NECESSITIES OF CSR IN MINING AREAS

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In market economies, the primary purpose of companies is to maximise shareholder value (e.g. economic profit, share price and dividends) bound by legal/regulatory obligations which address specific social and environmental issues. And this context we can say that that stake holders are benefitted who are directly or indirectly linked with the company For this reason, companies pursue competitive strategies which rely upon and develop relationships between the corporation and its stakeholders so that every group of peoples are benefitted and sustainability of that area will exist..

Since the early 1990's, corporate responsibility issues including the social obligations of corporations have attained prominence in political and business debate. This is mainly in response to corporate scandals but also due to the realisation that development centred only on economic growth paradigms is unsustainable and therefore there is a need for a more pro-active role by states, companies and communities in a development process aimed at balancing economic growth with environmental sustainability and social cohesion.

This debate has motivated the following three *interlinked movements* in the corporate world:

- CSR(CorporateSocialResponsibility);
- Corporatesustainability;
- Worldwidereformsoncorporategovernance.

CSR and corporate sustainability represent the way companies achieve enhanced ethical standards and a balance of economic, environmental and social imperatives addressing the concerns and expectations of their stakeholders. Corporate governance reflects the way companies address legal responsibilities and therefore provides the foundations upon which CSR and corporate sustainability practices can be built to enhance responsible business operations.

We distinguish between two interrelated dimensions for CSR and corporate sustainability:

- corporate responsibility and sustainability as part of a new vision for the world based on a global partnership for sustainable development;
- corporate responsibility and sustainability as a business management approach that should provide in the long run better value for shareholders as well as for other stakeholders.

Early roots of corporate social responsibility can be found in the actual business practices of successful companies and early theoretical views in the 1950s and 60s linked corporate social obligation to the

power that business holds in society. Theoretical developments are currently broadly subdivided into the ethical and accountability issues and the stakeholder approaches to strategic management.

The corporate responsibility movement is backed by UN initiatives such as the Global Compact and the Millennium Goals which have defined the goal and principles for responsible corporate behavior in the following areas:

- HumanRights
- Economic&Labour standard
- Environment
- Health
- Anti-Corruption
- Economicresponsibility

Key driving forces include investor and consumer demands and governmental and public pressure. Particularly important is the support from Socially Responsible Investing (SRI). The corporate responsibility movement is now entering a mainstreaming phase aided by standardisation activities such as the GRI, the AA1000 series and the ISO2600 guide.

Key driving forces include investor and consumer demands and governmental and public pressure. Particularly important is the support from The corporate responsibility movement is now entering a mainstreaming phase aided by standardization activities such as the GRI, the AA1000 series and the ISO2600 guide.CSR, corporate sustainability and corporate governance collectively are shaping the identity of organisations and are therefore increasingly integrated into the business strategy of successful corporations

INTER LINKAGE BETWEEN CSR AND SUSTAINABILITY

. Consequently, the field of responsible business strategy and practice is becoming one of the most dynamic and challenging subjects corporate leaders are facing today and possibly one of the most important ones for shaping the future of our world. Corporations around the world are struggling with a new role, which is to meet the needs of the present generation without compromising the ability of the next generations to meet their own needs. Organizations are being called upon to take responsibility for the ways their operations impact societies and the natural environment. They are also being asked to apply sustainability principles to the ways in which they conduct their business.

Sustainability refers to an organization's activities, typically considered voluntary, that dem-onstrate the inclusion of social and environmental concerns in business opera-tions and in interactions with stakeholders **(van Marrewijk & Verre, 2003).** It is no longer acceptable for a corporation to experience economic prosperity in isolation from those agents impacted by its actions. A firm must now focus its attention on both increasing its bottom line and being a good corporate citizen. Keeping abreast of global trends and remaining committed to financial obligations to deliver both private and public benefits have forced organizations to reshape their frameworks, rules, and business models. To understand and enhance current efforts, the most socially responsible organizations continue to revise their short- and long-term agendas, to stay ahead of rapidly changing challenges. In addition, a stark and complex shift has occurred in how organizations must understand themselves in relation to a wide variety of both local and global stakeholders. The quality of relationships that a company has with its employees and other key stakeholders—such as customers, investors, suppliers, public and governmental officials, activists, and communities—is crucial to its success, as is its ability to respond to competitive conditions and corporate social responsibility (CSR). These major transformations require national and global companies to approach their business in terms of sustainable development, and both individual and organizational leadership plays a major role in this change. Organizations have developed a variety of strategies for dealing with this intersection of societal needs, the natural environment, and corresponding business imperatives. Organizations can also be considered on a developmental continuum with respect to how deeply and how well they are integrating social responsibility approaches into both strategy and daily operations worldwide. At one end of the continuum are organizations that do not acknowledge any responsibility to society and the environment. And on the other end of the continuum are those organizations that view their operations as having a significant impact as well as reliance on society at the economic, social, and ecological levels, thus resulting in a sense of responsibility beyond the Corporate Social Responsibility and Sustainable Business approaches to Implementing CSR the first theme we identified focuses on why CSR gets started in or-ganizations and how it is or can be well implemented. As to why CSR gets started, some authors argue that CSR can be seen as either an integral part of the business strategy and corporate identity, or it can be used as a defensive policy, with the latter being used more often by companies targeted by activists. The rationale for CSR can be based on a moral argument, a rational argument, or an economic argument **(Werther & Chandler, 2006). Campbell (2007)** is representative of a group of studies that create testable propositions related to the conditions under which organizations will move toward CSR. He sees corporations' level of social responsibility as being influenced by factors such as financial

conditions of the firm, health of the economy, and well-enforced state regulations. Why companies take on CSR is also discussed in the literature in terms of the specific initiatives under which CSR may fall. Ways of describing these rationales vary, from the more skeptical view of cause-related marketing to a more generous attribution of genuine socially responsible business practices .

(Kotler & Lee, 2005). To ascertain how CSR is implemented in organizations, some research uses a developmental framework to show change in awareness, strategy, and action over time, and posits stages of CSR from elementary to transforming **(e.g., Mirvis & Googins, 2006).** Jackson and Nelson (2004) take more of a how-to approach, offering a principle-based framework for mastering what they call the "new rules of the game." Examples of principles include harnessing innovation for the public good, putting people at the center, and spreading economic opportunity. Although there is substantial variation in the nature and the extent of the corporate approaches reflected in the literature, interest in the field seems poised to stimulate further research and to provide both researchers and CSR practitioners some valuable direction for action and reflection. Drivers of ongoing Commitment ongoing commitment can derive from either economic self-interest (i.e., a solid business case) or from ethical grounding (i.e., the moral importance of sustainable development). Oftentimes, of course, both of these apply. When the value added is considered to be significant and positive, the business case will apply. Building the business case for CSR, **Husted and Allen (2007)** point out that much effort has focused on CSR in an attempt to demonstrate that positive CSR can be linked to improved financial perfor-mance. There is a growing sense that looking after the people and the community as well as the environment are all relevant to long-term business survival. Though the business case for CSR appears strong, the literature also reflects the fact that there are doubts as well as cynicism (Jayne, 2004). A good example of the contrast between CSR as business case and CSR as ethical issue is reported by **Hartman, Rubin, and Dhanda (2007).** In its cross-cultural analysis of communication of CSR activities in U.S. and European corporations, the article demonstrates that U.S. companies justify CSR using economics or bottom-line terms and arguments in their communications, whereas European Union companies rely more heavily on language or the theories of citizenship, corporate accountability, or moral commitment. Results also indicate that European companies do not value sustainability to the exclusion of financial elements, but instead project sustainability commitment in addition to financial commitment. U.S. companies focus more heavily on financial justifications, whereas European Union companies incorporate

both financial and sustainability elements in justifying their CSR. European companies have a leading role in the CSR movement as a sustainable development opportunity **(Hulm, 2006**).One source of

ongoing CSR commitment is reflected in the number of articles focused on the need for corporations to take an active role in poverty reduction efforts. This literature often concludes with a call for a more explicit acknowledgement of poverty in the corporate citizenship field and for corporate leadership to name the issue, frame it in such a way as to accelerate its reduction, and take an active role in poverty reduction efforts **(Boyle & Boguslaw, 2007).** Companies must push to seek something other than the lowest short-term cost for the highest short-term gain **(Berkhout, 2005).** Misconceptions and inaccurate assumptions exist about business opportunities and profitability available at the bottom of the economic pyramid. By serving the poor, business can gain new sources of rapid revenue growth and greater efficiencies with cost reduction initiatives for the multinational corporations, which also translates to increased purchas

-ing power for the local consumers, as well as access to innovation **(Prahalad & Hammond, 2003).**Corporate Identity and Ethics the key attributes that define a company's essential character and the contemporary turn to values reflect an evolution in what has sometimes been called the personality of the corporation—or the corporation's identity **(Paine, 2003).** Corporate identity reflects what a company really is, rather than what a company might advocate. Key Themes Corporate Social Responsibility and Sustainable Business Many companies have established a corporate identity using branding, which has become a focal point of their success s and competitive advantage **(Werther & Chandler, 2006).** For example, the Body Shop, through its leader **Anita Roddick,** adopted a number of fair trade and other social issues. These stances helped differentiate the firm's offerings and made responsibility figure prominently in its corporate identity in the minds of consumers. According to **Archie Carroll (1991**), a firm's pyramid of CSR starts with economic responsibilities and continues with legal, ethical, and discretionary responsibilities respectively. However, what was ethical or even discretion-ary in Carroll's model is becoming increasingly necessary today because of the changing environment within which businesses operate and because the ethical responsibilities are more likely to stand on a par with economic and legal responsibilities as foundational for business success **(Werther & Chandler, 2006).** CSR can be a way of matching corporate operations with societal values at a time when these parameters are changing rapidly. As such, ethical behavior is a prerequisite for strategic CSR. A company's ethical behavior is the mirror image of its culture, a shared set of values and guiding principles deeply ingrained throughout the organization (**Paine, 1994**), and the ethical behavior and culture become part of the definition of corporate identity. CSR and Accountability is one of the processes whereby a leader, company, organization seeks to ensure integrity. In a global stakeholder society, accountability is among the key challenges of organizations. Responsible leaders are concerned

with reconciling and aligning the demands, needs, interests, and values of employees, customers, suppliers, communities, shareholders, nongovernmental organizations (NGOs), the environment, and society at large. A company's track record in terms of CSR accounting will be effective when appropriate CSR measures are included in its internal as well as its supply-chain activities. Furthermore, the literature reflects a growing need for dissemination of good practice in CSR accountability and a need for more pressure to be exerted on NGOs to prove themselves as ethical, transparent, and accountable as those they seek to influence (Frame, 2005). A relevant point raised in some literature has to do with the effectiveness of strategies undertaken by communities to demand corporate accountability (**Garvy & Newell, 2005).** This literature argues that the success of community-based strategies for corporate accountability is conditional upon the right combination of state, civil, societal, and corporate factors. **Frynas (2005)** makes the point that accountability is more than making false promises. In the oil, gas, and mining sectors, despite the promise of CSR and the spending of over US $500 million in 2001 alone on a long list of community development programs and other CSR initiatives, the effectiveness of the initiatives has been increasingly questioned. **Frynas** points out that there is mounting evidence of a gap between the stated intentions of business leaders and their actual behavior and impact in the real world of financial funding. CSR requires accountability by all leaders, individuals, organizations, stakeholders, customers, and community members, and yet accountability is complex. The factors which influence the effectiveness of corporate accountability are multiple and tightly interconnected. This interconnectedness and its relationship to accountability are represented in the work of **Dolan (2004),** which uses the example of his own company to illustrate the idea of considering a business as an interconnected web of relationships, with the consequences of every action the company takes having an impact on both the world and the company's long-term business. Partnering with Stakeholders CSR is strictly embedded with a multitude of business actors. With the call for sustainability and the new role of business in society **(Blowfield & Googins, 2006),** and with increased expectations and new rules and tactics (Burke, 2005), leadership is bound to come into contact—and conflict—with key stakeholders in the arena of responsible business,global versus regional and local needs, and different national cultures. The concept of stakeholder engagement and communication with stakeholders looks like a catch-22 of leadership practices for CSR (**Morsing, Schultz, & Nielsen, 2008)**. Although companies strive toengage in CSR together with their stakeholders,they are simultaneously struggling to understand the true relationship behind this marriage—and first of all, who their stakeholders are. In both the business and academic literature, the shareholders are now renamed as one of many key stakeholders, and they are

seen as competing for influence with employees, customers, consumers, suppliers, competitors, trade unions, the environment, the local communities, and the

society at large, to name a few and the most recurrent ones. Two basic relationship models may help to explain how leaders can best interact with multiple and diverse stakeholders.The inside-out approach suggests that leaders canmanage their CSR activities and achieve favorable reputations with their stakeholders by building CSR activities across Key Themes. Corporate Social Responsibility and Sustainable Business boundaries and in a framework where the decision-making point resides inside the organization and where communication with stakeholders is a means to deliver information already developed and perhaps even implemented.

CSR reporting for stakeholders can be one such practice and has sometimes been used as a tool in the marketing communicator's toolbox **(Sweeney & Coughlan, 2008).** The literature also shows this can backfire, feeding skepticism toward CSR and its terminology from trade unions as well as from the activist opposition (Burke, 2005; David, Bloom, & Hillman, 2007). An alternative approach is based on substantial attention and engagement with the stakeholders to reach CSR goals **(Morsing et al., 2008).** Communication is not just a device for alignment; the decision-making process is negotiated and concepts or key actions developed. The stakeholders in this model are actors, together with the company, in achieving sustainable development. This

differentiation is similar to that seen in other literature that focuses on the difference between stakeholder identity—the extent to which the corporations and their stakeholders' interests are linked—and stakeholder management—the incorporation of stakeholders' interests into operational decision making (**Black & Hartel, 2003; Boutilier, 2007; Shropshire & Hillman, 2007).** Despite the debate, real stakeholder engagement ultimately leads to a combination of organizational and social learning, which is a basis for long-term change based on trust, but which is not always clearly quantifiable or predictable in the short term **(Roome & Wijen, 2006; Van Kleef & Roome, 2001).** Whatever the approach to stakeholders, well-intentioned efforts sometimes produce disappointing results, or conflicting stakeholder demands cause problems (**Boutilier, 2007).** Nevertheless, leadership efforts to deal rationally with stakeholders, with uncertainty, and with constraints lead to greater potential for sustainability in terms of culture, structure, and output. Corporations need to engage with stakeholders to develop valuable CSR-related actions. Stakeholders that face challenges and threats are more likely to partner with corporations on CSR-related issues and corporations and stakeholders are more likely to succeed when a long-term vision is embraced. The literature shows that corporate leadership should

have a holistic approach to engage with stakeholders and that the vital link between business and stakeholder management is leadership (**Chow Hoi Hee, 2007).**

WHY CSR IS NECESSIATE FOR MININING AREA

Mining operations are temporary economic activity extending over a finite period of time. Poorly closed mines and derelict landforms leave behind a legacy that brings to focus several sustainability issues. Abandoned mine sites, degraded environment around the mine site and loss of livelihood of local people are the major environmental and socioeconomic impacts of mine closure. Environmental and socioeconomic impacts cannot be assessed in isolation. An integrated approach can only bring out a holistic picture of sustainability of mining in the region. In absence of policy interventions, after mine closure, local people remain in the ghost mining townships and lose their food and social security. This is the post mining general scenario seen in a closed mine sites in India[1]. Such negative legacy left behind by mining violates the basic tenets of sustainability, that is, both inter and intra generational equity. To ensure long term environmental, economic and social sustainability of mining projects the benefits from any ongoing mining project may be invested in social projects in the peripheral area of any mine. By investing in social projects, for example, alternate livelihood programme for local people, improving the quality of natural resources, and building social capital in the region long term economic growth in the region will be stimulated. This will sustain the livelihood of local people even after mine closure. Any policy framework seeking to implement the above programs necessitates comprehensive research on certain relevant issues. Development of sustainability indicators in consultation with the stakeholders, mechanism of allocation of financial resources to implement these programs and review of the existing policies on mine closures, rehabilitation and resettlement and CSR are central to the present research work.

Selection of case study areas

In my work Two major opencast mining areas, in the state, are selected as study area1 and study area 2 located in West Bengal. Excavation in coal and overburden zone is done by using excavators. The excavators load coal and waste on dumpers. Coal is sent to coal handling plants for crushing and finally dispatched to the thermal power plants. Overburden is sent to waste dumps. Both the mines are located on flat land within the coal bearing areas. The mine excavation areas are surrounded by villages. With

mine expansion some of the villages are shifted to new rehabilitation sites. There are several distinctive features of the two case study areas. Physiographic features are different as study area 2 is close to Ajay river. Due to proximity of a river land quality and water management is better in study area 2. In study area 1 there is limited number of water bodies but they are dispersed after mine opening. Ownership status is government undertaking in study area 1 and private company in study area 2. Study area 1 is located within a cluster of underground coal mines and small opencast mines. Most of the underground mines are old with surface subsiding at number of places. Infrastructural facility is bettering study area 1. Therefore, in study area 1 it is difficult to screen out the social and environmental impacts of one particular mine within a cluster of mine. In study area 2 a single mine is located. Both the study areas can be characterized by their unique geo mining, socioeconomic and environmental features, therefore, by considering both the areas the diversities in the entire mining region can be captured.

Description of two case study areas

Study area characteristics	**Study area 1**	**Study area 2**
Location	Raniganj	Jamuria
Lease area	1525 ha	800ha
Demographic profile	35.3% SC & ST , Average household size is 5	
Geology and soil	Alluvial soil	Alluvial soil
Topography and climate	Flat & average temperature 37 degree centigrade	Flat & average temperature 40 degree centigrade
Land cover	Agricultural land & waste land	Agricultural land & waste land
Hydrology and drainage pattern	Perennial nallah	Near to Ajay river
Traditional earning source	Agriculture	Agriculture
Earning sources for major section of population	Temporary jobs under mining contractor	Temporary jobs under mining contractor
Study area characteristics	Study area 1	Study area 2
Agriculture and animal husbandry	Both have declined	Both have declined
Forest	Nil	Nil

Study area characteristics	**Study area 1**	**Study area 2**
Local institution	Panchayat	Panchayat
Geomining condition	Multi seam working using shovel, dumper and dragline	Multi seam working using shovel, dumper
Rated Capacity	8 million tonnes	2 million tones
Waste disposal	External dumps with limited backfilling	External dumps
Mining method	Opencast	Opencast
Number of rehabilitated village (Till the time of Survey)	Three	One
Mine Life	30 years	17years

Selection of stations for Environment data collection

Air, water, soil and sound samples are collected from the periphery of the active mining zone near **receptor locations**, which are, surrounding villages, agriculture land, waste dumps, well, nallah, tube wells. Details of samples collected from two case study areas are stated below:

a) In two case study areas **seventy - six soil samples** are collected and analyzed. **Fourteen samples** are collected and analyzed **by an external agency. Twelve soil parameters** are analyzed. These are pH, conductivity, phosphorus, available nitrogen, potassium, bulk density, soil texture, soil moisture, cation exchange capacity, water holding capacity, field capacity, organic carbon, nitrogen, ammonia cal nitrogen. Due to shortage of funds all these twelve parameters can not be analyzed in every soil samples.

b) In total **sixty – seven water** samples are collected from two study areas. **Nine samples** are collected and analyzed by external agency. **Twenty four water parameters** are analyzed. All twenty four parameters are analyzed in few samples only. Parameters are : Temperature, pH, Dissolved Oxygen, Total Dissolved Solid, Salinity, Conductivity, Turbidity, Total Suspended Solid, Chemical Oxygen Demand, Biological Oxygen Demand , Total Hardness, Residual free chlorine, Magnesium, DO, Fluoride , salinity, , Phosphorous , Sodium , Cadmium , Arsenic , Zinc , and alkalinity.

c) **Twenty air samples** are collected and analyzed by external agency. $PM_{10,}$ SPM. concentrations in the ambient atmosphere are analyzed.

d) Thirty five sound readings are taken around active mining areas near recptor locations

Socio economic data

(a) In **twenty villages** household survey is conducted covering **three thousand and four hundred and thirty five households** .

(b) **Twenty three village meetings** are conducted where different sections of village community attended.

(c) By stratified random household survey **one hundred sixty seven detailed questionnaires are filled** covering eighteen villages.

(d) Household wise information format is prepared.

(e) Each questionnaire covers fifty **items** on socio economic and environmental aspects of mine closure. From this detailed questionnaire, knowledge is gathered about villager's perception about the risks on mine closure

(f) Data collection on infrastructure and other facilities available in village for twenty three villages.

(g) Database is created on environmental and socio- economic risk perception of villagers, prioritization of needs of the villagers to maintain social, economic and environmental sustainability.

On the basis of data following lickert scale is prepared based on villagers perception

Effect of mining	**Scoring by villagers**
Premining	**During Mine Life Cycle**
a) Air pollution	
b) Water pollution	
c) Water availability	
d) Dust based disease	

Effect of mining	**Scoring by villagers**
Premining	**During Mine Life Cycle**

e)Water based disease

f) Livestock population

e) Grazing land area

f) Literacy rate

g) Primary School

h) Secondary School / College

i) Soil Erosion in paddy fields

j) Loss of fertility

k) **Water availability for irrigation**

Scoring by using Likert scale

Environmental quality using Likert scale

Likert Scale for Study Area 1

Water pollution has increased ?		
Likert scale	Frequency	Percentage
Disagree	25	24.51
Agree	52	50.98
Strongly Agree	25	24.51
Total	102	100

Literacy has increased ?		
ikert scale	Frequency	Percentage
Agree	34	32.08
Agree	58	54.72
Strongly Agree	14	13.21
Total	106	100

Dust disease has increased ?		
Likert scale	Frequency	Percent
Disagree	11	10.78
Agree	59	57.84
Strongly Agree	32	31.37
Total	102	100

Water disease has increased ?		
Likert scale	Frequency	Percentage
Disagree	32	32
Agree	52	52
Strongly Agree	16	16
Total	100	100

Fertility has declined ?		
Likert scale	Frequency	Percentage
Disagree	44	63.77
Agree	21	30.43
Strongly Agree	4	5.8
Total	69	100

Water pollution has increased ?		
	Frequency	Percentage
Disagree	6	12.5
Agree	17	35.42
Strongly Agree	25	52.08
Total	48	100

Likert Scale for Study Area 2

Soil fertility has declined ?

Literacy has increased ?		
	Frequency	Percentage
Disagree	18	36.73
Agree	20	40.82
Strongly Agree	11	22.45
Total	49	100

Water crisis has increased ?			
	Frequency	Percentage	Cumulative
Disagree	13	26.53	26.53
Agree	20	32.62	59. 18
Strongly Agree	16	40.82	100

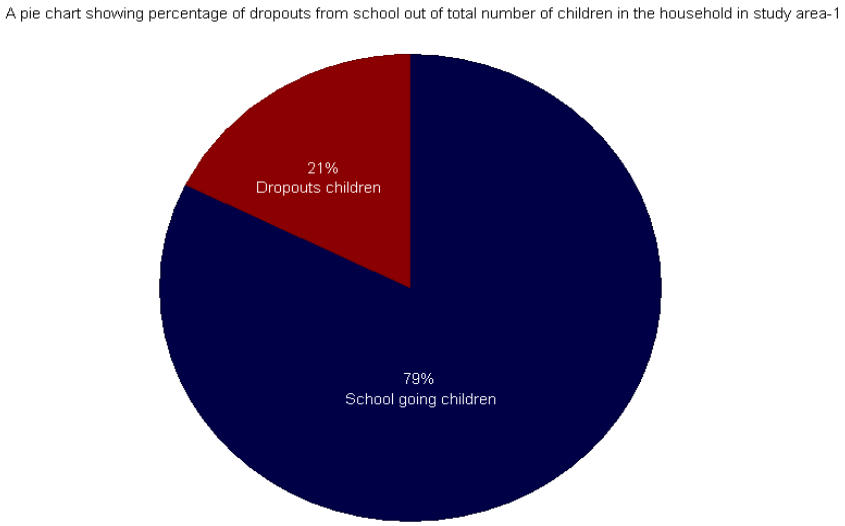
Dust disease has increased ?		
	Frequency	Percentage
Disagree	10	24
Agree	9	22
Strongly Aagree	22	54
Total	41	100

Waterborne disease has increased ?		
Likert scale	Frequency	Percentage
Disagree	20	45.45
Agree	11	25
Strongly Agree	13	29.55
Total	44	100

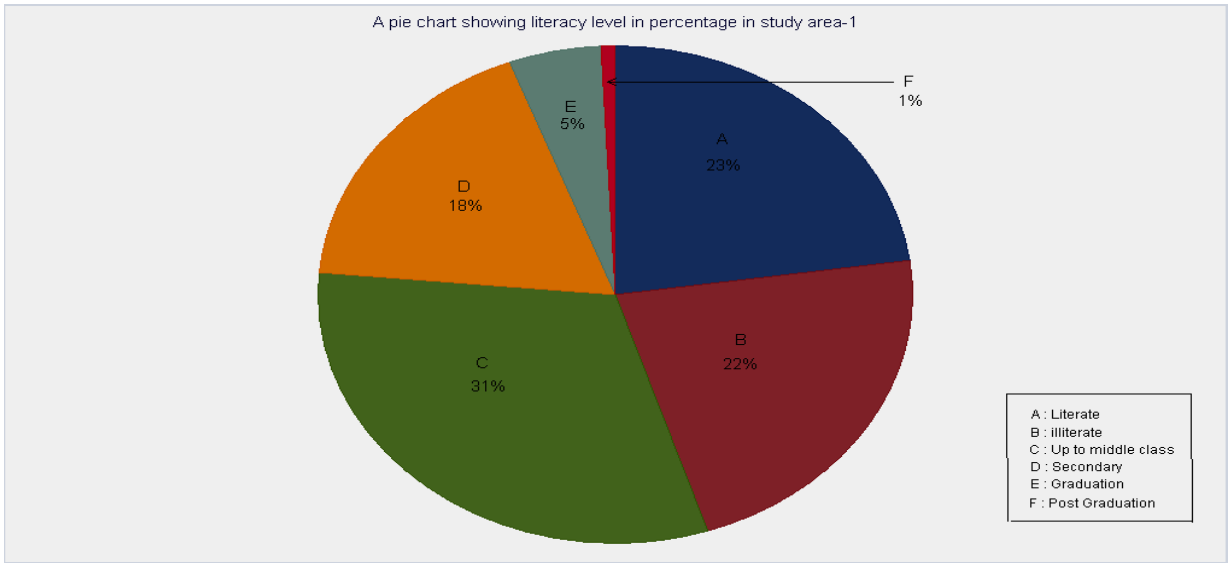
The above tables are prepared using villager's perception on changes of environmental quality from pre mining to post mining period. At this stage a new factor is introduced called impact factor. Impact factor is the ratio of the score assigned by the respondents for environmental quality in pre mining phase

against that in post mining phase. Example: *Villagers may assign a score of two for level of air quality degradation in pre mining phase and eight during mining phase, during operational phase of a mine.*

Now here I show some loss of sustainability of the study areas by thematic diagram



Above fig depicted dropped out rate of students and following figure shows education pattern of the villages



Household survey infomation

The primary aim of this work is to prepare a household list and data collection on socioeconomic features of the study areas. Ultimate aim is to take a close look at the socio economic status to

elucidate whether there is any positive legacy being left by mining. that will help to provide livelihood and social security to the villagers after mine closure.

1. Education level is extremely low as the percentage of graduates varies from two percent to six percent.
2. Percentage of illiterate varies from twenty two to thirty seven percent. As per census 2011 literacy rate of Burdwan district is 76.21% as against 78 percent to sixty three percent in the study areas.
3. Mining labour is thirteen to twenty three percent and percentage of villagers who are either cultivator or agriculture labourer is twelve percent in one study area and thirty three percent in one study area. The reason for higher percentage of villagers in agriculture in one study area is more water availability due to proximity to a river.
4. About fifty percent of the villagers live in concrete houses. And twenty to thirty percent of the villagers live in mud houses.
5. Drop out rate is twenty one percent of total school going children

Collection of general information about the village in a separate sheet

Salient features of the villages that emerge from the database are summarized below

1. Majority of the villages is having a primary school and secondary schools are located in villages /towns far away from the villages.
2. Majority of the villages are not having primary health centers and in case of emergency they have to rush to hospitals that are far away from these villages.
3. All most all the villages are enjoying electricity.
4. Market places are within 5 km
5. Water supply is either by tubewells, ponds or wells. It is reported that these get dried during summer.
6. No significant help is being received either by the mining company or local government bodies.

Summary data analysis

The data analysis done so far reveal that infrastructure and other facilities like water supply , roads , schools are similar to villages located far away from mines , therefore , benefits of mining is not perceptible in the adjacent villages. . Only difference is shift in livelihood pattern from traditional agriculture to mostly jobs under mining contractors and service sectors. It is amply demonstrated from

the discussion on village data that no significant effort has been made by the mining companies to invest in the livelihhod assets .

Now I want to identify need priority of villagers depending on their perception

Distribution of villagers by need priority and per age groups (percentage) in study area 1

Need Priority	Age 20 - < 40 years	Age 40 - < 50 years	Above 50 years
Agriculture	12.69	16.19	**60.87**
Infrastructure	22.69	26.19	18.37
Environment	12.69	16.67	9.02
Job + Training	51.92	40.95	11.74
Total	100.00	100.00	100.00

Distribution of need priority by age groups (percentage) in study area 2

Need Priority	20-40 years	30- <40 years	40 -<50 years	50-< 60 years	60 years & above
Agriculture	27.27	25	40	**50.00**	50
Infrastructure	36.36	0	20	33.33	50
Environment	18.18	0	0	16.67	0
Job + Training	18.18	50	40	0	0
Total	100	100	100	100	100

In both the study areas agriculture is the need priority of the vulnerable section of villagers whose age is 60 above sixty.

Table 4.19

Distribution of villagers by strata in study area 1

Strata	Mining	Agriculture	Business	Others	Total
Total	23 (21.3)	32 (29.6)	20 (18.5)	33 (30.6)	108 (100)

Figures in parenthesis indicate percentage of need priority distribution

Distribution of villagers by strata in study area 2

Strata	Mining	Agriculture	Business	Day Labour	Others	Total
Total	4	10	2	6	8	30
Percentage	13.33	33.33	6.67	20.00	26.67	100

Distribution of need priority by strata (percentage) in study area 1

Need Priority	Strata				
	Mining	Agriculture	Business	Other	Total
Agriculture	7 (21.2)	12 (36.4)	6 (18.2)	8 (24.2)	33 (100)
Infrastructure	5 (20.8)	8 (33.3)	1 (4.2)	10 (41.7)	24 (100)
Envirossnment	1 (7.1)	4 (28.6)	5 (35.7)	4 (28.6)	14 (100)
Job +Training	10 (27.1)	8 (21.6)	8 (21.6)	11 (29.7)	37 (100)
Total	23	32	20	33	108

Figures in parenthesis indicate percentage of need priority distribution

Distribution of need priority by strata (percentage) in study area 2

Need Priority	Mining	Agriculture	Business	Day Labour	Other
Agriculture	25	**90**	0	16.66	0
Infrastructure	0	10	50	33.33	62.5
Environment	50	0	50	0	0
Job + Training	25	0	0	50	37.5
Total	100	100	100	100	100

About ninety percent of villagers under agriculture strata in study area 2 against only thiry six percent in study area 1 desire restoration of agriculture. Restoration of agriculture shall be major policy thrust in study area2

Table 4.23

Distribution of villagers by educational level in study area 1

Education	illiterate	Below Secondary	Secondary	Above Secondary	Total
Total	32 (29.6)	50 (46.3)	18 (16.7)	8 (7.4)	108 (100)

Figures in parenthesis indicate percentage of need priority distribution

Distribution of villagers by educational level in study area 2

Education	Illiterate	Below Secondary	Secondary	Above Secondary	Total
Total	8	13	8	1	30
Percentage	26.67	43.33	26.67	3.33	100

Need Priority	Illiterate	Upto Secondary and below	Secondary & above
Infrastructure	16	33	17
Environment	6	15	17
Agriculture	**56**	20	20
Job + Training	22	33	47
Total	100	100	100

Distribution of need priority by educational level (percentage) in study area 1

Distribution of need priority by educational level in study area 2

Need Priority	Illiterate	Below Secondary	Secondary	above Secondary
Agricultural	4	3	3	1
Infrastructure	1	6	2	0
Environment	1	0	2	0
Job+ Training	2	4	1	0
Total	8	13	8	1

Distribution of need priority by educational level (percentage) in study area 2

Need Priority	Illiterate	Below Secondary	Secondary	Above Secondary	Total

Agricultural	**36.36**	27.27	27.27	9.09	100.00
Infrastructure	11.11	66.67	22.22	0.00	100.00
Environment	33.33	0.00	66.67	0.00	100.00
Job + Training	33.33	50.00	16.67	0.00	100.00

Another vulnerable section of village population is the illiterate group of villagers. Majority of them prefer restoration of traditional means of livelihood, that is, agriculture. This fact will be focused in policy framework.

Analysis of needs of different village social groups in study area 1

Variable		Age 50	**Age 60**	Caste General	Below Secondary	Illiterate	Above Secondary
Need Agriculture	Chi	0.906	**7.7335**	0.577	1.8752	1.1799	0.458
	Pr	0.327	**0.005**	0.447	0.171	0.277	0.499
		Insignificant	**Significant**	Insignificant	Insignificant	Insignificant	Insignificant
Need Infrastructure	Chi	0.5474	0.4757	0.8414	1.2525	0.2442	0.2157
	Pr	0.459	0.49	0.359	0.263	0.621	0.642
		Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Need Environment	Chi	1.1121	1.2746	0.0598	0.0924	3.0823	0.8914
	Pr	0.292	0.259	0.807	0.761	0.079	0.345
		Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Need Environment + Agriculture	Chi	0.0379	3.3217	0.7654	1.1431	0.0339	0.0002
	Pr	0.846	0.068	0.382	0.285	0.854	0.99
		Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Need job + Training	Chi	0.1934	1.7202	2.9456	0.0217	0.0562	0.1527
	Pr	0.66	0.19	0.086	0.883	0.813	0.696
		Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant

Table Contd

Variable		Strata				Sex	
		Strata Mining	Strata Agriculture	Strata Business	Strata Other	Female	Male
Need Agriculture	Chi	0.0067	0.081	0.0147	1.187	0.9601	9601
	Pr	0.935	0.893	0.903	0.276	0.327	0.327
		Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Need Infrastructure	Chi	0	1.0581	**4.0456**	0.608	1.5537	15537
	Pr	0.996	0.304	**0.044**	0.436	0.213	0.213
		Insignificant	Insignificant	**Significant**	Insignificant	Insignificant	Insignificant
Need Environment	Chi	2.0114	0.0386	2.9905	0.0006	0.1814	0.1814
	Pr	0.156	0.844	0.084	0.981	0.67	0.67
		Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Need Environment+ Agriculture	Chi	1.0871	0.0673	1.1351	0.9982	1.4486	1.4486
	Pr	0.297	0.795	0.287	0.318	0.229	0.229
		Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Need Job + Training	Chi	1.186	1.3626	0.4007	0.1364	0.0316	0.0316
	Pr	0.276	0.243	0.527	0.712	0.859	0.859
		Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant

Analysis of needs of different village social groups in study area 2

Variable	Caste		Education			Sex	
	SC & ST	General	Below Secondary	Illiterate	**Above Secondary**	Male	Female
Need Environment	1.2919	1.2919	2.9167	0	**4.537**	0.2381	0.2381
	0.25	0.25	0.088	1	**0.033**	0.62	0.62
	Insignificant	Insignificant	Insignificant	Insignificant	**Significant**	Insignificant	Insignificant
Need Infrastructure	**3.4737**	**3.4737**	0.1071	0.12	0	1.7143	1.7143
	0.062	**0.062**	0.74	0.72	1	0.19	0.19
	Significant	**Significant**	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Need Job & Training	0.1435	0.1435	2.14	2.4	0	2.14	2.14
	0.705	0.705	0.143	0.12	1	0.143	0.143
	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Need Agriculture & Environment	0.1435	0.1435	2.14	2.4	0	2.14	2.14
	0.705	0.705	0.143	0.12	1	0.143	0.143
	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant

Table Contd

Variable		Age			Strata		
		00-20	20-50	above 50	Strata mining	**Strata agriculture**	Strata Others
Need Agriculture	Chi	0.3704	0.8333	0.0176	8.2	**3.8**	3.8
	Pr	0.45	0.36	0.89	0.004	**0.05**	0.05
		Insignificant	Insignificant	Insignificant	Insignificant	**Significant**	Insignificant
Need Infrastructure	Chi	0.5556	3125	0.1058	0.1923	7.2321	1.4286
	Pr	0.456	0.567	0.745	0.661	0.007	0.232
		Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Need Environment	Chi	0.24	1.5	2.57714	0.92	.1-71	1.71
	Pr	0.624	0.221	0.109	0.337	0.743	0.19
		Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Need Environment+ Agriculture	Chi	0.1333	0	0.1587	**4.61**	2.14	2.1429
	Pr	0.715	1	0.69	**0.03**	0.143	0.143
		Insignificant	Insignificant	Insignificant	**Significant**	Insignificant	Insignificant
Need Job + Training	Chi	0.1333	0	0.1507	**4.61**	2.14	0
	Pr	0.715	1	0.69	**0.032**	0.143	1
		Insignificant	Insignificant	Insignificant	**Significant**	Insignificant	Insignificant

Thus from chisqare table analysis states that lack of correlation of need priority of the villagers

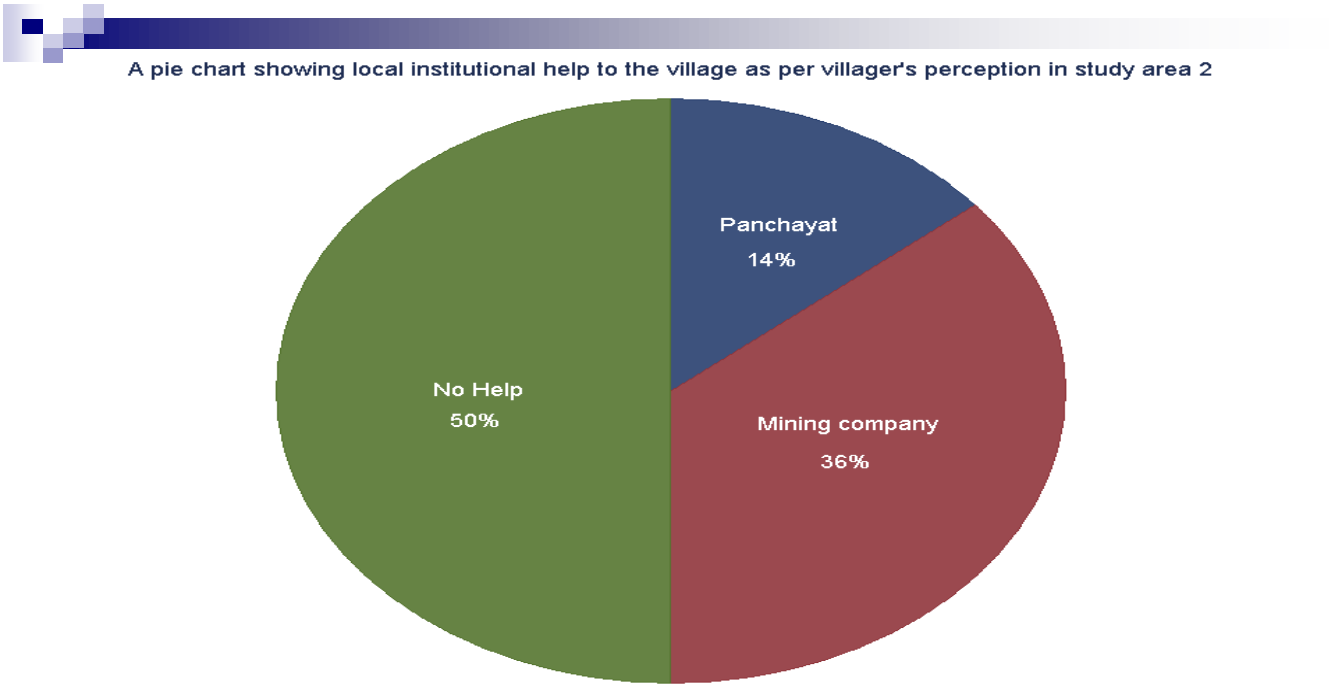
So for this purpose CSR is necessitated for long term sustainability. It also true my study areas (ECL COMPANY) also do some CSR activities that are cleared from villagers perceptions ,few samples areShown

Analysis of needs of different village social groups in rehabilitated villages

Variable		**above age 50**	**age 20-40**	**Illiterate**	**Below sec**	**Above Sec**
Need Environment	Chi	**CHI(10.6935)**	CHI(.1552)	CHI(.8826)	CHI(3.2903)	CHI(2.4569)
	Pr	**Pr(.001)**	Pr(.694)	Pr(.347)	Pr(.07)	Pr(.117)
		Significant	Insignificant	Insignificant	Insignificant	Insignificant
Need Agriculture	Chi	**CHI(5.68)**	CHI(.0974)	CHI(2.072)	CHI(2.266)	CHI(.0244)
	Pr	**Pr(0.019)**	pr(.7555)	Pr(.150)	Pr(.134)	Pr(.876)
		Significant	Insignificant	Insignificant	Insignificant	Insignificant
Need Agri &Env	Chi	**CHI(16.89)**	CHI(.2731)	**CHI(3.6028)**	**CHI(1.1026)**	CHI(1.1262)
	Pr	**Pr(0.000)**	Pr(.610)	**Pr(.058)**	**Pr(.013)**	Pr(.289)
		Significant	Insignificant	**Significant**	**Significant**	Insignificant

Here chis qare analysis can not provide any significant result so for sustainability my opinion is to build up integrated Sustainable livelihood strategies and community development in the mines areas. So for this purpose CSR is necessitated for long term sustainability. It also true my study areas (ECL COMPANY) also do some CSR activities that are cleared from villagers perceptions ,few samples are

Shown



Thus from above figure it clear that villagers are benefitted from Ecl company too some extent, and more helps are also arise from village level meeting

CSR activities of mining company based on villagers perceptions

(a) All mining companies have undertaken commitments to fulfill their corporate social responsibilities by undertaking community development program. These programs can not effective unless a consultative and participatory approach is developed with the stakeholders and local institutions. Panchat institution is at the central stage of any institutional analysis. This implies that villagers are dependent on help for panchyat. All the venn datam reveal lack of coordination between two major intuitions, that is, panchyat and the welfare department of the mines who implement and channalise funds for all corporate social responsibility schemes.

(b) In other analysis there is a mixed response from the villagers. Some villagers have reported increase in agriculture productivity and in majority of the villages there is decline in production. In some villages water is supplied from nearby rivers to irrigate the field, and also, high breed variety of seeds is used. Necessary help for this purpose is received from panchayat , state irrigation department and mining companies are not involved in the program. Literacy rates have increased in almost all villages primarily due to government program. The mining companies, at times, provide funds for renovation of school buildings. They are not directly involved in such programs However; .it is a common perception of the villagers that environmental quality has deterioration of environmental quality after opening of mines.

(c) Seasonal result shows only few villages. Less than twenty percent of the households are in direct employment at mines, the majority of the remaining households depend on contractual jobs either related to mines or agriculture work. As the agriculture is mostly rainfed the villagers can only find job in agriculture field during monsoon season. Majority of the villagers are under contractual nature of jobs either under mining contractor, service sectors, civil contractors and during monsoon very limited way as agriculture labourer. The marginalized and vulnerable group of villagers is dependent on temporary casual jobs from mines. Being unskilled labourers, without any professional skill and training, lacks empowerment, resilience and resources to find alternate livelihood after mine closure.

(d) Village level meetings reports reveal that there is no significant difference in infrastructure between different types of villages ------ villages adjacent to mines, rehabilitation villages and one control village. Poverty ,water crisis , jobs, empowerment program, alternate employment , empowerment of the mining community , irrigation , panchayats effective

MINING COMPANY NEEDS CSR ACTIVITIES IN FOLLOWING STATISTICAL MANNER

With survey data factorization of dichotomous variables is done to develop an indicator using STATA program.

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.49808	.291628	0.4994	0.4994
Comp2	1.20645	.910973	0.4021	0.9015
Comp3	.295476		0.0985	1.0000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Unexplained
Need _ Social Capital	-0.7550	-0.1445	0.6396	0
Need_ Natural Capital	0.5999	-0.5462	0.5846	0
Need_ Human Capital	0.2649	0.8251	0.4991	0

. It can be seen from the above tables that the first two components explain about 90% of the variance within the villager's response data. It only makes sense, however, to keep the components that have an eigenvalue higher than 1 – if this is not the case, the component will actually have a variance that is larger than the variance it is meant to explain. The eigenvectors indicate the correlation. The factors with eigenvalues greater than 1.00 are considered practically significant, that is, as explaining an important amount of the variability in the data, while eigenvalues less than 1.00 are considered practically insignificant, as explaining only a negligible portion of the data variability.

In this case, two components should be retained. The first Eigen value is 1.498 and first extracted column, irrespective of sign, is (0.755, 0.5999, 0.2649) Second Eigen value is 1.20645 and second extracted column is (0.1445, 0.5846, 0.8251).

Weightage of the two components are calculated as follows Weightage of

Need _ Social Capital = 1.498 x 0.755 + 1.20645 x 0.1445 = 1.305

Need_ Natural Capital = 1.498 x 0.5999 + 1.20645 x 0.5462 = 1.558

Need_ Human Capital = 1.498 x 0.2649 + 1.20645 x 0.8251 = 1.392

Since dichotomous variables are used normalized data is not available. Relative weights are calculated as follows

Sum of 1.305 + 1.558+ 1.392 =4.255 (reciprocal = 0.235)

Relative Weight Physical Capital = 1.305 x 0.235 = 0.3066

Relative Weight Natural Capital = 1.558 x 0.235 = 0.366

Relative Weight Human Capital = 1.392 x 0.235 = 0.32712

Funds can be distributed with this ratio. 0.3066:0.3666:0.32712

Thus we can say that during mining period fund should allocate on different sector of development as an CSR activities so that stakeholders in mining areas can maintain sustainability. In con conclusion I here by say every company should stress on CSR activities not for improvement of the societies but also their business growth ,and if they CSR activities sustainable balanced growth is possible between company and local area.

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