making processed food (papad, achar), quilts, etc. Most young women were interested in taking part in beautician courses, apart from a few who were inclined towards sewing/knitting. Some were also well versed in making handicraft items.

3.3.3. Resource assessment

Stakeholder workshops were conducted with the village communities and other stakeholders. The villagers were further probed on their livelihoods and future interests through an interactive open discussion between all the participants where the potential resource persons and livelihood opportunities can be identified. Various livelihood opportunities along with capacity building



Map. 1. Site selection.

activities and financial linkages were discussed with the villagers based on previous results.

The villagers were then asked to rank the activities as per their preference. The activities along with the ranking as per preference by villagers is presented in Table 2 below, followed by a Fig. 2 depicting the choice of activity by villagers.

After the analysis, it was found that amongst the various activities, fishery was the most preferred by the villagers followed by poultry, goats, computer training, and beautician training. MatiGada dam was suggested as a useful resource site for fisheries by the villagers. The villagers were more interested in taking up group activities rather than individual activities for fishery, cattle farming, etc.

Additionally, computer training was the main preference for the younger population aged between 20 and 25 years as they were of the view that this training would help them obtain good jobs in the city. Apart from these livelihood activities, some villagers were of the view that activities such as dairy farming, vehicle repair, nursing and medical lab technology training can help in reducing unemployment to a great extent.

Table 2
Potential livelihood activities.

Activity preference by villagers	
Name of livelihood activity	No. of times preferred in top 5
FISHERY	23
POULTRY	21
GOATERY	21
COMPUTER TRAINING	14
SEWING&KNITTING	9
BEAUTICIAN	6
HANDICRAFTS	5
HANDMADE QUILTS	1
PROCESSED FOOD ITEMS	1

Along with these activities, their preference regarding a possible training schedule was also sought. The villagers preferred the months from May to August for training. Based on the need-assessment study and resource assessment and availability, a training calendar was prepared and villagers are being trained in specific skills such as cattle farming, goat farming, fishery skills and mushroom picking/processing. In the next round, a range of computer literacy programs and entrepreneurship programs are also being implemented.

4. Discussion

There is a general agreement in the academic literature that the tensions between local and global forces have contributed to the widening of economic disparities, leading to an escalation of discontent, particularly in natural resource-rich regions of developing countries (de Haan & Maxwell, 1998; Harrison, 2006; Kabeer, 2006). Increased global trade following deregulation has generated escalating demand coming from the newly emerging economies or BRIC countries (Brazil, Russia, India, and China) for natural resources such as metals and minerals. Global decision-making on natural resource extraction is raising tensions at the local level, as poor and local communities often feel that they are not being adequately compensated for their loss of livelihood options (Surborg, 2012). The separation between the employment generation at the local level and global industrial production has been mainly caused by the geographical dispersal of production and distribution nodes (Amin & Thrift, 1992). Business networks, such as joint ventures and other types of strategic business alliances, tend to look for cheap labour to support the growing accumulation of capital. However, some scholars argue that human capital is becoming more important than other assets, such as natural resources (Shankar & Shah, 2003), arguing that regions

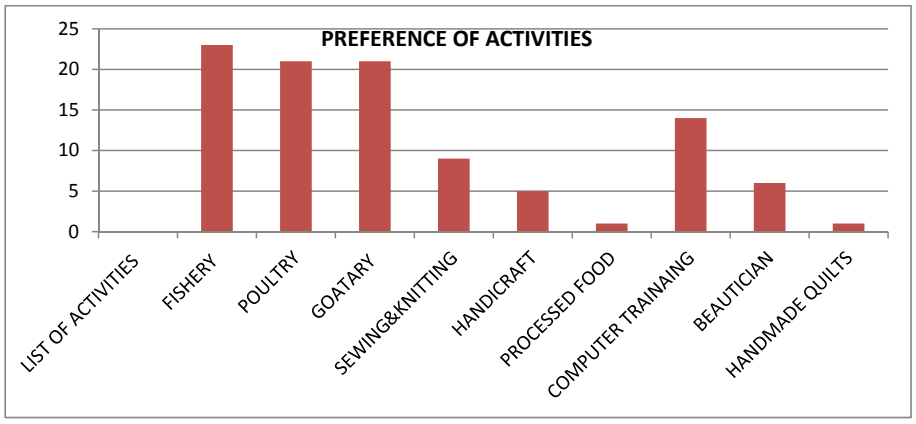


Fig. 2. Preference of livelihood activities by respondents.

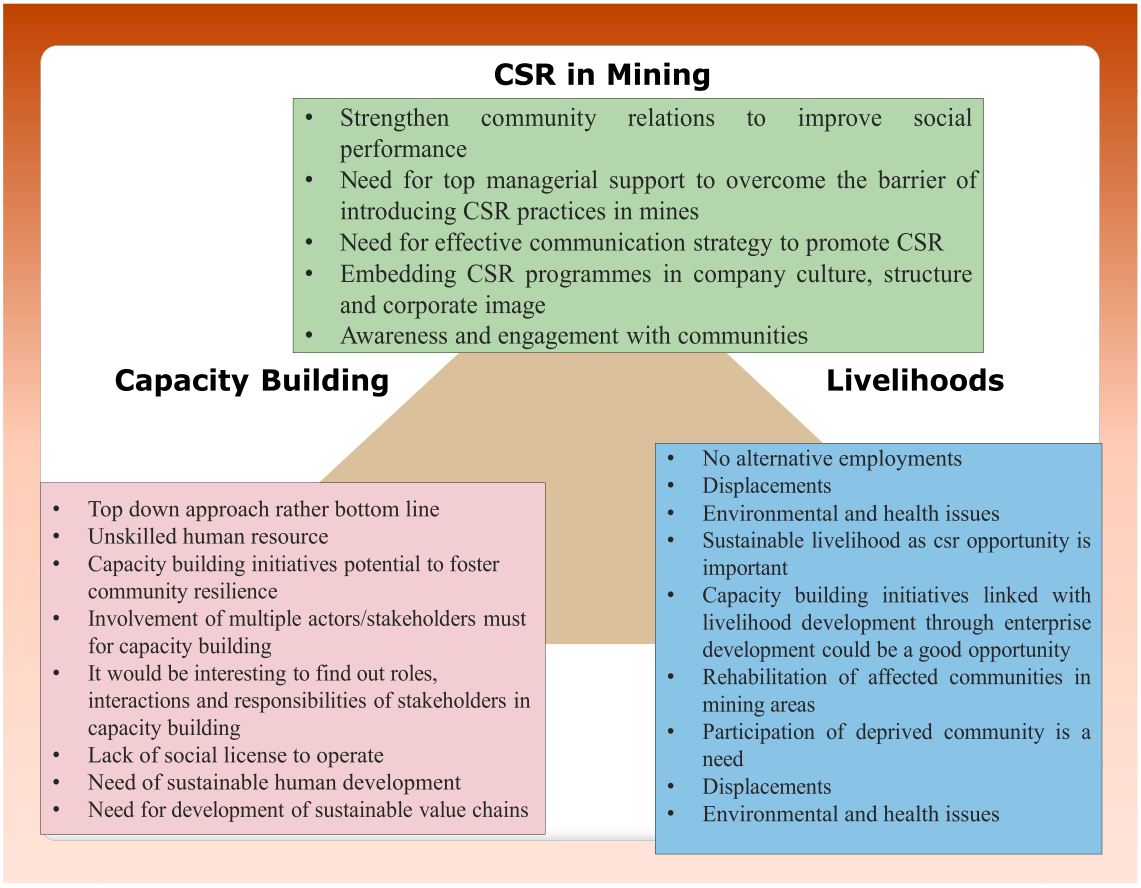


Fig. 3. Summary of review of literature in three selected areas.

with a skilled and educated workforce compete more successfully over physical and natural resource rich areas. However, this is not likely to happen in the mining sector, as increased demand for commodities has led the sector to expand operations in regions often rich in reserves of minerals and metals, but starved of skilled human capital.

The shortfall in skilled human capital in active mining areas has consequently increased population mobility across the globe, including international migration, preventing local unskilled human capital from competing against these global pressures. These circumstances are causing local tensions that very often threaten corporate investment. Local mining communities are becoming more aware of the marginal compensation that they get from natural resource extraction compared to the large corporate profits (Hilson, 2006; Mate, 2001). This situation has led communities adjacent to mining operations to deny multinational mining corporations an SLO in regions rich in natural resources.

5. Conclusion

The study has reviewed literature from three domains: CSR and mining, Mining and livelihoods and skill development and

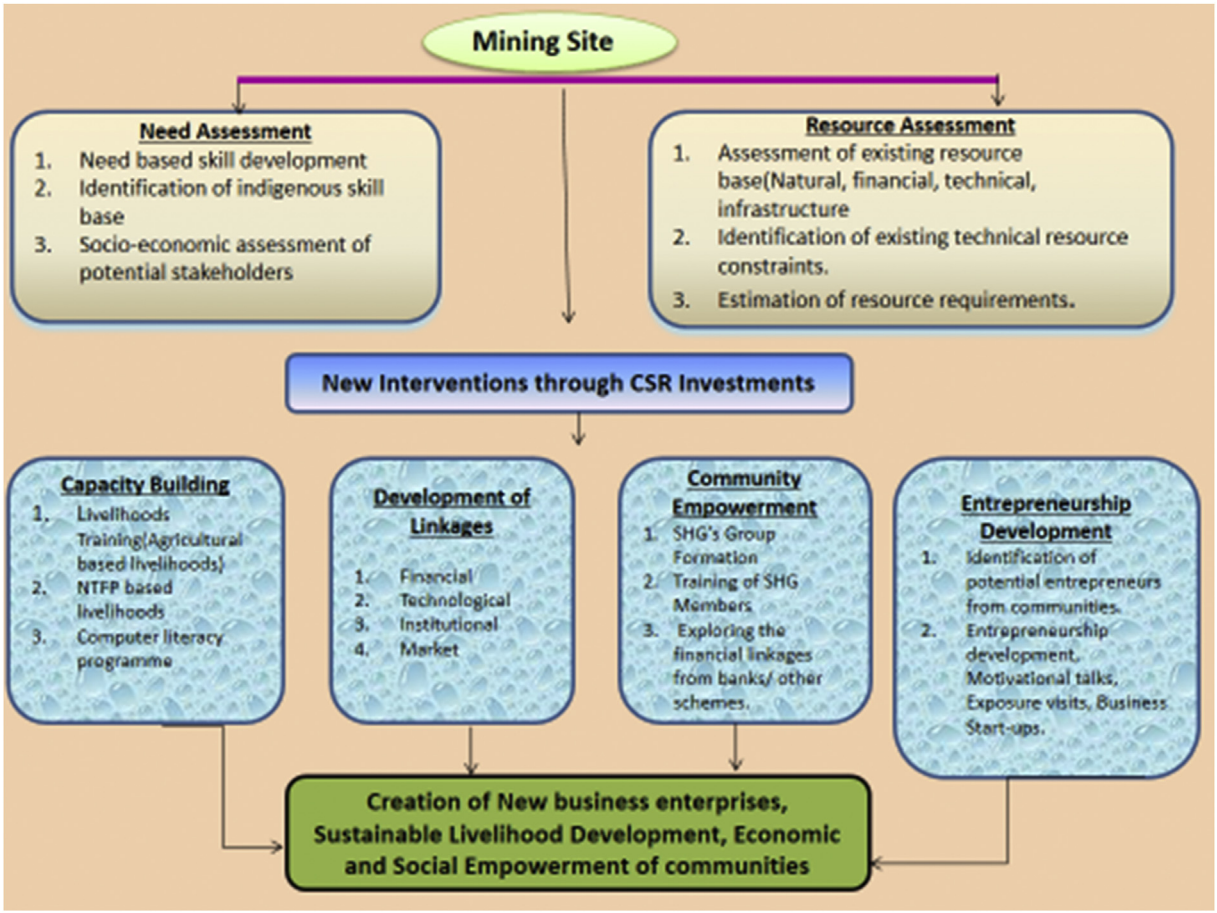


Fig. 4. A sustainable livelihood framework for CSR in mining areas.

attempts to converge the literature and provide a link between CSR, skill development, and livelihood opportunities (see Fig. 3). Through a case study in the Muriadih coal mines in Jharkhand, an attempt to showcase how skill development can prove to be an opportunity for CSR activities in mining areas for rehabilitation and livelihood development has been made.

The existing literature reveals CSR work in different mines such as gold, diamond, coal, and iron in many countries, yet this work is concentrated on community management as authors suggest tackling community concerns (Jenkins, 2004), strengthening community relations (Kemp, 2010) and involvement of communities at the early stage of resource extraction (Kepore & Inbun, 2011; Mzembe, 2016).

Studies also focus on building local capacities (Harfst & Wirth, 2011). A lot of research is available on capacity building activities in the context of mining companies and this mainly focuses on stakeholder participation, capacity development and mentions two types of approaches for capacity building. Scholars argue that whereas a bottom-up approach is more useful (Alizar & Scott, 2009; Loza, 2004), a top-down approach is more prevalent as CSR in mining companies. The studies also focus on the implementation of these activities. However, there is a major gap in this domain as there is no suitable framework linking CSR, livelihoods and capacity building. As suggested above, livelihood activities could very well be linked with CSR activities of mining companies especially in countries like India where CSR is mandatory. After changes in CSR regulatory regime in 2013, companies are exploring avenues where they can spend their CSR funds and considering the need for community development in mining areas; livelihood generation could be one activity which is sustainable for both short term and long-term development of communities. By developing the capacities of local communities through entrepreneurship development and exploring livelihood options, this task could be achieved. Our framework focuses on the process of CSR investment through capacity building and developing livelihood generation activities (see Fig. 4). The framework was adopted in open cast coal mining areas of Jharia Coal mines, but has the potential to be replicated in other mining areas dominated by rural communities. This model fills two gaps which emerge from the review: i.e. linking capacity building with livelihood generation and CSR investment in mining areas and the roles of stakeholders/actors in the entire chain along with the process of implementation where little work is available. This is where the contribution of this model in literature can be attributed.

This case study highlights the following lessons:

Livelihood generation is an important need when it comes to the rehabilitation of affected communities in mining areas. How CSR investment can be directed or focused towards livelihood generation activities is important. Unless local capacities are enhanced, the communities would not be able to generate livelihoods for themselves especially in remote areas, implying emphasis on skill development work.

Sustainability of these livelihoods can only be achieved through the hand-holding of the communities after skill development and the creation of new enterprises. Self-sustainable models with revenue generation achieved by the communities themselves could

prove more useful. This also helps to build a mutually beneficial and rewarding relationship with communities. It is also seen that more needs to be invested in motivating local communities by means of entrepreneurship development programs/training/hand-holding facilities as was felt during the implementation of the project.

Previous researchers also claimed that in mining areas, there is less knowhow about CSR implementation at the field level. Hence, this paper contributes in terms of a framework for linking capacity building and livelihood plans with CSR activities and their implementation at the local level. The model represents a three-stage model:

Stage I: The first stage involves a socio-economic survey, needs assessment and skill and resource assessment exercises based on the local geography. This leads to the planning of capacity building exercises and other livelihood activities.

Stage II: The second stage involves training the human resource on new agricultural and NTFP based livelihoods. A new skill of computer literacy was added here. Additionally, financial, technological, institutional and market linkages are provided. After the capacity building task, the task of community empowerment is started through entrepreneurship development, motivational programs, and hand-holding facilities.

Stage III: Creation of new enterprises based on the skills imparted and marketing of products and services is carried out. The market linkages are explored and the impact assessment in the form of economic and social empowerment is done.

Keeping in mind the CSR regulatory regime in India, the framework is extremely useful for CSR practitioners in terms of the implementation of CSR activities. New work in the context of mining companies and affected companies can be initiated following a similar or modified framework. The model could also be replicated in other countries with similar backgrounds. Researchers can also frame their studies based on finding impact assessment, designing CSR strategy and its evaluation, livelihood as a potential source for CSR activities and sustainable livelihoods.

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