



छत्तीसगढ़ मिनरल डेव्हलपमेंट कॉर्पोरेशन लि.

(छत्तीसगढ़ शासन का एक उपक्रम)

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S.No./1190/CMDC/2013

Raipur, Dated 01.03.2013

To,
The Director,
Impact Assessment (Coal)
Ministry of Environment and Forest
Paryavaran Bhawan, CGO Complex, Lodi Road
New Delhi-110003.

Sub: Environment Clearance for proposed Sondiha OC-Cum-UG Coal Mine Project (IMTPA Peak in an ML area of 810 Ha) of M/s Chhattisgarh Mineral Development Corp.Ltd.Located in district: Balrampur (earlier Surguja), Chhattisgarh.

Reference: MoEF Letter-J-11015/331/2012-IA.II(M) dated 18th May'2012.

Sir,

We were issued a Term of Reference (TOR) for our Sondiha Coal Block vide MoEF letter no J-11015/331/2010-IA.II (M) dated 23.12.2010. The EIA/EMP report has been submitted for Environment Clearance on vide letter no 1554/CMDC/2011-12, dated 28/03/2012, after complying TOR condition.

MoEF has considered the proposal in the 47th meeting of the reconstituted Expert Appraisal Committee (Thermal & Coal) wherein the proposal was presented before the EAC on 23rd April, 2012.

The Suggestion/Comments/ Studies to be undertaken of the Expert Appraisal Committee were received vide above reference. The point wise Clarification to the said Suggestion/Studies/Comments is given below :

1. The proponent should examine whether underground mining could be carried out in area with high forest density in proposed opencast area.

The proponent has engaged mining expert from IIT BHU, Varanasi for examining the feasibility of the underground mining.

The expert has concluded that "The Coal that could be extracted (theoretically) will be 2.44 Mt by underground mining method (i.e. about 7.8% of net reserve). The locked up coal cannot be extracted in the future. Thus, one can safely conclude that underground mining in the focus area is not a preferred mode of mining. If coal has to be exploited in the focus area then it should be extracted by opencast method only. (Page no 44 of the report.)

Detailed study & analysis report titled "Report of Evaluation of Mining Method and Social Cost Benefit Analysis" is enclosed as Annexure 1.

2. The Proponent should examine whether the top seam VII proposed to be mined by OC method could be left undisturbed.

As per the sequence of coal seam occurrences in Sondiha coal block, the top most seam is Seam VII and the bottom most seam is seam I. Hence seam VII will be

mined first by OC mining to mine subsequent seams. As has been studied by BHU, underground mining as an alternative to opencast mining is not technical feasible and practical, therefore, the top most seam cannot be left undisturbed.

3. **The Proponent should get a study carried out for examining the best options of mining vis-à-vis cost benefit analysis on the social and environmental aspects of the various mining technology. The Committee desired that the study team should include expert drawn from mining engineering, forestry, ecology, sociology and environmental economic.**

The proponent has engaged experts from BHU, Varanasi in various fields as suggested by EAC for carrying out above study & analysis.

The experts have concluded that the project as proposed will be feasible from social point of view. The salient points extracted from the conclusion are given below:

“Economic analysis of sondiha coal block considering all benefit and costs has been carried out, they are given in table 5.8. The social discount rate of 12% has been considered in the analysis as suggested by Asian development bank for developing countries. The analysis shows that the net present value of the social benefit from the project is about Rs.1830.44 Cr. The net present value of the social cost incurred in the project is Rs.646.23 Cr. The social (economic) net present value (ENPV) of the project is Rs.1184.21 Cr. The benefit to cost ratio is 2.83. The economic internal rate of return of 71% has been calculated.” (Page no 73 of the report).

The detailed study and analysis report can be seen in Chapter 5 of “Report of Evaluation of Mining Method and Social Cost Benefit Analysis”, enclosed as Annexure 1.

4. **The area has high tribal population the proponent should consult the experts on tribal issue. The proponent should prepare tribal welfare, with specific allocation of funds for implementation of tribal development plan on long term basis.**

The tribal welfare has been prepared as part of R & R Plan which was submitted for Environment clearance through vide letter no/1554/CMDC/2011-12 dated 28.03.2012.

The Tribal Plan has been revisited by incorporating the opinion of expert in tribal issue and allocation of fund in various Plans on long term basis. **Copy of the chapter 5 of the R&R plan is enclosed in Annexure 2.**

5. **The proponent should provide R& R Plan & CSR in English.**

Copy of R & R Plan & CSR (Chapter 4 of R & R Plan) in English (**Enclosed as Annexure 2**)

6. **The social audit should be carried out by institution such as the IIT and regular monitoring carried out on the implementation of CSR & R& R.**

Reputed Institution shall be engaged in carrying out the social audit and for regular monitoring of R & R & CSR during implementation.

7. The capital Budget for CSR should be raised from Rs.50 Lakhs to Rs. 2.5 Crores.

As suggested by EAC, the capital cost for CSR has been revised from Rs. 50 lakhs to Rs 2.5 Crores. Copy of plan is enclosed (Chapter 4 of R & R Plan) in Annexure 2.

8. The proponent to examine the use of Bhatgaon Railway siding with SECL Permission and the transportation of coal from nearest railway line should be given priority.

The coal produced from Sondiha Coal Block will be sold at pithead to small & nearby customer. Therefore the transportation of coal will be carried out by consumer, however it is already proposed to implement by covered transportation of coal from pithead and priority shall be given to consumer who will transport coal from nearest railway station to their respective destination instead of fully transporting coal from sondiha pithead to their destination by road.

We hope you will give us the opportunity to present our case at the earliest.

Thanking you

Your's faithfully

P.S. Yadav
(P.S. Yadav)

General Manager (Mines)

Enclosure:

1. Annexure – I : Report of Evaluation of Mining Method and Social Cost Benefit Analysis.
2. Annexure –II : Rehabilitation & Resettlement Plan

**EVALUATION OF ALTERNATIVE MINING METHODS
AND
SOCIAL COST BENEFIT ANALYSIS
OF
SONDIHA COAL BLOCK**

**CHHATTISGARH MINERAL DEVELOPMENT CORPORATION LIMITED
RAIPUR, CHHATTISGARH**



**DEPARTMENT OF MINING ENGINEERING
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January 2013

Project report prepared by a Team of faculty members of Indian Institute of Technology (BHU) in collaboration with faculty members of Banaras Hindu University

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List of Abbreviation

CMDCL	Chhattisgarh Mineral Development Corporation Limited
ML	Mining Lease
BAU	Business As Usual
OC	Opencast
UG	Underground
NPV	Net Present Value
IRR	Internal Rate of Return
BOS	Blasting-of-Solid
SDL	Side Discharge Loader
LHD	Load Haul and Dump
CM	Continuous Miner
FEM	Finite Element Method
ha	Hectare
MTPA	Million Tonne per Annum
MT	Million Tonne
TPD	Tonne per Day
BAU	Business As Usual
ENPV	Economic Net Present Value
EIRR	Economic Internal Rate of Return

EXECUTIVE SUMMARY

Sondiha coal block is located in Sarguja district of Chhattisgarh state. It is approximately at a distance of 10 km from the Tehsil headquarter, Wardrupnagar. The total leasehold area is 810.0 ha. Approximately 40 % of the mining area is under forest. The Sondiha Coal Block partly covers the area of Bhagwanpur Khas, Bartikala, Sabitripur, Sursa, Injani and Bhagwanpur Jirat villages. The block is having seven seams having a maximum depth of 240.0 m from the surface. The total proved reserve of the block is about 50.18 MT. Sondiha coal block has been allotted to Chhattisgarh Mineral Development Corporation Limited (CMDC) for coal mining. The project proponents proposed a combination of opencast and underground mining system with a target of 1.0 MT per annum peak production capacity.

The EAC of MoEF was concerned with the likely damage to the forest by opencast mining in the block. The Committee desired that the proponent should examine whether underground mining could be carried out in areas with high forest density. The Committee desired that social cost benefit analysis should have been carried out. It desired that the proponent should get a study carried out for examining the best options of mining vis-à-vis cost-benefit analysis on the social and environmental aspects of the various mining technologies available. It also desired that the study team should include experts drawn from mining engineering, forestry, ecology, sociology and environmental economics.

Project proponents approached Department of Mining Engineering, Indian Institute of Technology (BHU) to look into above matters. IIT (BHU) has a unique advantage that it is located inside BHU campus. Therefore, a team of experts, basically faculty members of IIT (BHU) and faculty members of BHU was constituted to look into above. These faulty members are experts in the area of Mining Engineering, Environmental Economics, Forestry, Sociology and Ecology. A team of students has also been formed to carry out the survey.

The complete work has been divided broadly into two parts. The first part is evaluation of underground mining in place of opencast mining in the area proposed by the project proponents. It mainly dealt with technical evaluation of viability of underground mining beneath the forest land. The second part is evaluation of various options of mining system arrived at by the first part through social cost benefit analysis (SCBA).

The geological features have been critically evaluated to arrive at the possible mining method. The block is highly disturbed by faults. The block is affected by 20 faults. The block has been

divided into 17 nos. of sectors from A through Q delineated by faults. The throw of faults varies from 20 m to as high as 350 m. The detailed exploration in Sondiha block shows that seam IV- Top and IV – Bottom is the thickest seams among the other seams. The range of thickness is 0.58 m to 5.55 m and 0.4 m to 5.40 m respectively. In few place IV-top and IV-bottom merges (called as seam -IV). The thickness range is 3.05 m to 5.55 m.

The project proponents have already planned underground mining in two patches. One central patch is proposed to be excavated by opencast mining. Therefore, our prime interest was to evaluate the system of underground mining in place of opencast mining. The area where opencast mining was proposed has been considered as a focus area for part A. The subsequent discussion for part A is regarding the focus area only.

The alternative mining system i.e. underground mining has been evaluated in the focus area. It has been observed from the geological report that there are numbers of coal seams viz. I through VII. The minimum thickness considered for UG mining is 1.5 m as per Indian practice. The maximum extractable thickness has been taken 4.5 m from strata control considerations. It is evident from the geological report that only seams IV Top and IV Bottom could be considered workable as these are widely spread in the focus area and have attained workable thickness. Others seams do not have sufficient quantity in workable thickness and thus, have not been considered for exploitation by UG mining.

The optimistic underground mine plans for seam IV (Top) and IV (Bottom) has been prepared for Sondiha coal block considering all possibility of mining. There are numbers of up and down in the floor of coal seams due to faults. The area has been divided into seven sectors. All the sectors are separated by the faults having throw varying from 20 m to 135 m. In the mining block, Seam IV in the sector I and E is having outcrop at the surface. These sectors are having considerable reserve and spread in large area. It is not possible to operate with single pair of inclines. Therefore, two pair of inclines for sector E and I is being proposed for providing access to the seam to ensure adequate ventilation, efficient transportation of coal and material, pumping system and for other services throughout life of the mine. The technical feasibility of the underground mining has been evaluated in various stages.

In first stage, 3D numerical modelling analysis of subsidence has been carried out. It was done for the proposed underground layout for analyzing damages at the surface with special

reference to forest. It has been observed from the subsidence analysis that some panels at shallower depth have the high horizontal tensile strain (> 20.0 mm/m). It is likely to damage the part of the forest. Thus, the panels leading to high tensile strain (>20.0 mm/m) have been proposed not to be excavated and a modified layout has been proposed for the second stage. It has been observed from the geological plan and seam contour that the focus area is divided into seven sectors through number of faults having variable throw (20.0 m to 135.0 m). Therefore, inter-connection (for proper ventilation and transportation purpose) between sectors through stone drifts are needed. The drifting between the sectors are difficult due to high throw and available space in the sectors. These drifts have to cross the faults which may have stability problems. Moreover, many panels were not considered for exploitation of coal due to subsidence. Thus, affected sectors have not been considered for exploitation. The final layout plans, thus, have been proposed for final stage.

Considering an underground mining system that can protect forest at the surface and facing no difficulty due to faults will give 2.44 Mt of coal production. However, it will be only 1.8 MT if we considered the LHD/SDL loading efficiency, district efficiency and transportation efficiency. The underground mining system in the focus area is technically not feasible as well as from the conservation point of view (i.e. about 7.8 % of net reserve). Thus, the only mining system recommended for Sondiha coal block is a combination of opencast and underground mining as proposed by the project proponents.

This mining system has been evaluated from the social cost benefit analysis in part B. Social Cost Benefit Analysis (SCBA) is a procedure for comparing the alternative course of action with reference to the net social benefits that they produce for the community as a whole. The Social Cost benefit Analysis of a project is aimed to find out the “Net Social Benefit”. Net Social Benefit is the difference between social benefit and social cost arising out of the project. The term “Social” has greater implications in analyzing the viability of a project. The cost and benefits has different meaning to the different users. For a project developer, his/ her horizon of costs and benefits are limited to his/ her investment and return accrued to project after meeting the regulatory requirements per se for pollution etc. However, the projects may result into externalities (good or bad) that are beyond the control of the project developer. These externalities must be accounted for in SCBA. The multipliers (output and employment) are key indicators for reflecting the impact of any industries in terms of boosting economy and employment in the area.

We have already concluded by analysis in part A that the combination of opencast and underground mining is the most suitable method for Sondiha coal block. Therefore, in the second part of analysis Social Cost Benefit Analysis (SCBA) has been carried out for the mining system proposed by project proponents. An attempt has also been made to calculate net present social benefits of Business As Usual (BAU) case. The key parameters for SCBA have been identified separately for benefits and cost. Revenue from sale of the coal has been identified as the most important parameter for benefit. Some other parameters that may lead to benefit have also been identified. Mining cost along with externalities constitute the parameters under the head 'cost'. Land, equipments, mine development works, civil works and prefeasibility study and start up cost are under the head of capital cost. Operating cost is another important head under which labour, diesel, spares, electricity, explosive and fixed cost have been considered for analysis. Opencast mining will lead to complete destruction of forest as well as infrastructures available on the surface. Forests have important role in our society not only from environmental point of view but also have some inherent economic benefits. Therefore, valuation of forest is also important parameters which have been taken into account. The infrastructures, presently existing on the surface of the Sondiha coal block, has been identified so that their cost could be incorporated in SCBA. Mining is considered to be a hazardous profession compared to others. Therefore, cost of accidents must also be accounted for. Accidents may lead to death of the workers in extreme circumstances leading to hardship and agony to the family members. However, in majority of cases the accidents leads to partial disability or loss of earning and medical expenses. Cost of accident has also been incorporated in SCBA. There are many parameters involved in SCBA for which market does not exist, termed as externalities. Pollution resulting from mining operations such as air pollution, water pollution, noise pollution, and ground vibration etc can be termed as externalities for SCBA analysis of Sondiha coal block. However, they play an important role for decision makers for implementation of the project. These parameters have been identified for analysis in SCBA of Sondiha coal block. In most markets, consumers at the margin are willing to pay no more or no less than the actual price in the market. Accordingly, that price can generally be taken as a measure of the value placed by society (shadow price) on the goods or services. Similarly, prices of inputs usually reflect the value which alternative users of these inputs place upon them. However, actual prices sometimes have to be adjusted to convert private costs and benefits into social ones (shadow prices), that is, costs and

benefits which reflect gains and losses to the economy as a whole. Attempt has been made to value all parameters (output, input and externalities) in terms of shadow prices.

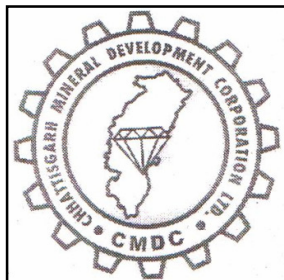
The analysis shows that total economic (social) benefit from the project is about 1830.44 Cr. The total economic (social) cost incurred in the project is Rs. 646.23 Cr. The net economic present value (ENPV) of the project is Rs. 1184.21 Cr. The benefit to cost ratio for Sondiha coal block for the technology to be adopted by the project proponent will be 2.83. The social discount rate of 12.0 % has been considered in the analysis. The economic internal rate of return of 71% has been determined. The BAU case has also been analysed. The analysis shows that the net present value of economic benefit (difference of NPV of benefit and cost) is 7.31 Cr. It shows that the mining of coal by combination of opencast and underground mining system in Sondiha coal block will result into substantial increase of net social benefit.

The economic impact analysis of the Sondiha coal project has also been carried out to evaluate the multipliers. The output multiplier for coal projects is 1.53 for Chhattisgarh state. The production of coal from Sondiha coal block is likely to be 1.0 MT per annum. The output can be valued as Rs. 278 Cr. per annum. The Chhattisgarh economy would be simulated to extent of Rs 425 Cr. of output at factor cost. The Employment effect for coal project is 0.47 and employment multiplier is 1.88 for Chhattisgarh state. This project would generate 13,000 man-years of employment.

A sensitivity analysis has also been carried out for the present analysis. Shadow price of coal, capital expenditure, operating and maintenance cost (OC and UG) and production from opencast and underground mining have been taken as parameters. It is concluded from the sensitivity analysis that the price of coal as well as production of coal from opencast is two most sensitive parameters.

It could safely be concluded from the analysis that underground mining in place of proposed opencast mining by the project proponent is not technically feasible. Therefore, one should not adopt underground mining technology in the focus area due to geo-technical/practical problems. The social cost benefit analysis is the measure of profitability of the project not from the private point of view but from the society point of view. The analysis in terms of social cost/benefit ratio, ENPV and EIRR shows that the project is feasible from social point of view also for the combination of mining technology. Furthermore, economic impact analysis also indicates the positive impact of the project in

the economy of the Chhattisgarh state. Therefore, it is strongly recommended that the combination of opencast and underground mining technology as proposed by project proponent should be adopted for exploitation of coal from Sondiha coal block.



CHHATTISGARH MINERAL DEVELOPMENT CORPORATION (CMDc) LIMITED

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RESETTLEMENT AND REHABILITATION PLAN FOR SONDIHA COAL BLOCK, VILLAGE BARTIKALA, SAVITRIPUR, INJANI, BHAGWANPUR JIRAT & BHAGWANPUR KHAS, DISTRICT- SURGUJA, CHHATTISGARH

JUNE 2011

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Chapter-1

Introduction and Project Description

1.1. Justification of The Project, Basis and Brief Description (In compliance to Section 1.1 of Annex-2 of Chhattisgarh State Model R&R Policy, 2007^{1/2})

A. Justification Of The Project and origin. (In compliance to Section 1.1 of Annex-2 of Chhattisgarh State Model R&R Policy, 2007)

(i) Project Description

Government of India, Ministry of coal has allotted Sondiha Coal Block to M/s Chhattisgarh Mineral Development Corporation Limited. This coal Block, Tatapani-Ramkola coalfield is situated in district Surguja (Chhattisgarh). It is proposed to develop Open Cast as well as Under Ground Mine in coal block in villages Bartikala, Sabitripur, Injani, Bhagwanpur Jirat, Bhagwanpur Khas for the coal mining project. A joint Venture company (JVC) with M/s Lumen Engineering Company, New Delhi and M/s Chhattisgarh Mineral Development Corporation Limited has been formed for coal mining operations.

CMDC has 51% (cashless) share in the JVC. The mining plan of the block has been approved by Ministry of Coal, Govt. of India. An annual coal production of 1 MTPA of coal is proposed. As per the conditions of Coal Block Allotment, the produced coal can be sold anywhere except the linked customers of M/s Coal India Limited and M/s South Eastern Coal Field Limited.

As per the detailed investigation done by M/s GSI, M/s Shree ram Gemicon and M/s DGM (State Govt), there is 50.423 millionTon net Geological reserve of coal is available, in which 27.584MT from open Cast Mining and 5.159MT from Under Ground Mining, a total of 32.743MT of Extractable reserve is removed from the Block. Rehabilitation and resettlement of the displaced families in a resettlement colony will be done out of lease area in village Bhagwanpur Khas an area of approx. 33.04 hectare

The regional survey of Sondiha Coal Block has been carried out by M/s GSI and detailed survey has been done by M/s Shreeram Gemicon and M/s DGM (State Govt), the details of coal seams is as follows.

**SEQUENCE OF THE COAL SEAMS IN SONDIHA BLOCK,
TATAPANI RAMKOLA COAL FIELD.**

Coal seam / Parting	Thickness Range (m)		Dominant Thickness Range (m)		Remarks
	From	To	From	To	
Seam VII	0.20 (TSM-45)	1.85 (TSM-61)	0.43	0.90	Intersected in 15 BHs., unworkable
Parting	6.89 (TSM-23)	24.00 (TSM-55)	9.75	20.26	
Seam VI	0.27 (TRS-11)	2.58 (TRS-10)	0.50	1.20	Intersected in 38 boreholes
Parting	2.25 (TSM- 10)	16.33 (TRS-14)	8.17	13.25	
Seam V	0.30 (TSM-17)	2.59 (TSM-40)	0.80	1.86	Intersected in 42 boreholes
Parting with IVT	1.26 (TSM-38)	14.27 (TSM-60)	3.39	10.98	
Parting with IV	3.45 (TRS-2)	5.20 (TSM-15)			
Seam IVT	0.58 (TSM-50)	5.55 (TRS-4)	1.02	2.78	Intersected in 40 boreholes
Parting with IVB/IV	1.20 (TSM- 10)	7.24 (TSM-28)			
Seam IVB	0.40 (TSM-16)	5.40 (TSM-25)	0.50	4.60	Intersected in 40 boreholes
Seam IV	1.40 (TSM-63)	8.89 (TRS-8)	3.05	5.55	Intersected in 17 boreholes
Parting	17.22	36.59	17.22	34.48	

Coal seam / Parting	Thickness Range (m)		Dominant Thickness Range (m)		Remarks
	(TRS-18)	(TSM-45)			
Seam III	0.15 (TSM-46)	3.53 (TRS-9)	0.60	1.64	Intersected in 31 boreholes
Parting	8.05 (TSM-60)	22.06 (TSM-4)	10.38	15.90	
Seam II	0.15 (TSM-52)	2.08 (TRS-20)	0.50	1.75	Intersected in 38 boreholes
Parting	10.35 (TSM-29)	25.85 (TSM-35)	19.36	24.68	
Seam I	0.13 (TSM-33)	1.71 (TSM-48)	0.90	1.32	Intersected in 35 boreholes

(ii) About the Company:

M/s.Chhattisgarh Mineral Development Corporation Limited, is an unit of Government of Chhattisgarh in which 100percent share capital belongs to Government of Chhattisgarh and its registered office is situated in Sonakhan Bhawan, Ring Road no.1, Raipur, Chhattisgarh.

(iii) Plan of the Project.

M/sChhattisgarh Sondiha Coal Company Limited will mine coal the coal and market the to the industries of the Country/ State and shoulder the responsibility of economic development of the Country/ State. The total outlay of the project is expected to the tune of Rs 575.00 Crores .

Estimate for the total Capital Investment

OC capacity (MTY): 1.00 (up to 15th. Year & there after till life of mine(16th. To 33 years) 0.75 mt	UG Capacity (MTY) : 0.25 mt (16th. To 36 years)
Life (years) : 33	Life (years) : 21
S.R.(Cum/t) : 13.79	

Sl No	Particulers	Total Amount in Rs. Crores
1	Land	250.00
2	Pre Development Cost	40.00
3	Capital Investment in open Cast	150.00
4	Capital investment in Underground	75.00
5	Civil Infrastructure Cost	50.00
6	Misc.	10.00
	Total Capital investment	575.00

PROJECT DESCRIPTION

1.2 (A) GEOLOGY

1.2 PROJECT DESCRIPTION

1.2.1 Location

Tatapani-Ramkola coalfield is located in north-eastern part of Surguja district, Chhattisgarh, bordering Jharkhand, Madhya Pradesh and Uttar Pradesh. Sondiha block forms South-Central part of Ramkola basin and lies to the west of Sursa block, regionally explored by Geological Survey of India. The area extends from Bhagwanpur village in south to Injani village in north.

1.2.2 Communication & Accessibility.

The Sondiha block is approachable by a metalled road bifurcating from Ambikapur - Varanasi state highway near Moran Bridge (Bartikala Village) which is 82 KM from Ambikapur and 10 KM from Tehsil headquarters, Wardrufnagar. Renukut in Uttar Pradesh on Chopan- Garwa section of eastern railway is 80 KM by road from Wadrufnagar. The distance of Wadrufnagar from Garwa road railway station, in Jharkhand, on Chopan-Garwa section of eastern railway, is 120 KM by road and from Bistrampur railway station, in Chhattisgarh, is 100 KM by road. Wadrufnagar is 60 KM away by road from Ramnujganj on Garwa-Wadrufnagar highway. Bartikalan-Sardapur metalled road passes through the central part of the block. The block is also traversed by a network of forest roads and unsettled roads.

1.2.3 Physiography

The maximum height of the ground above mean sea level is 526.03 M (RL of borehole TSM-4) in central part and minimum is 426.12 M (RL of BH. No. TSM-57) near central part of northern boundary. In general, ground elevation is higher in central part and eastern of the block than the other parts. The ground elevation is also higher in major part along eastern boundary. The ground slope is towards north and south from the central part. The major part of the area is almost plain with high undulations.

1.2.4 Drainage

The Moran River flowing in north of the block forms the principal drainage of the area. A number of small tributaries, Viz. Injani, Kennapar nala of this river, drain the terrain.

1.2.5 Climate

The area is characterized by tropical climate with well defined summer from April to June, monsoon from July to September and winter from November to February. May is the hottest month when the temperature, generally, rises to a maximum of 48°C. December is the coldest month with mercury dipping to a low of 7°C. The average annual rainfall recorded in the region was 2200.8 mm in 1994. The relative humidity during the monsoon ranges from 75% to 80% and in summer from 18% to 60%.

1.2.6 Mining Activities in Tatapani-Ramkola Coal Field in and around the Sondiha Coal Block

Sondiha Coal Block, is a non CIL block, and is virgin situated in Tatapani-Ramkola coalfield and is located in north-eastern part of Surguja district, Chhattisgarh. No mining activities is taking place in this coal field.

1.2.7 Coal-Exploration

The Geological Survey of India has carried out regional exploration in the block. During investigation, 20 boreholes of TRS series, over an area of 10.35 sq km, out of 10.74 sq km P.L. area of Sondiha, Block were drilled involving 5336.65m of drilling. Six boreholes drilled by Directorate of Geology & Mining Chhattisgarh involving 880.30m of drilling during detail exploration.

M/s Shreeram Gemicon Pvt Limited under the supervision DGM Govt of Chhattisgarh has carried out detail exploration from Nov.2009 to May 2010. A total of 78 boreholes with 10822.25 meter drilling were done. Accordingly Geological Report is prepared. The boreholes density is approximately 11 boreholes/ sq.km

1.2.8 Regional Geology

East-west trending Tatapani-Ramkola Gondwana basin is, in reality, the western extension of Damodar-Koel valley basin belt. It is located about 25 KM west of the Hutar

coalfield, which is western most member of the Gondwana Basin of Damodar-Koel valley in Bengal and Jharkhand area.

The Tatapani-Ramkola Coalfield is a composite basin comprising a northern strip of coal bearing rocks, referred to as Tatapani Coalfield and a southern one named the Ramkola Coalfield. The two are separated by a wide expanse of Supra-Barakar strata. The Tatapani coalfield is 4 KM to 5 KM wide and about 65km long. It extends eastward from near Pipra Holl ($23^{\circ} 51'$, $83^{\circ} 01'$) up to the Sendur river and terminates near Tatapani village ($23^{\circ} 41'$, $83^{\circ} 39'$).

Ramkola coalfield extends west ward for about 40km from Manpura ($23^{\circ} 43'$, $82^{\circ} 23'$) across the water shed of the Gouri ($23^{\circ} 47'$, $83^{\circ} 07'$) to Ramkola village ($23^{\circ} 39'$, $83^{\circ} 59'$).

The coalfield is located between latitudes $23^{\circ}30'$ and $23^{\circ}55'$, and longitudes $83^{\circ}00'$ & $83^{\circ}40'$.

Table1.1 Stratigraphic sequence- Tatapani-Ramkola Coal Field

Age	Formation	Thickness	General lithology
Recent			Alluvium
Late Cretaceous (?)	Basic Intrusive		Dolerite
Early Jurassic(?)	Mahadeva	150m +	Thick cross-bedded, ferruginous, quartz, arenite with bands of red clay.
Unconformity			
Early to Middle Triassic	Panchet	500m +	Greenish, yellow to reddish yellow, very coarse to medium grained micaceous, subarkose with variegated mudstone/siltstone and clay.
Late Permian	Raniganj	423m +	Pinkish to light grey, fine grained, micaceous, sub-arkose to felspathic wacke with grey, micaceous shale and thin coal seams.
Late Permian	Barren Measure	200m +	Fine to medium grained sub-arkose to felspathic wacke inlaminated fine grained micaceous sub-arkose and grey shale, grey and dark grey shales at places, carbonaceous and a few thin coal seams.

Age	Formation	Thickness	General lithology
Early Permian	Barakar	468m +	Medium to coarse grained, micaceous sub-arkose to arkose (basal part) with conglomerate lenses and bands, grey shales (mainly in upper part), carbonaceous shales and coal seams.
Early Permian to Late Carboniferous (?)	Talchir	105m to 200m	Polymictic conglomerate, pebbly sandstones, greenish, coarse to mainly fine grained sub-arkose, greenish to light grey siltstone, at places, interbedded with fine grained sandstone, variegated shale and marlstone.
..... Unconformity.....			
Precambrian	Metamorphic		Granite, granite gneisses, mica schist, quartzite, pegmatite and amphibolite.

Table1.2 The generalized sequence of the coal seams in Sondiha Block.

Coal seam / Parting	Thickness range (m)		Dominant thickness range (m)		No. of BHs intersection	Depth range(m) of intersection in BHs
	From	To	From	To		
Seam VII	0.20 (TSM-45)	1.85 (TSM-61)	0.43	0.90	Intersected in 15 BHs., unworkable	Seam unworkable
Parting	6.89 (TSM-23)	24.00 (TSM-55)	9.75	20.26		
Seam VI	0.27 (TRS-11)	2.58 (TRS-10)	0.50	1.20	Intersected in 38 boreholes	11.60-182.50
Parting	2.25 (TSM-10)	16.33 (TRS-14)	8.17	13.25		
Seam V	0.30 (TSM-17)	2.59 (TSM-40)	0.80	1.86	Intersected in 42 boreholes	30.00-236.00
Parting	1.26	14.27	3.39	10.98		

Coal seam / Parting	Thickness range (m)		Dominant thickness range (m)		No. of BHs intersection	Depth range(m) of intersection in BHs
with IVT	(TSM-38)	(TSM-60)				
Parting with IV	3.45 (TRS-2)	5.20 (TSM-15)				
Seam IVT	0.58 (TSM-50)	5.55 (TRS-4)	1.02	2.78	Intersected in 40 boreholes	8.69-208.50
Parting with IVB/IV	1.20 (TSM-10)	7.24 (TSM-28)				
Seam IVB	0.40 (TSM-16)	5.40 (TSM-25)	0.50	4.60	Intersected in 40 boreholes	14.80-356.73
Seam IV	1.40 (TSM-63)	8.89 (TRS-8)	3.05	5.55	Intersected in 17 boreholes	13.35-273.38
Parting	17.22 (TRS-18)	36.59 (TSM-45)	17.22	34.48		
Seam III	0.15 (TSM-46)	3.53 (TRS-9)	0.60	1.64	Intersected in 31 boreholes	24.40-252.10
Parting	8.05 (TSM-60)	22.06 (TSM-4)	10.38	15.90		
Seam II	0.15 (TSM-52)	2.08 (TRS-20)	0.50	1.75	Intersected in 38 boreholes	39.15-239.80
Parting	10.35 (TSM-29)	25.85 (TSM-35)	19.36	24.68		
Seam I	0.13 (TSM-33)	1.71 (TSM-48)	0.90	1.32	Intersected in 35 boreholes	12.20-286.00

1.2.9 Geological Structure Sondiha Coal Block

Structurally, the Tatapani-Ramkola Coalfield is a broad syncline with more or less east-west trending axis. The southern limb of syncline has been truncated by a prominent fault associated with hot spring in vicinity of Tatapani village. Coal deposits in Tatapani basin gradually changes from north-south in southern and south-eastern extremity to N60°W -S60°E. The dips also changes accordingly and in general steeper near the basin periphery.

In the Ramkola Basin, forming southern limb of the regional syncline, the beds have a regional east-west strike with northerly dips of 10 degrees. The dip is steeper near the basin periphery and comparatively less near the basin..

Towards the southern end of regional syncline in the Ramkola Basin the depth of coal gradually down wards, from 10 degrees to 40 degrees.

The average dip of bed is around 10°, though dips as high as 40° have been recorded near faults. In this area the East West sediment has a northerly slope but some North – South sediment is also found. Besides the primary faults there are some small faults also which are available parallel from East to West and NW-SE.

1.2.10 Geological Reserves

Based on quality and availability of disposition of faults, the coal seams have been alienated in sector A to Q. In the Open Cast mines the position of reserves have been alienated in Sector A to J in reserves VI, V, IVB/IV and IVT and in Underground reserves these have been alienated from N to Q in seam IVB/IV and IVT and the reserves also available in Sectors L, M & N. Seam VI, V, III, & II. The borehole investigations results in sector K, L & N, it has been found that reserves of coal are thin. The estimation of these reserves have not been done.

Table 1.3
SEAM -WISE GRADE WISE -GROSS O/ C & U/ G RESERVES OF SONDHIA BLOCK, TATAPANI RAMKOLA COALFIELD,
CHHATTISGARH. O/C GROSS PROVED AND NET RESERVES.

Reserve in tones

SEAM	GRADE							GROSS RESERVES	NET RESERVE S
	A	B	C	D	E	F	G		
	RES	RES	RES	RES	RES	RES	RES		
VI			282757.61	1011092.05	719879.43	500083.77		2513812.86	2262431.58
V			476671.53	522311.48	1084865.38	2161612.64	776510.58	4942725.21	4448452.69
IV TOP			422329.53	132720.64	1352940.46	9574018.50	348958.10	11826888.04	10644199.2
IV B / IV			9786.51	309820.60	2765059.71	11121762.45	1406885.94	15613315.20	14051983.7
TOTAL RES			1191545.18	1975944.78	5922744.97	23357477.36	2532354.62	34896741.32	31407067.2
TOTAL NET O/C RESERVE (Million tones.)			1072390.67	1778350.30	5330470.47	21021729.62	2279119.15	31407067.19	
			1.07 Mt.	1.78 Mt.	5.33 Mt.	21.02 Mt.	2.28 Mt.		31.40 Mt.
U/G GROSS PROVED AND NET RESERVES									
SEAM	GRADE							RESERVES	NET RESERVE S
	A	B	C	D	E	F	G		
	RES	RES	RES	RES	RES	RES	RES		
IVT					651706.73	5745651.88		6226102.95	5603492.65
IV B & IV			237622.07	800387.32	2573830.17	1640886.02		5240627.10	4716564.39

SEAM	GRADE							GROSS RESERVES	NET RESERVE S
	A	B	C	D	E	F	G		
	RES	RES	RES	RES	RES	RES	RES		
SUB TOTAL			237622.07	800387.32	3225536.90	7386537.90		11466730.05	10320057
III		15635.49	68249.20	990132.64	1677983.81	760532.33	110535.44	3623068.90	3260762.01
II	75460.44	276203.04	355433.34	369507.07	115203.74		799060.02	1990867.65	1791780.88
I	1198064.77	913043.63	970047.28	214262.85	143124.61	5715.23	337794.58	3782052.95	3403847.65
SUB TOTAL	1273525.20	1204882.17	1325480.62	1573902.55	1936312.17	766247.55	1247390.04	9395989.50	8456390.55
TOTAL NET U/G RES	1273525.20	1204882.17	1631351.89	2374289.87	5161849.07	8152785.46	1247390.04	20862719.55	18776447.6
G/TOTAL OF NET O/C+U/G RESERVE (Million tones.)	1146172.684	1084393.949	1468216.699	2136860.883	4645664.162	7337506.91	1122651.037	18776447.59	
	1.15 Mt.	1.08 Mt.	1.47 Mt.	2.14 Mt.	4.65 Mt.	7.34 Mt.	1.12 Mt.		18.78 Mt.
	1146172.69	1084393.94	2540607.37	3915211.18	9976134.64	28359236.53	3401770.19	50183514.78	
	1.1462 Mt.	1.0844 Mt.	2.5406 Mt.	3.9152 Mt.	9.9761 Mt.	28.3592 Mt.	3.4018 Mt.	50.4235Mt.	50.4235Mt.

Say 50.42

1.2.11 Mining and Utilization of Coal Reserves

The coal available in Sondiha coal block is moderate to high in ash content, low rank, and of non-coking coal nature, proposed for production. The seam Nos VII, VI, V IVT & IVB III II I, are considered together for opencast mining. At the eastern end of the block top of Seam No IVT and seam No IV-B are viable for mining through underground mining specially from the conservation of mineral point of view.

The property will be initially worked out and developed by opencast mining followed by underground mining.

1.2.12 Opencast Mining

The potential of opencast mining is available in seam Nos (VII, VI, V IVT & IVB III II I). The available coal reserve is 34.89 MT and the quantum of over burden is 380.394 MT. Considering the losses from the mine, the expected maximum extractable reserves will be 27.58 MT. The endeavor of the proposed mining project is to produce 1.0 MTPA. of coal up to 15 years. Thereafter it is expected to produce 0.75MTA Of coal up to 33 year of the life span of the mine taking into consideration from construction period. The overburden and soil cover of the mine is comparatively very hard. 8 m to 10 m high benches will be designed the topsoil material (0.6 m thick) will be excavated by 1.1 M³ hydraulic shovels and transported to the designated area by DumperThe topsoil s= will be stored near BH No. TSM-066 over the eastern side of the block and will be re-used during reclamation of the area. It is estimated that a total of 2.55 millionM³ of top soil will be generated during the entire period of life span of 33 years of OC mining operations.

Rotary Blast Hole Drill of bit size of 200/250mm will be used for the for drilling of bore hole. Explosives will be inserted in the the blast holes and blasted. Hydraulic Shovel of capacity 8-10 M³ bucket will be used for removal of the overburden.

Dumpers will be used to haul the material either to the surface waste dump or for backfilling. At the dump site, dozer will be used for leveling of the dumps. -the Capacity of dumper used for transportation is 100T Coal mining operations will be carried out mainly by Conventional methods of mining deploying shovel-dumper combination for excavating coal. 110/115 mm dia drills will be used for drilling of

blast hole and the blasted coal will be loaded in 1.5-2.0 M³ Shovel & 15 T hydraulic dumpers for transportation.

To minimize vibration on the earth surface during blasting operations, new methods and practices are proposed to be developed among which surface minor is important. With the use of a surface minor blasting operations will not be required. The thickness of coal layers will also be maintained as per prevalent norms. It is proposed to maintain and use all haulage roads at a gradient of 1 in 16.

1.2.13 Drilling and Blasting.

Overburden drilling and blasting will be carried out by pneumatically operated, drilling rigs of diameter 200/250 mm. 110/115 mm dia R.B.H (Rotary Blast Hole) drills will be used in Over burden and coal drilling and blasting. Drills will be used for coal drilling on the horizontal benches already made by the deployed shovels. Blast hole Drilling will be done up to 8-10 meter up to bottom of the coal seam. For easy access of the drill, it will be used through the overburden region.

110/115 mm R.B.H (Rotary Blast Hole) drills will be used in coal drilling and blasting. 110- 160 mm Blast Hole drills will be used in overburden drilling and blasting and on the onset of first rainy season 13.79 Million BCM overburden will be mined out. 0.30-0.35 Kilo Gram per BCM Powder Factor has been adopted for overburden drilling and blasting. And the powder factor for coal has been adopted as 0.2 kg/ M³ with use of 110/115 mm dia Blast hole drills. The practice of use of Short delay detonators or TLD and DTH combination shall be followed. Blasting control techniques will be adopted here at the time of blasting to reduce noise, ground vibrations and flying of pieces of rock during the operations.

1.2.14 Use of Heavy Earth Moving Machinery:

The list of conventional Heavy Earth Moving Machinery used in open cast coal mine is proposed as follows.

Table1.4
HEAVY EARTH MOVING MACHINERY (HEMM)

Sl. No.	Particulars	Unit	Quantity
I.	Heavy Earth Moving Machinery		
A.	Coal		
a)	1.5-2.0 M ³ shovel/backhoe (Diesel operated)	Nos.	3
b)	15 T.R.D. Trucks (Diesel Operated)	Nos.	12
c)	R.B.H Drills 110/115 mm (Diesel Operated)	Nos.	3
d)	<i>Dozer 275-320 HP (Tyre mounted dozer with ripper attachment)</i>	Nos.	3
B.	Overburden		
a)	Hydraulic Shovel 8-10 m ³	Nos.	8
b)	100 T.R.D. trucks (Diesel Operated)	Nos.	32
c)	R.B.H drills 110/160 mm (Diesel Operated)	Nos.	8
d)	Dozer 410 HP (Diesel Operated)	Nos.	5
e)	Dozer 275-320 HP (Diesel Operated)	Nos.	3
II.	Auxiliary & Service Equipment		
a)	3.5 m ³ front end loader (Coal) (Diesel Operated)	Nos.	2
c)	Graders 145 HP (Diesel Operated)	Nos.	1
d)	Diesel Bourse	Nos.	1
e)	Construction backhoe -0.9 CUM (Diesel Operated)	Nos.	1
f)	Water sprinkler (26 KL) (Diesel Operated)	Nos.	3
g)	TOW truck on 50T truck chassis (Diesel Operated)	Nos.	1
h)	100 T tractors (Diesel Operated)	Nos.	-
i)	Rough terrain crane - 40T mobile (Diesel Operated)	Nos.	1
J)	Service trucks	Nos	3
k)	Explosive van (Diesel Operated)	Nos.	1
l)	Portable air compressor	Nos.	1
m)	Tyre handler	Nos.	1
III.	Reclamation		
	2.5 cum front end loader	Nos.	1
	10 T Truck	Nos.	4
	0.9-1.2 cum hydraulic excavator	Nos.	1

1.2.15 Underground Mining

In view of mineral conservation Seam Nos IV T Top and IV-B are ideally suitable for underground mining operations. 8.597 MT of available coal reserve coal can be done by underground mining. 60% of –recovery is possible by Underground mining. The extractable reserve coal will be up to 5.159 MT.

1.2.16 Sequence of Mining

There will be a separate pair of inclines (Incline No. 1) for under ground mining operations in Sector L and M for coal from Seams IVT and IVB. In the same way there will be another pair of inclines ,Incline-2 in sector “A”. Mining operations will begin in the upper seam IVT followed by seam IVB. However the development work in both seams will be carried out together.

1.2.17 Mode of Entry

Construction of a pair of inclines is proposed for the purpose. This will be a of 4.5M x 2.5M at a gradient of 1:5 . It is proposed to provide an air shaft of 3.5m diameter at a depth of 10m on the incline mouth.

1.2.18 Method of Work

All the development work in the incline will be carried out As per section 99 of Coal Mines Regulations Act 1957. In the 2.2 M high X 4.5 M wide passage, the construction of pillars will be done in 4 panels as per the law and regulations.

Table-1.5
PILLAR SIZES IN RESPECT OF SURFACE COVER
(RECTANGULAR IN SHAPE)

Depth of seam from surface	Where the width of the galleries does not exceed 3.0 meters	Where the width of the galleries does not exceed 3.6 meters	Where the width of the galleries does not exceed 4.2 meters	Where the width of the galleries does not exceed 4.8 meters
	The distance between centers of adjacent pillars shall not be less than			
	Meters	Meters	Meters	Meters
Not exceeding 60 meters	12.0	15.0	18.0	19.5
Exceeding 60 but not exceeding 90 meters	13.5	16.5	19.5	21.0
Exceeding 90 but not exceeding 150 meters	16.5	19.5	22.5	25.5

Depth of seam from surface	Where the width of the galleries does not exceed 3.0 meters	Where the width of the galleries does not exceed 3.6 meters	Where the width of the galleries does not exceed 4.2 meters	Where the width of the galleries does not exceed 4.8 meters
	The distance between centers of adjacent pillars shall not be less than			
	Meters	Meters	Meters	Meters
Exceeding 150 but not exceeding 240 meters	22.5	25.5	30.5	34.5
Exceeding 240 but not exceeding 360 meters	28.5	34.5	39.0	45.0
Exceeding 360 meters	39.0	42.	45.0	48.0

Especially in low height seams, where seam height is 2m to 2.5m, LHD and SDL will be used for loading of coal on to chain conveyors.

The efficiency of a three phase LHD currently in India is 120-150 MT per Day. Likewise loading of 80-100 MT Per Day is possible by a 2 to 3 phase SDL.

Development of panels will be done on downward slope which will help in self draining of water. A set of LHD and SDL will be kept available prior to installation of production equipments.

Underground mining operations will be carried out in proposed seams together and after blasting, loading with the help of LHD/SDL will be done simultaneously.

As per the guidelines of DGMS, development of floors of seams will be carried out and roof will be supported with roof bolts for imparting strength. At the time of removal of pillar and extraction, use of one or two lifts will be done.

1.2.19 Transport

Near the seam faces, loading on chain conveyor or pony belt conveyor will be done with the help of LHD and SDL. From the panels, Chain conveyor or Pony belt Conveyor will load coal for transport on Gate Belt. Gate Belt Conveyers of different Panels through the inclines will help transport of coal up to the surface level.

1.2.20 Site Services & Infrastructure

Site Services & Infrastructure play a major role in opencast mining and in Underground Mining Operations. It is necessary to develop core infrastructure like power, road, telecommunication, housing, service buildings in the area. Besides this it is essential to establish office, store, first aid centre, canteen, etc for a large number of employees of the project. The proposed mining project is at a remote

place from the district headquarters, hence the essential site services are proposed to be established within a campus.

1.2.21 Power Supply & Sub Station

The power supply to the mine and other functional buildings will be done by 11 KV line drawn from nearest sub station to the local sub-station. As an emergency arrangement Two DG sets of 2x1000 KVA and 2x500 KVA have been made for operation of ventilation and pumping.

1.2.22 Water Supply

Water is required at the mining site for watering the plantations of the site, sprinkling on haul roads for dust suppression and for washing of Heavy Earth Moving Machinery. The watersupply will be done by pumping from the surface reservoir. The drinking water will be supplied through the overhead tank water supplied from bore well. For residential as well as supply to offices, pipelines will be layed. An estimated as 1103 m³/day of water will be required for the proposed mining and allied activities.

1.2.23 Waste Management

The waste generated from this mine will be dumped partially on the revenue land inside the Mining lease area. The balance waste will be dumped after selection of site internally as backfilling. After start of opencast mining from the 3rd year, waste back filling will also start. waste Back filling will continue till the end of mine-life. To stop rain wash-off from the dumps, retaining wall will be erected around the periphery of the dumps. It is proposed to make the dump terraced from top to downwards and it will be made stable by seeding with grasses. The external dumps and back-filled area will gradually stabilize by planting local tree-species, back filling and reclamation programme is given below in the table.

Calendar Program for Reclamation & Plantation.

Table 1.6

Year	Area (Ha.)					No. of trees @ 2500/Ha
	Green belt	Surface dump	Backfill	Facilities + CHP+ Stack+ Pond	Total	
1 st year	1.83	0.00	0.00	0.00	1.83	4575
2 nd year	1.83	21.46	0.00	0.00	23.29	58225
3 rd year	1.83	12.54	0.00	0.00	14.37	35925
4 th year	1.83	8.78	0.00	0.00	10.61	26525
5 th year	1.83	5.22	0.00	0.00	7.05	17625
10 th year	0	58.99	0.00	0.00	58.99	147475
Conceptual (23 year)	0	13.01	203.56	11.00	227.57	568925
Total	9.15	120.00	203.56	11.00	333.71	859275

1.2.24 Top Soil Management

It is proposed to remove topsoil to the extent of about 0.60 m depth before the start of the mining operations. About 2.55 million M³ of topsoil will be removed and transported to another place. It is proposed to keep a stack of 2.55M³ of top soil in an area of 5 Ha. The top soil will serve dual purpose. Part of the top soil will be used for reclamation annually on waste dumps by consecutive laying over backfilling. For afforestation purpose a thick layer of about 0.6 m topsoil will be used.

DEMARICATION OF THE PROJECT AND DETAILS OF AFFECTED AREA.

1.3.1 Demarcation of the project

The proposed Sondiha Coal Block is part of Tatapani-Ramkola Coalfield. The Coal block is in Sarguja District of Chhattisgarh and is about 100 km away from District head quarters of Ambikapur. The area is in the Survey of India Topo sheet number 64 M/2 and M/6 of scale 1:50000. The location of the proposed project area is shown on the topsheet.

1.3.2 Details of the affected area

The total land requirements for the Mining Lease area is 810 hectares. Among which 197.257 hectares is Protected forest land, 612.743 hectares constitutes Revenue Land inclusive of 445.092 hectares of Private Land. This also constitutes 37.434 hectares of Government Land and 130.223 hectares of revenue forest land (Chhote Jhaad ka Jungle). Part of Government land and some private land constitute the mining lease area and is affecting 5 villages namely Bartikala, Sabitripur, Injani, Bhagwanpur Jirat and Bhagwanpur Khas coming under Sarguja District in Chhattisgarh.

Table. 1.7
Total land usage is depicted in Table below 1.7

LANDUSE AREA SONDIHA COAL BLOCK		
S.NO.	PARTICULAR	AREA IN HA.
	APPLIED ML BOUNDARY	810.00
1	OPEN CAST MINE PIT	368.84
2	(I) UG MINE PIT INCLINE-I	119.00
	(II) UG MINE PIT INCLINE –II	43.57
	TOTAL UG MINE PIT	162.57
3	BARRIER 7.5 M ALONG ML BOUNDARY AND 15 M ALONG WATER BODY	9.15
4	OB DUMP	120.00
5	TOP SOIL DUMP	5.00
6	SETTLING POND	2.00
7	CHP	2.00
8	COAL STACK	1.50
9	DUMP ER PARKING	2.00
10.	COLONY	8.32
11	FACILITY	5.00
12	UG PIT HEAD PLATFORM	2.50
13	ROAD	4.00
14	UNDIS TURBED	117.12
	TOTAL	810.00
	RELOCATION LAND OUTSIDE ML AREA	33.04

Table No. 1.2.1 – A**Land Details of Mining Lease area.**

(A) Revenue Land (In Hectare)					
Sl No	Village	Govt. Land	Private Land		Total
			Adiwasi	Non Adiwasi	
1	Bartikala	1.780	22.970	7.690	32.440
2	Savitripur	1.510	11.380	0	12.890
3	Injani	4.070	15.940	49.960	69.970
4	Bhagwanpur Jirat	1.470	33.130	46.804	81.404
5	Bhagwanpur Khas	28.552	217.014	40.250	285.816
	Total	37.382	300.434	144.704	482.520

(B) Revenue Forest Land (As per Revenue records)	
Village	Forest Land (Chhote Jhad ka Jungle)
Bartikala	17.233
Savitripur	9.300
Injani	21.240
Bhagwanpur Jirat	7.270
Bhagwanpur Khas	75.180
Total (In hectare)	130.223

(C) Revenue Forest Land (As per Revenue records)	
Wadrefnagar Range Protected Forest (In hectare)	197.257

Total Mining lease in Sondiha Block Total Land+Revenue Land + Forest Land (A+B+C)	810.00
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Next Chapters present the detailed description of profit and loss by the start of mine with respect to affected land, other structures, available trees etc. affected by the proposed Sondiha mining project.

1.3 Demarcation of The Project & Details of Affected Area

A. Demarcation of the project

As per the Geological Report, The Sondiha Coal Block is spread over in 8.10 Sq KM and has a Coal reserve of 50.423 millionTonnes. This coal Block is situated from Latitude- 23°37'04.029"N (Southern Boundry) to 23°38'32.836"N (Nothern Boundry) and Longitude from 83°14'06"(Western Boundry) to 83°16'19.702" (Eastern Boundry). The area is in the Survey of India Top sheet number 64 M/2 and M/6.The land of this area is within tehsil Wadrafnagar of Sarguja District.

B. Project affected area.

(i) The PL area of the project, as per revenue records is 10.74 SqKm.The mining lease is proposed in 8.10 SqKm area whose description is as follows.

Table No. 1.1.10
VILLAGES AFFECTED BY THE PROJECT

Status	Name of Village	Expected social effect
Acquisition and/or displacement inside the project area.	Bartikala	➤ Minor displacement of population.
	Sabitripur	
	Injani	➤ Lossof village land.
	Bhagbanpur Jirat	➤ Effect on livelihood due to loss of agricultural Land.
	Bhagbanpur Khas	

(ii) Loss of Land.

Some habitation area land as well as Agricultural Land of villages Bartikala, Injani, Sabitripur, Bhagwanpur Khas and Bhagwanpur jirat comes under the mining area. Due to the project Agricultural Land as well as non Agricultural both type of Land will be effected.

In table no. 1.2.1 there is description of loss of land in the mining lease area in each village. Private agricultural land (single crop due to rainy season and double crop by irrigation) and habitation area land will be effected.

Discription of Private, Government and Revenue forest land situated in different villages is depicted in Table 1.2.1.

Table 1.2.1.- B
Summery Discription of land to be Acquired.

Revenue Land(Area in hectare)					
Discription of Land to be acquired under the land acquisition act 1894.					
Sl. No	Name of the Village	Government Land	Private Land		Total Land (Ha)
		Land under Acquisition (Ha.)	Habitation Land in addition to (Agriculture Land)	Habitation Area Land	
1	Bartikala	1.78	30.300	0.360	32.44
2	Sabitripur	1.51	11.060	0.320	12.89
3	Injani	4.07	65.590	0.310	69.98
4	Bhagwanpur Jirat	1.47	78.410	1.520	81.40
5	Bhagwanpur Khas	12.09	191.579	2.261	205.92
	Total	20.92	376.939	4.771	402.630

(B) Forest Land (As per revenue records)		
Details of land to be acquired under Forest Consurvation Act 1980		
SI No	Villages	Forest Land (In hectares) (Bade Jhad Chote Jhad ka Jangle)
1	Bartikala	17.233
2	Sabitripur	9.300
3	Injani	21.240
4	Bhagbanpur Jirat	7.270
5	Bhagbanpur Khas	75.180
	Total	130.233

(C) Forest Land (As per revenue records)	
Details of land to be acquired under Forest Consurvation Act 1980	
Wadrafnagar Range protected Forest	197.297(In hectares)

Discription	Area In hectares
Total (A) Revenue Land(Proposed to be acquired under land acquisition Act 1894)	402.630
Total Forest Land (B) and (C) (Proposed to be acquired under Forest Conservation Act 1980)	327.480
Total Land under Sondiha Block= Revenue land+Forest Land	730.110

Note: - For the mining lease 810 Hectare, of land is proposed for acquisition for mining purpose only 730.11 Hectare of land which comprises of 368.84 He for Open Cast Mining (Villages Sabitripur, Bartikala, Injani, Bhagwanpur jirat and Bhagwanpur Khas) and 162.57 Hectare for Underground mining (Village Bhagwanpur Khas). In the 730.110 Hectare of land required for mining, acquisition of 402.630 Hectare of land is in process and for acquisition of 327.480 Hectare Forest Land under Forest Conservation Act1980 is also in progress.

For Rehabilitation purpose 33.04 hectare of land beyond the southern side of lease boundry has been separately earmarked. This land is within village Bhagwanpur Khas. The said land has also been included in the land aquisition proposal.

SI No	Type of Land	Area (In Hectere)	Remarks
	Government Land	20.92	For mining purpose inside the lease area
	Revenue private land	381.710	
(I)	Total	402.630	

SI No	Type of Land	Area(In Hectere)	Remarks
	Government Land	3.960	For Rehabilitation purpose outside the lease area
	Revenue private land	29.080	
(II)	Total	33.040	
	Grand Total (I) + (II)	435.670	

(iii) Loss of Structures

Under the land acquisition for Sondiha Mining project a total of 226 private and Government structures will be lost. Among the 226 private structures, 211 are residential, 8 are residence cum commercial structures. The remaining 7 are either Government structures or Temple etc The Table 2.5 presents structures to be lost and their usage. There are 162 kutcha structures which is 71.68% of total structures available. These have brick walls with no cement plastering, tiled roof and unpaved flooring without bricks. There are 55 semi pucca houses which have brick walls with mud plastering, tiled roof and unpaved flooring without bricks. Such houses are

24.34% of the total structures available. The rest are Pucca structures numbering 9 which have proper reinforcement for the roof including RCC roof and brick walls with cement plastering and paved flooring. Such structures are 3.98% of the total available structures.

Table 1.2.2
Discription Loss of Structures

Sl. No	Name of the Village									
		Usage of the structure					Type of Structure			
		Res	Com m	+ Com	Othe rs#	Tota l	Puc ca	- Puc	Kutcha	Tota l
1	Bartikala	18	0	1	2	21	2	3	16	21
2	Sabitripur	15	0	0	0	15	0	5	10	15
3	Injani	30	0	1	1	32	3	9	20	32
4	Bhagwanpur Jirat	53	0	2	1	56	1	15	40	56
5	Bhagwanpur Khas	95	0	4	3	102	3	23	76	102
	Total	211	0	8	7	226	9	55	162	226

Source:- These figures are probable and based on the survey and community discussion with villagers.

(iv) Displacement of Population

The number of probable sub families is as per the definition of sub families defined by State Government. During the survey each family has been considered an unit as per the existing structure of our society. The number of affected people due to the proposed project is depicted in the Table 1.2.3. As per the Preliminary survey conducted by CMD C in the year 2010 the total number of affected people by the project is 1710, number of affected families is 389 and taking into account 371 number of sub families, the total affected families comes to 760 and number of displaced families comes to only 436.

Table 1.2.3 (i)

**Number of total affected families taking into consideration Affected persons,
Khatedars, families and sub families**

Village		No. of Persons	Discription of Affected Khatedar families		
			No.of Families	No. of Sub Families	Total No. of Families
Displaced Khatedar	Bartikala	72	18	23	41
	Bhagwanpur Jirat	81	15	10	25
	Bhagwanpur Khas	139	30	62	92
	Injani	310	53	46	99
	Savitripur	411	100	79	179
Total		1013	216	220	436

Table 1.2.3 (ii)

Village		No. of Persons	Discription of other Affected families		
			No. of Families	No. of Sub Families	Total No. of Families
Others	Bartikala	131	29	45	72
	Bhagwanpur Jirat	-	-	-	-
	Bhagwanpur Khas	36	15	12	27
	Injani	116	31	6	37
	Savitripur	414	98	88	186
Total(Deprived of land only)		697	173	151	324
Total(Displaced and Deprived of land only)		1710	389	371	760

As per the policy, definition of family is, a son above the age of 18 years is a separate family.

Source: Socio economic survey and land survey

For the resettlement of Project displaced families, 33.04 Hectare of land is required.

The required land for resettlement colony has been identified in village Bhagwanpur Khas. This land is situated near the southern boundry on the border of lease land.

The said land has also been included in the land acquisition proposal. All the basic amenities will be provided in the resettlement site as per **The Chhattisgarh State Model R&R Policy, 2007**. Details of the land is depicted in the Table 123-A

Table 1.2.3-A**Specific description of land for resettlement.**

Type of Land	Area In hectares
Government Land	3.960
Private Land	29.090
Total Land	33.040

(V) Loss of livelihood.

There will be loss of livelihood of villagers due to loss of land. Some villagers have their permanent occupation. Maximum number of villagers are dependent on agriculture. Some are engaged in labour work or services like Black smith, other small vocations. Therefore due to loss of land there will be loss of livelihood of all villagers. Acquisition of Villager's agricultural land, who are dependent on farming, will render them devoid of their employment.

(vi) Loss of other Community Assets.

There will be loss of Community Assets like – trees, well, pond etc. in addition to private assets. Community Assets like Trees of Jamun, Baas, Tendu, Awala, Khamhar, Nimbu, Imli, Mahua, Munga, Saal, Aam, Kathal, Bair, and others existing in the mining lease area will be lost resulting in community loss. A table depicting Such trees which are community assets and are natural resource, affected due to the project is as follows.

Table No. 1.2.4**Loss of community assets Based on natural resources**

Type of community assets	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas	Total
Tree						
Anwla	-	5	-	6	9	20
Guavava	8	4	15	49	60	136
Anar	-	-	1	-	1	2
Baheda	-	-	-	-	1	1
Banana	5	0	0	2	20	27
Bargad	-	-	-	-	2	2

Type of community assets	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas	Total
Ber	5	2	1	20	65	93
Bel	-	2	3	1	2	8
Coconut	0	0	0	1	2	3
Sitaphal	0	0	0	4	4	8
Harra	-	1	-	-	1	2
Imali	-	6	1	4	6	17
Kathal	10	10	6	15	25	6+6
Jamun	-	7	2	4	6	19
Karounda	-	-	-	1	1	2
Koylar	-	-	-	6	&	6
Lemon	-	1	8	6	5	20
Mahua	10	15	55	350	420	850
Mango	10	18	22	60	134	244
Munga	-	-	1	2	15	18
Papaya	0	0	0	29	15	44
Sarai	-	-	-	4	16	20
Tendu	0	0	0	&	10	10
Bamboo	25	10	5	22	46	108
Ucalyptus	-	1	-	-	-	1
Karan	0	0	0	0	2	2
Khamhar	-	1	1	-	10	12
Neem	-	-	0	3	3	6
Sagoun	1	1	&	2	4	8
Shisham	-	-	-	4	-	4
Total	74	84	121	595	885	1759

Source: figures are probable and based on community discussion with villagers.

Assets (Drinking Water)

Type of Community Assets	Bartikala	Savitirpur	Injani	Bhagwanpur Jirat	Bhagwanour Khas	Total
Well	2	0	2	4	7	15
Hand pump	-	-	-	2	4	6

Source: figures are probable and based on community discussion with villagers.

Assets(Drinking Water)

Type of Private Assets	Bartikala	Savitirpur	Injani	Bhagwanpur Jirat	Bhagwanour Khas	Total
Well	20	5	12	25	13	75
Hand pump	-	-	2	-	-	2

Source: figures are probable and based on community discussion with villagers.

1.2 Discription of direct and indirect benefits from the Project.

(In compliance to Section 1.3 of Annex-2 of Chhattisgarh State Model R&R Policy, 2007)

(A) Direct and Indirect Benefits from the Project.

(i) Indirect Benefits From the Project.

- More than Rs 575 Crore investment by Joint Venture Companies for the Development of Coal Project.
- Use of eco friendly Mining techniques for the development and management of the Mine.
- Additional income in crores to the State Government on the royalty, Taxes and duties of coal.
- Increase of several economic activities ie. Transport, Hotel, Bank, Hospital, Education, construction of factories and trade, and development of allied industries etc. which will help in development of Sarguja District.
- Agriculture and Horticulture: There will be large scale plantation in the mines and dumping area.
- Creation of vocational avenues for the unemployed youth and entitled persons for their self employment after imparting them training during summer.

- General Development : Organising Activities based on Socio economic development for the rural families which includes Education, Health, Cleanliness.
- Improvement in Status of living due to increase of income and employment opportunities created due to setting up and operation of 32.743 million Tonne coal mine, which will create new economic opportunities and a new era of development in the whole area.
- The working plan has been prepared based on the exise and sales, prevailing rate of royalty and existing structure of rates feasible for the Tax resource of Government.

(ii) Direct Benefits from the project.

1385 persons will be directly employed to achieve the production targets and maintain the same on the target level. The endeavour will be to provide benefits to the rehabilitated project affected people with the help of employment and economically developed activities. This will be done by training and skill development, boosting up for their self employment and to develop their own trade.

(B) Financial investment in the project.
(In compliance to Section 1.5 of Annex-2 of Chhattisgarh State Model R&R Policy, 2007)

Apparent Project Cost and financial consideration.

The total investment in the project as prepared on the basis of various probabilities will be more than Rs.575 Crore. Finance will be made available by the joint venture of Chhattisgarh Mineral Development Corporation.

CHAPTER – 2

Effect On The Environment

**Potential Impact of the Project Implementation on local Environment ie. change of nature, forests, water,air and Plan for its mitigation.
(In compliance to Section 1.7 of Annex-2 of Chhattisgarh State Model R&R Policy, 2007)**

(A) General Perception.

=Mining projects are capable of changing the nature of environment. This effect depends on air, water, land, ecology, natural action, social customs, life style, change in economic status of common people in a better way or adversely.

However the resultant may be advantageous or disadvantageous.

The evaluation of impact is based on their importance of quality of activities and environmental base.

On the basis of analysis of impacts, environmental management plan emphasizes on the reduction of adverse effects or counter the effects, its mitigation measures and future necessity of control measures.

Detailed study of various probable impacts on the environment have been done in this chapter.

The parameter pertaining to the subject is as follows.

- (i) Air Pollution.
- (ii) Water Pollution.
- (iii) Ground Pollution.
- (iv) Production of solid waste.
- (v) Sound and vibration pollution.
- (vi) Biological Impact.
- (vii) Socio-economic condition

(i) Air Pollution

Any Surface mining including the open cast mining produce, full of dust. In the study area there can not be a considerable difference of level of specified standard for residential and rural area for different type of pollution viz.SPM, SO₂ and NO₂.

There is a chance of increase of pollution in the mining area but it will be at a controlled level due to application of various mitigation measures.

Open Cast Mining operations contribute towards SPM generation due to mining, transport, drilling, blasting, loading - unloading operations, atmospheric pressure in the area and other undermentioned allied operations.

- Diesel operated equipments
- Land erosion and cutting of trees.
- Explosion in coal strata and overburden.
- Management of mineral and waste material.
- Transportation of coal and waste management.
- From Coal Handling plant

Generally mining and loading operations in an open cast mine is carried out by excavators, which generate dust. Normally the transportation of coal and overburden is undertaken by dumpers. In this way generation of dust is obvious. If at the primary level itself dust suppression measures are not employed, management of materials by heavy equipments and in the coal handling plant, enormous dust will be generated which will obstruct vision, as well as may enter through respiration and mouth and will adversely affect the health.

By the oxidation of sulphur available in coal, sulphur dioxide is generated. Sulphur being inflammable, generally produces SO_2 but in pyritic condition it is less inflammable and does not oxidize. Other pollution in air is also generated due to oxidation. Oxidation generally occurs due to burning and fire in open storage of coal. A 33 KV sub Station will be established for expected demand of State Electricity Board through it. Due to use of Generator there, no air pollution will be there.

In the mining area material management through haul roads and dumping area leads to generation of dust. In addition to that fumes are also generated due to operation of heavy earth moving machinery and trucks.

(ii) Effect on the quality of water sources.

Surface water.

River Moran flows from North to South 4 to 5 KM away towards north of coal Block. In addition 2-3 small nalas also exist, which are initial waterways, hence mining to a certain limit will not adversely affect the water sources. Rain water collected in the mine will recharge the underground water table. This water can be taken out with

the help of sump for use in the mines. In heavy rains the collected water will be taken out to the surface, and after removal of waste, can be left in rivers again. There is no source of surface water nearby for use in industry and for home applications.

Underground water

By the use of underground water in a planned way, the level of underground water will be maintained for a long time and chances of shortage of water can be minimized. The average water level in this area is 6.55- 13.45 MBGL. The mining operations will go below the water level.

The requirement of water per day for different mining activities is approx. 725M³ and for Colony and offices the requirement is 375M³ per day. This is about 4.02 lakh M³ per year. The drinking water requirement will be completely met by underground water. The requirement of water for mining activities will be met from the sump of the mine. The sump water of the mine constitutes rain water as well as water from seepage.

Quality of water

The quality of surface water is affected due to undissolved solids and due to under mentioned reasons.

- Cleaning of dumpers.
- Soil erosion in the mine and Roads.
- Pumping of mine water to the surface Nalas

Surface Water can be polluted by undissolved solids which wash off from the overburden dump existing on the surface. During pumping out of Water from the mine, the undissolved solids also come out to the surface. Within the other sources of pollution, flow of oil and grease from workshops pollute the water, for which establishment of a water treatment plant has been proposed.

Pollution in the underground water is possible only when coal and overburden contain harmful chemicals. This situation does not arise here because coal and overburden do not contain harmful chemicals. The polluted water generated by various operations will be treated here by septic tank, soak pits so that underground water do not get polluted by any means.

For treatment of Polluted water generated from Mining and colonies, proper control measures have been proposed in the mining plan.

(iii) **Effect on Ground environment.**

Consequence on Nalas and topography.

River Moran flows from North to South, 4 to 5 KM away towards north of coal Block. This is outside the coal Block.

The maximum depth of the quarry is 250 meters from the surface in open cast mining. Later the backfilling of the quarry will be done by overburden. Some part of the quarry will be left unfilled, where rain water will be collected. In the backfill area the height of overburden will be 30 mtr from the surface. The water can be used for Pisci culture. This water will also recharge the underground water in this area.

Effect on Land status.

A vast land area in 8.10 SqKm will be affected by coal mining and OB dumping. This is a common phenomena in Open Cast Mining for which necessary measures are taken. Description of different land uses are as follows.

Land Uses During Fullfledged Mining Operations

S.NO.	PARTICULAR	AREA(ha)
	APPLIED ML BOUNDARY	810.00
1	OPEN CAST MINE PIT	368.84
2	(i) MINE PIT INCLINE-I	119.00
	(ii) UG MINE PIT INCLINE-II	43.57
	TOTAL UG MINE PIT	162.57
3	BARRIER 7.5 M ALONG ML BOUNDARY AND 15 M ALONG WATER BODY	9.15
4	OB DUMP	120.00
5	TOP SOIL DUMP	5.00
6	SETTLING POND	2.00
7	CHP	2.00
8	COAL STACK	1.50
9	DUMP ERE PARKING	2.00
10	COLONY	8.32
11	FACILITY	5.00
12	UP PIT HEAD PLATFORM	2.50
13	ROAD	4.00
14	Safety Zone etc.	117.12
TOTAL		810.00
	Relocation area	33.04

Note: 33.04 Hectare of land is required for rehabilitation of project displaced families, which is included in the above table. For resettlement purpose land has been earmarked outside the mining lease boundry in Village Bhagwanpur Khas. This has also been included in the land acquisition proposal.

Total extractible coal from the Open Cast Mining.	--	27.584 Million Tonnes
Total extractible coal from the Underground Mining.	--	05.159 Million Tonnes

Total	--	32.743 Million Tonnes
Total overburden	--	380.394 Million M ³

(iv) Generation of solid waste.

There are under mentioned 4 types of solid waste generated during the mining operations.

1. Overburden (surface soil and stone)
 2. Oily Mud/Mud from water treatment.
 3. Mud deposited in sump/tank inside the mine.
 4. House hold waste.
1. Overburden (surface soil and stone)

Geological structure found during bore hole drilling are state as follows.

Soil/ Alluvium

Larg Part of Sondiha Coal Block is covered with soil of thickness 0-0.6 mtr.

Weatherd Zone

Just below the Soil/ Alluvium, there is Weatherd Zone which has a depth of 0 – 12 mtr.

Baraker

There is Baraker structure above the Talchir structure inside the earth crust. In the Baraker structure there are coal seams along with medium to coarse grained sand stone with gray shale, and carbonaceous Shale. In this coal Block all coal seams are located in Barakar structure.

In the mine, all the waste will be generated during mining operations in the form of Overburden and Interburden. The quantity of waste for open cast dump will be as follows.

Total Overburden	--	380.394 Mcum
Internal Dumping	--	327.22 Mcum
External Dumping	--	53.174 Mcum

Mud contaminated from oil and grease.

Washing of all vehicles and equipments twice in a week will be carried out systematically, this will be 10 equipments per day.

Mud deposited in water sump.

In the mining area washing of soil of the earth during rains generate mud, which is collected along with other solid materials. Systematic removal of the mud collected in the sump will be necessary to control it.

House hold waste.

4 types of House hold waste have been identified.

- a) Organic materials, ie.leaves, grass and pieces of small plants.
- b) Dust/ Sand/ Soil
- c) Organic waste of canteen.
- d) Organic waste of sewage treatment.

Discription of quantity of solid waste generated from the project is as follows in Table 2.1.3

Table 2.1.3
Expected solid waste generation from Mine and Colony

Solid Waste	Composition	Quantity per/ year
Over burden	Soil, alluvium, sandstone, shales, etc.	11.52 (average of 33 years)MCM
Sludge from oil/water separator	Oil, grease	0.056 Tonnes
Sludge created in settling pond	Soil particles	3.00 Tonnes
Domestic Solid waste	Biodegradable waste from Sweepings, kitchen, canteen; dust from sweeping	Mine – 0.11 Tonnes* Colony- 31-00 Tonnes #

(v) Sound, Transport and vibration .

Sound: In the main area there will be above normal sound from Operation of Heavy Earth Moving Machinery, Drilling and heavy Blasting and operation of crushing activities. Taking into account the occupational hazard, a 90 db sound is permissible for a person in an open atmosphere for 8 hours. Necessary maintainence work of maximum number of equipments will be done to contain their noise level. Prior Safety precautions from damage caused by equipments generating higher noise have been done in the management plan.

There will be no effect of noise on all 5 villages due to their natural position and far away situation.

Transport.

All 5 villages being situated at a distance of 8-10 KM, the effect of transport will be minimum. As per calculations a sound of 95db(A) lessens to 50db(B) at a distance of 75 Meters, hence there is no chance of an adverse effect on this account.

There will be 150 trips per day for transport of coal up to the stacking point from the mines to maintain a production of 1MTPA .There will be other transport activities Such as two wheelers and four wheelers.

Ground Vibration

Vibrations will be generated due to blasting operations but there is no chance of it being grave. Studies will be done to ascertain the problem of vibrations and suitable remedial measures will be taken.

Transport

Presently the traffic is less on the approach roads to the Mining area, but the traffic will gradually increase after start of project activities. There will be operations of Trucks and dumpers in the mining area, f overburden management. There will be no effect of overburden dumping in the residential area.

(vi) Effect on environment.

It is definite that open cast mining will affect the environment. The pollution will affect both air and water, as well as flora of the area. Due to different activities of mining there will be following effects.

- The operations will effect the fauna of the area due to sound, vibrations and light.
- The mining activities will spoil the flora of the forest resulting effect on animals.

The above mentioned effect will have following outcome.

- Forest animals will go to another area due to sound and vibrations.
- Due to loss of forests, which is life sustaining for Forest animals, the neighbouring eco system can be affected.

In case of necessary action not being taken, the cutting of forests will have adverse effect on the mining area and its surroundings.

(vii) Socio – economic effect.

There will be adverse Socio – economic effects due to displacement of villagers of all 5 villages, hence rehabilitation and resettlement plan has been prepared. The economic condition of Farmers which is based on their supporting allied activities will have an adverse effect due to loss of agricultural land for mining.

Though with the beginning of mining operations there will be additional employment opportunities, which will help improve their economic condition. For affected as well as displaced persons, there will be surety of sensitive rehabilitation and resettlement plan which will provide extra opportunities of education and self employment. Establishment of mining will lead to beginning of industrialization in the area.

Health Center, communication facilities will have a positive effect on the socio economic structure of the area.

Socio Economic Condition Of Project Affected People.

In the coal Block, there is land of 5 Villages viz. Bartikala, Sabitripur, Injani, Bhagwanpur Jirat and Bhagwanpur Khas situated inside the Block. Part of the same comes under the mining rights area where open cast mining as well as underground mining is proposed. A total of 760 families reside in these villages, their population is 1710 whose rehabilitation will be necessary. Village wise description is as follows.

Table 2.1.4
Discription of population of affected villages.

S.N.	Village Name	%age of Affected Area	No. of families (including Sub families)	No. of Person
1	Bartikala	5.64	115	203
2	Savitripur	5.94	25	81
3	Injani	7.20	119	175
4	Bhagwanpur Jirat	49.94	136	426
5	Bhagwanpur Khas	47.98	365	825
6	Total		760	1710

CHAPTER -3

Socio – Economic Condition of the Project Affected People. (In compliance to Section 1.5, 1.6 of Annex-2 of Chhattisgarh State Model R&R Policy, 2007)

Project affected person's basic profile has been presented in this chapter with respect to their socio-economic condition. Within the present Socio economic structure proper estimation of their strength and weaknesses, has been considered the back bone of preparation of rehabilitation and resettlement plan. In this chapter the Socio economic condition of affected people have been discussed which is relevant to their education, health, livelihood and economic conditions.

3.1 Socio economic survey methodology.

Cent percent survey of socio-economic condition of project affected 5 Villages viz. Bartikala, Sabitripur, Injani, Bhagwanpur Jirat and Bhagwanpur Khas have been conducted. Cent percent survey of land use in the above 5 Villages have been done. The project proponent M/s Chhattisgarh Mineral Development Corporation has collected the statistics in a questionnaire from all Project Affected People concerning them. ie. 1. Family survey, 2.Habitat survey, 3.Agricultural land survey. In addition to the above, within the project, survey was conducted for the opinion of Project Affected People concerning rehabilitation compensation, and employment. Survey results as well as previous figures were matched. In the same way proposed displaced and land less persons land records were also examined and description of Socio economic survey is being presented here. This survey was conducted in the August – September 2010, in addition to that, present status of project affected villages and to take cognizance of the same, a vast community discussion was conducted so that their needs and priorities may be evaluated.

3.1.1 Assessment of Social status

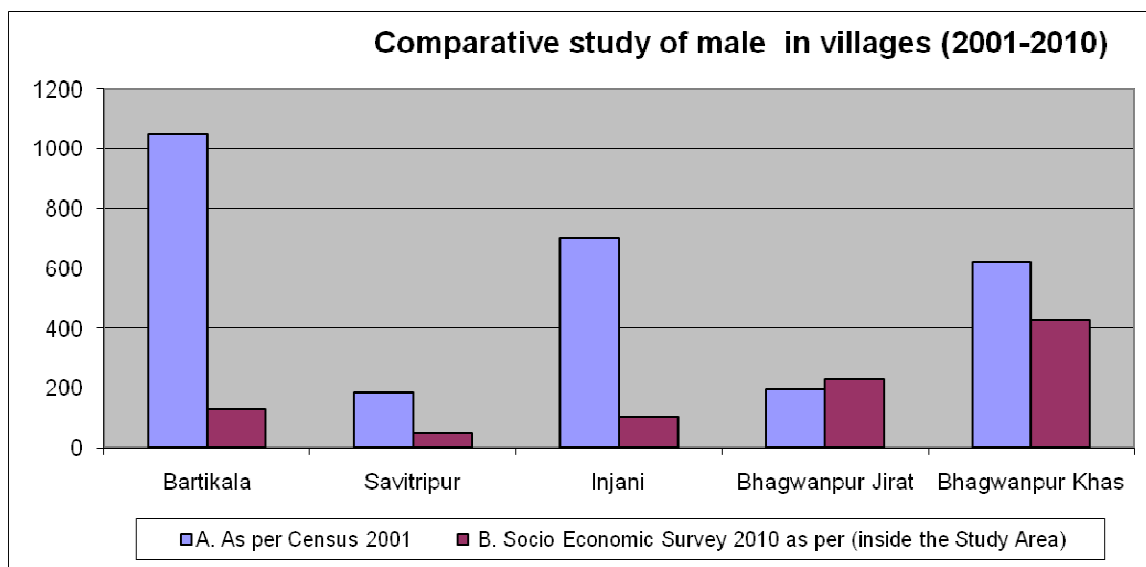
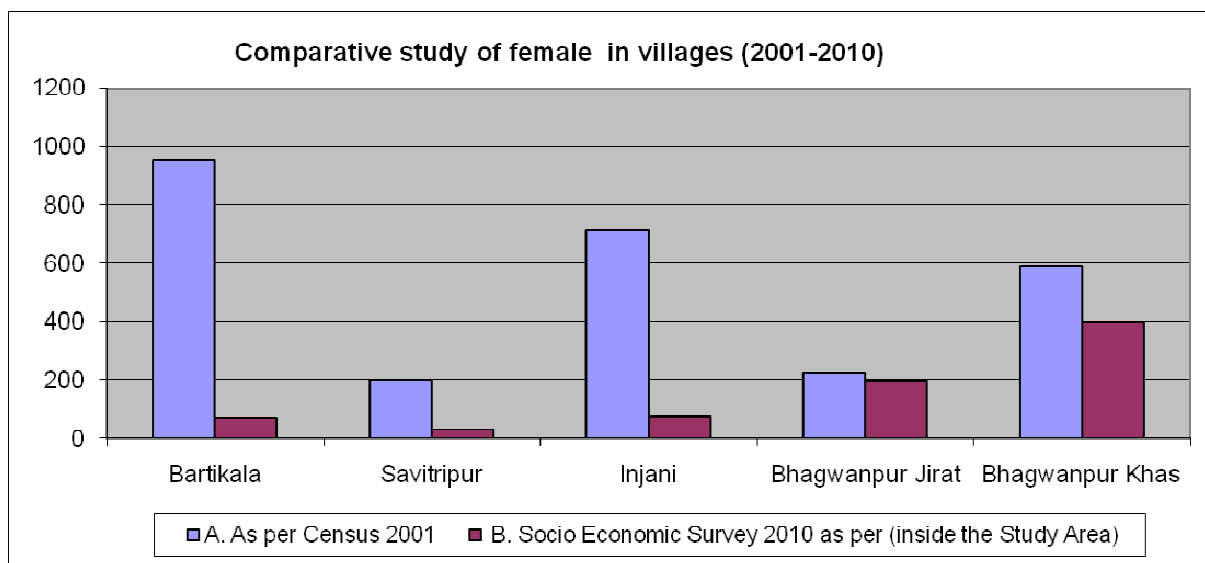
The density of population in the study area is 113 persons per Sq KM. Population of male is 50.57%. There are 977 female in 1000 male population. 6.85% is the population of 0-5 years of age. Other cast is 31.01% where as scheduled tribes are 68.99% which constitute a larger population. Litrecy rate is 50.36%.

Litrecy rate in female is 40.11%, which is lesser in comparison to male. The description of population of Project affected villages is in table 3.1.1.

Table No. 3.1.1(A)
Population structure of Project affected Villages.

Village	Female	Male	Total	No. of Female per 1000 Male
A. As per Census 2001				
Bartikala	954	1049	2003	803
Saviotripur	200	185	385	1043
Injani	715	702	1417	792
Bhagwanpur Jirat	227	193	420	1078
Bhagwanpur Khas	591	620	1211	952
Total	1733	2749	4482	977

Village	Female	Male	Total	No. of male per 1000 Female
B. As per Socio Economic Survey 2010 (inside the Study Area)				
Bartikala	73	130	203	538
Saviotripur	31	50	81	760
Injani	74	101	175	732
Bhagwanpur Jirat	198	228	426	888
Bhagwanpur Khas	399	426	825	937
Total	775	935	1710	834



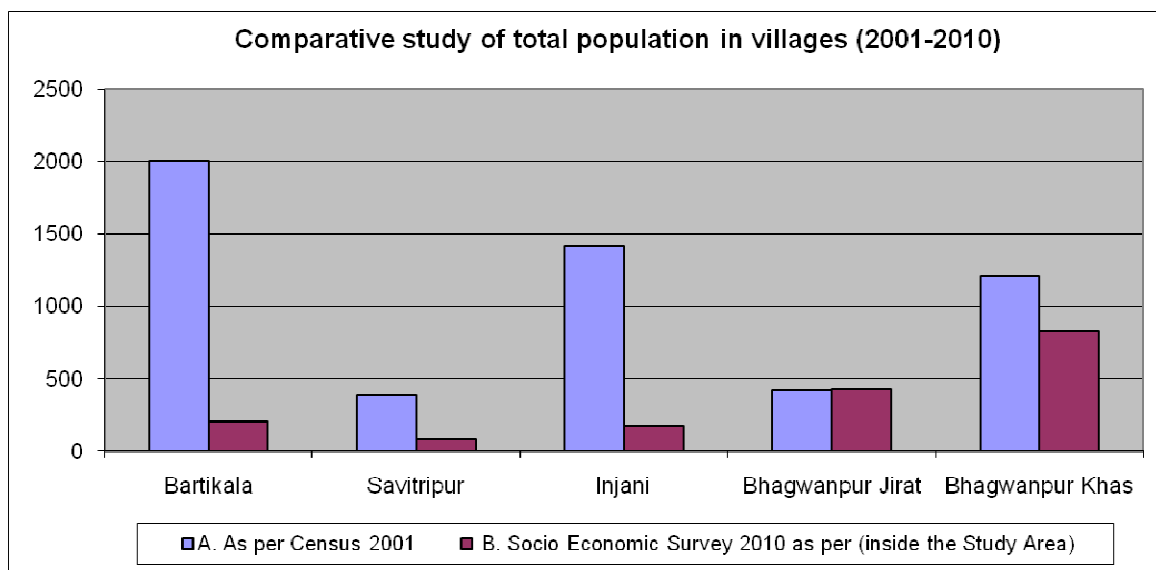
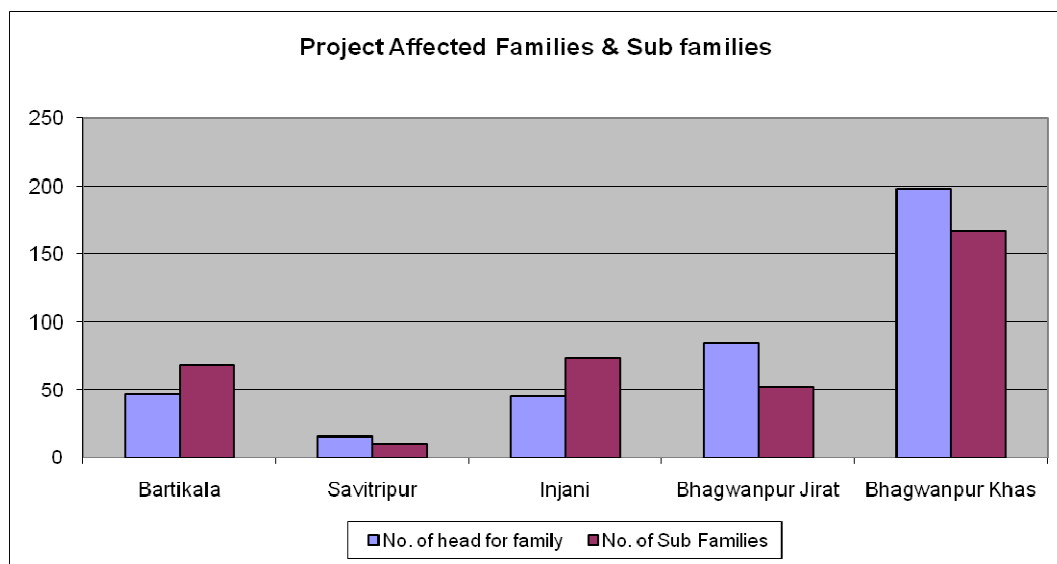
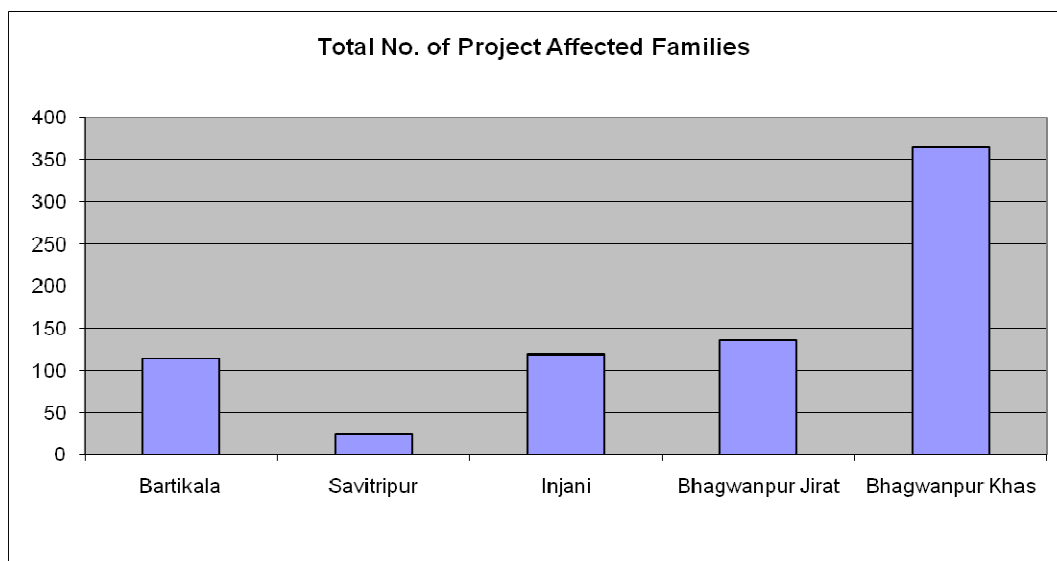


Table No. 3.1.1(B)
Project affected family

Village	No of head of the family			No of sub family	Total No of Project affected families
(1)	(2)			(3)	(2+3)
	Male	Female	Total		
Bartikala	45	2	47	68	115
Savitripur	14	1	15	10	25
Injani	41	4	45	74	119
Bhagwanpur Jirat	73	11	84	62	136
Bhagwanpur Khas	193	5	198	167	365
Total	366	23	389	371	760





3.1.2 Literacy and education status.

The Literacy rate of villages in the Project affected area is far below the State Literacy rate (65.18%) and National Literacy rate (65.38). In the rural area the literacy rate is shocking.

The revelations of socio economic survey has brought out the fact that 19.12% are educated up to primary level, 13.50% of people up to middle level, 7.01% people up to matric level, and 3.90% people have completed their studies up to higher secondary level. Only 2.28% of people have studied up to graduation or higher level. There is a technical/ Vocational training center in the Tehsil HQ. People are not aware with print media and daily News paper. There are about 40 – 50 persons in the village who are subscriber of News Papers.

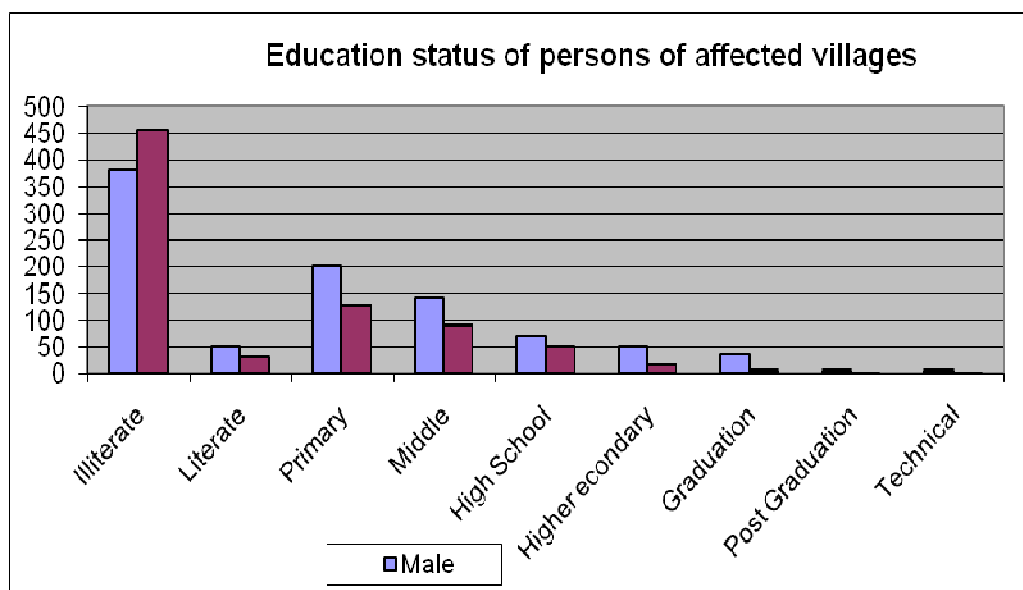
Table No 3.1.2
Educational condition of affected people in village area

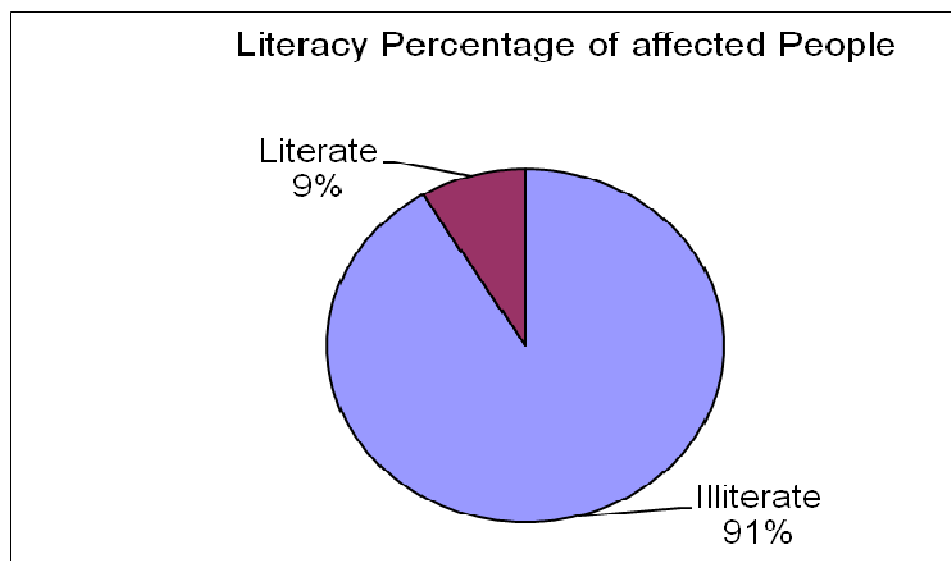
Educational Status	Male	Male%	Female	Female%	Total
Illiterate	380	40.64	455	58.71	835
Literate	49	5.24	30	3.87	79
Primary	201	21.50	126	16.26	327
Middle	142	15.19	89	11.48	231

Matric	70	7.46	50	6.45	120
Higher Secondary	50	5.35	17	2.19	67
Graduate	34	3.64	5	0.65	39
Post graduate	4	0.43	1	0.13	5
Technical	5	0.53	2	0.26	7
Total	935	100	775	100	1710

Source:Socio economic survey of all villagers October 2010

- 1.Primary Education Level Up to Class 5.
- 2.Middle Education Level Up to Class 8.
- 3.Matric Education Level Up to Class 10.





3.1.3 Evaluation of Livelihood (Social Structure)

The village wise description of vocational activities of project affected population is depicted in the survey table 3.1.3. 66.10% are engaged in agricultural work, 27.54% are agricultural labourer. Government servant and persons in private service percentage is 1.98% and 2.40% and the rest are in trade and self employment.

Table No 3.1.3
Vocational structure (Social Structure)

Occupation	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwan pur Khas	Total	Total %
Agriculturist	62	21	72	123	190	468	66.10
Self employed	0	2	3	2	7	14	1.98
Government Service	2	1	3	2	6	14	1.98
Private Service	1	0	3	6	7	17	2.40
Agricultural labourer	42	6	8	43	96	195	27.54
Total	107	30	89	176	306	708	

Source:Socio economic survey, 2010

3.1.4 Types of occupations.

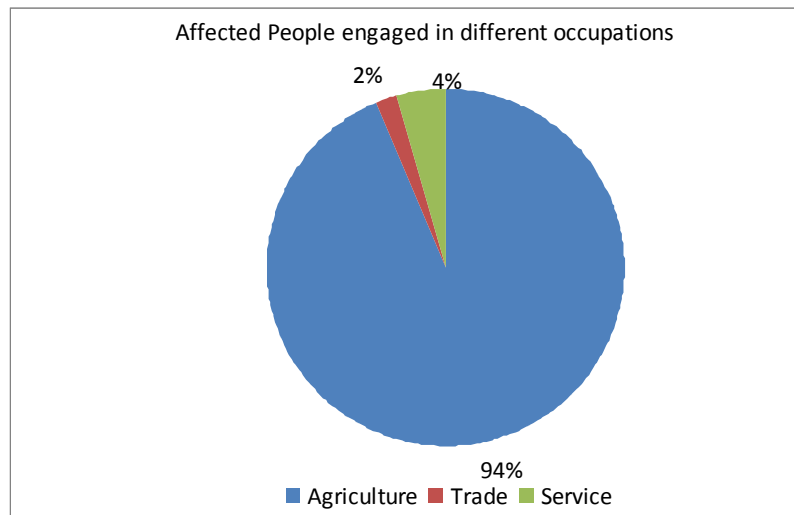
Besides agriculture there are other types of occupations also undertaken in these village areas. Discription of number of people occupied in different occupations is available in Table No 3.1.4 .

Table No 3.1.4

Affected People engaged in different occupations.

Occupation	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas	Total
Agriculture	104	27	80	166	286	663
Trade	0	2	3	2	7	14
Service	3	1	6	8	13	31
Total	107	30	89	176	306	708

Source:Socio economic survey, 2010



There is apperant dissimilarity in the livelihood structure between the information available form Socio economic survey, 2010 and personal discussion with people. As per table No 3.1.4, it is apperant that majority of people come in the category of Agriculture. Therefore maximum number of people are associated with Agriculture.

3.1.5 Custom of agriculture

The agriculture being the primary work in village area, a concise status of the Custom of agriculture is presented below. The agriculture work is carried out in both seasons. Plantation of Rabi and Kharif crops are done in rainy season or as per availability of water for irrigation. Table 3.1.5 presents the description of main crops grown in villages. Paddy being the main crop, grown in both seasons. Bhagwanpur Jirat village has tube wells therefore the crop production is higher in comparison to other villages, in some fields two crops are grown in a year. The community discussion reveals that majority of crop plantation is carried out in rain water and the production is controlled by rainfall.

Table 3.1.5
Agriculture Custom in Project affected villages.

Occupation	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas	% tage
Average wage per day (Rs)	90.00	90.00	90.00	90.00	90.00	90.00

Agriculture Custom

Kharif crop						
Occupation	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas	% tage
Paddy/acre	13 Quintal (Taja)	12 Quintal (Taja)	17 Quintal (Taja)	14 Quintal (Taja)	12 Quintal (Taja)	13 Quintal (Taja)
Maize/Acre	14 Quintal (Taja)	14 Quintal (Taja)	14 Quintal (Taja)	14 Quintal (Taja)	14 Quintal (Taja)	14 Quintal (Taja)
Sarso/Acre	6 Quintal (Taja)	6 Quintal (Taja)	8 Quintal (Taja)	6 Quintal (Taja)	6 Quintal (Taja)	6 Quintal (Taja)
Arhar Dal/Acre	8 Quintal (Taja)	8 Quintal (Taja)	8 Quintal (Taja)	8 Quintal (Taja)	8 Quintal (Taja)	8 Quintal (Taja)
Rabi Crop	-	-	-	-	-	-
Avg chemical Fertilizer/Acre	50KG	50KG	50KG	50KG	50KG	50KG
Avg Pesticide/Acre/year	500ML	500ML	500ML	500ML	500ML	500ML
Avg Bio Fertilizer/Acre/year	200 Quintal	200 Quintal	200 Quintal	200 Quintal	200 Quintal	200 Quintal
Source of Irrigation	Rain	Rain	Rain	Rain	Rain	

Source: Community discussion with villagers October 2010

3.1.6 Other sources of income.

There are other small work in villages which are done for additional source of income, that may be seasonal or carried out round the year. Following work may be accounted in these.

1. Collection of leaves for making Pattal.
2. Sale of poultry, mutton, fish.
3. Sale of Saal seed (Rs.3-4/KG) in summer and (Rs.10-12/KG) in sold weekly markets.
4. Making of Tokri
5. Making of rope.

Animal Husbandary

Collection of information on the basis of Community discussion with villagers, village wise data available has been depicted in Table 3.1.6.

Table 3.1.6
Animal Husbandary in Project affected villages.

Discription	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas	% tage
(A) Animal Husbandary						
Cow	50	3	52	121	220	90
Buffallow	106	23	76	146	290	128
Male Buffallow	10	8	16	23	60	25
Hen	215	45	53	350	425	218
Sheep and Goat	134	38	147	361	450	226
Pig	12	13	0	24	40	22
(B)						
Avg milk production/Co w/day (in lit)	0.20 lit/day	0.20 lit/day	0.20 lit/day	0.20 lit/day	0.20 lit/day	0.20 lit/day

Avg milk production/ Buffallow /day (in lit)	0.40 lit/day	0.40 lit/day	0.40 lit/day	0.40 lit/day	0.40 lit/day	0.40 lit/day
Rate of Cow milk	Rs25/lit	Rs25/lit	Rs25/lit	Rs25/lit	Rs25/lit	Rs25/lit
Rate of Buffallow milk	Rs30/lit	Rs30/lit	Rs30/lit	Rs30/lit	Rs30/lit	Rs30/lit
Avg Mutton Production	1 to 2 Hen/Goat/day	1 to 2 Hen/Goat/day	1 to 2 Hen/Goat/day	1 to 2 Hen/Goat/day	1 to 2 Hen/Goat/day	1 to 2 Hen/Goat/day
Avg Mutton Rate(Hen)	Rs70/KG	Rs70/KG	Rs70/KG	Rs70/KG	Rs70/KG	Rs70/KG
Avg Mutton Rate (Sheep and Goat)	Rs150/KG	Rs150/KG	Rs150/KG	Rs150/KG	Rs150/KG	Rs150/KG

Source: Community discussion with villagers October 2010

3.1.7 Income

During Socio economic survey, this has been observed that majority of the families are dependent on the income of a single person. In some homes two persons are contributing in the income. In spite of Main and supporting occupations, the average earning of villagers is far below which is depicted in table 3.1.7

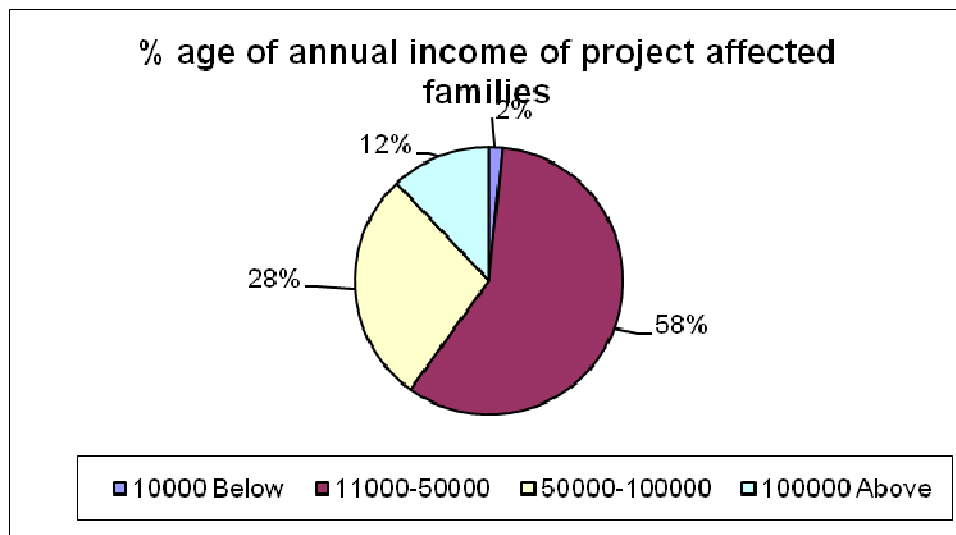
Table No. 3.1.7

The level of annual income of project affected families.

level of income (in Rs)	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas	Total	% tage
Less than 10000	0	0	0	1	4	5	1.63%
11000 – 50000	29	11	23	39	77	179	58.31%
50000 – 100000	12	7	4	31	32	86	28.01%
More than 100000	1	1	8	12	15	37	12.05%
Total	42	19	35	83	128	307	

Source: Socio economic survey from August to November 2010 by LNC Raipur.

% age of annual income of project affected families



3.1.8 Properties

Private property is few in villages.(Table 3.1.8). In the village Bhagwanpur Khas about 47 families have televisions. 44 families in village Bhagwanpur Khas have telephone facility available with them. Bicycle is the main source of transport. Bullock cart is the resource for transport of materials as well as movement. Some people from all five villages have two wheelers. In village Injani, Bhagwanpur Jirat and Bhagwanpur Khas there are 1-1 cars and 1-1 Tractors available. Bus facility for conveyance to the people is available only after a walk of 1 to 8 KM.

Table 3.1.8 (A)

Status of Property in project affected families

Property	Bartikal a	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas	Total
Radio	3	2	5	6	9	25
Television	3	1	6	9	28	47
Telephone	12	8	17	27	44	108
Bicycle	18	9	29	39	85	180
Two wheelers	4	2	9	9	10	34

Car/Jeep	-	-	1	1	1	3
Tractors	-	-	1	1	1	3

Source: Community discussion with villagers October 2010

3.1.9 Status of cast in project affected families

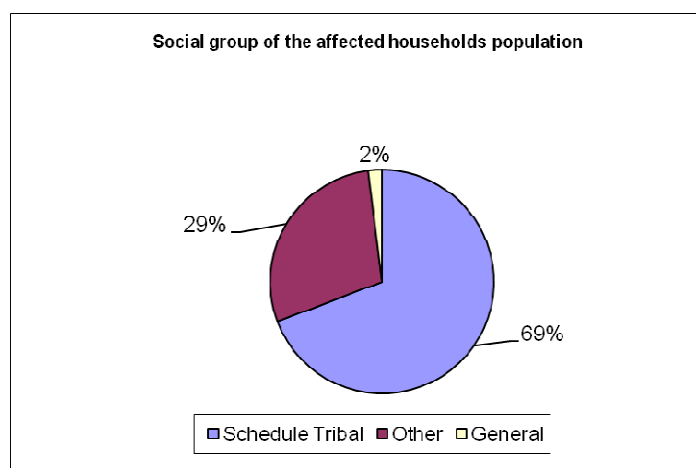
Cast Status in project affected families is depicted in table No3.1.9. Larger number is of scheduled tribes. In the affected families, maximum number of people are from Hindu Community and social distinction of this community reveals that maximum 68.99% are scheduled tribes, and from otherCast 28.97%, the number of scheduled cast is in the percentage of 1 – 2. Village wise description is depicted in the following table.

Table 3.1.9
The status of cast among project affected people.

Item	Discription	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas	Total	% tage
Social Groups	Scheduled Tribe	186	81	68	234	615	1184	69.23
	Others	15	0	102	180	195	492	28.77
	General	2	0	5	12	15	34	2.00 %
Total		203	81	175	426	825	1710	

Item	Discription	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas	Total	% tage
Religion Groups	Hindu	152	44	166	404	806	1572	91.92
	Muslim	-	-	-	-	9	9	0.34
	Cristian	51	37	9	22	10	129	7.74
Total		203	81	175	426	825	1710	

Source:Socio economic survey from August to November 2010 by LNC Raipur.



3.1.9 (A) Status of Poor and helpless

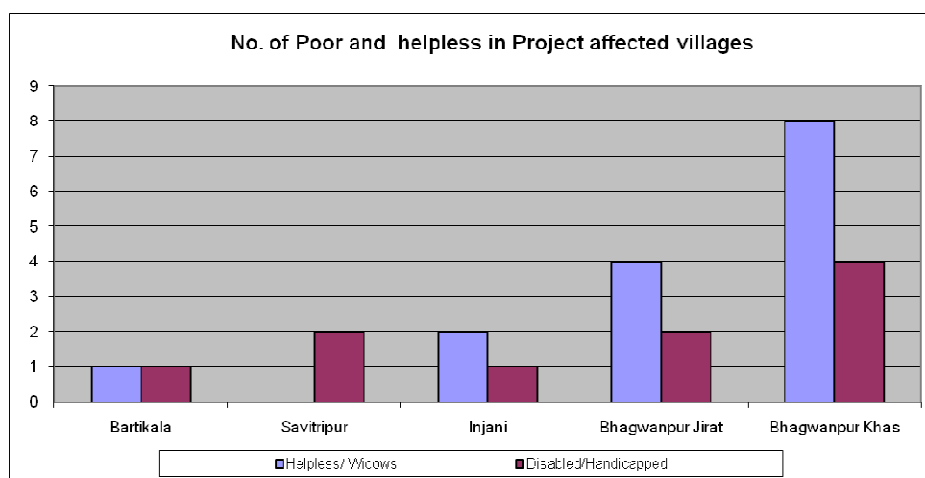
The number of Poor and helpless is depicted in Table No 3.1.9 (A). In Village Bhagwanpur Khas, helpless/ widows, Poor as well as handicapped are comparatively more in number. Where as their number is less in Bartikala and Savitripur.

Table 3.1.9 (A)

No. of Poor and helpless in Project affected villages

Discription	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas	Total
Helpless/ Widows	1	0	2	4	8	15
Disabled/ Handicapped	1	2	1	2	4	10

Source: Community discussion with villagers October 2010



3.1.10 Health issues

Among project affected 373 families in total, during survey it was found that 31% among 112 families are facing health problems like Jaundice, Eye, Respiratory, Catract, TB and stomach related diseases.

3.1.11 Approach of project affected people to available infrastructure.

To avail maximum number of facilities, villagers from Bartikala ,Savitripur, Injani, Bhagwanpur Jirat and Bhagwanpur Khas have to travel. Use of electricity is restricted to home use only. Health facilities are insufficient in these villages because all villages do not have hospitals. There is no animal husbandary department here. Even there is no facility for higher studies available here.

Table No. 3.1.11

Approach of project affected people to infrastructure.

Facilities	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas
Communication					
Telephone	1	2	2	2	2
Post Office	1	0	0	0	0
Telegraph Office	0	0	0	0	0
Bus Service	1	0	0	1	1
Metalled Road	Yes	No	No	Yes	Yes
Railway Service	0	0	0	0	0
Banking Facility					

Facilities	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas
Commercial/ Cooperative Bank	1	0	0	0	0
Cooperative Society	0	0	0	0	0
Agricultural Credit society	1	0	0	0	0

Source: Community discussion with villagers October 2010

3.1.12 Water Supply

None of the village has the facility of water supply by water tap. Well, Bore well and pond are the major water sources. Bojha and Songarha villages have few ponds. well is the Key source of water.

3.1.12

Water Availability

Facility of drinking water	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas
Well	150	25	200	31	51
Tank	2	2	6	6	9
Tube well	13	5	3	5	4
Hand Pump	15	8	15	8	18

Source: Community discussion with villagers October 2010

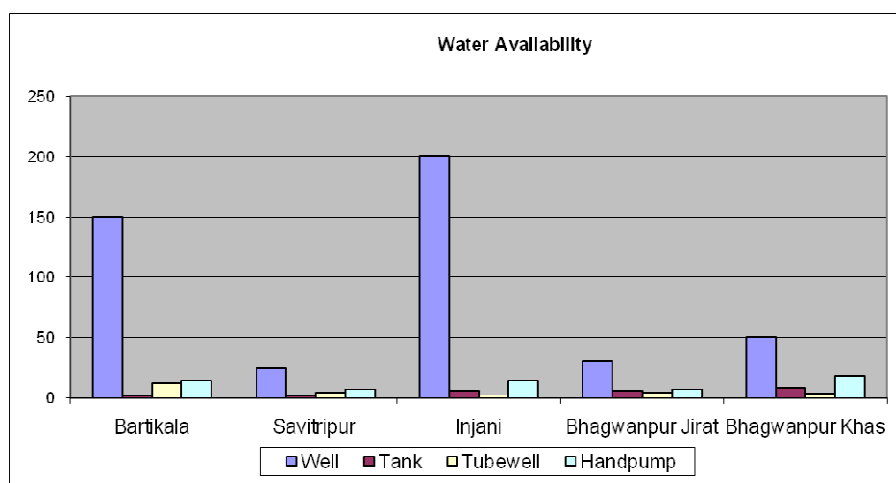
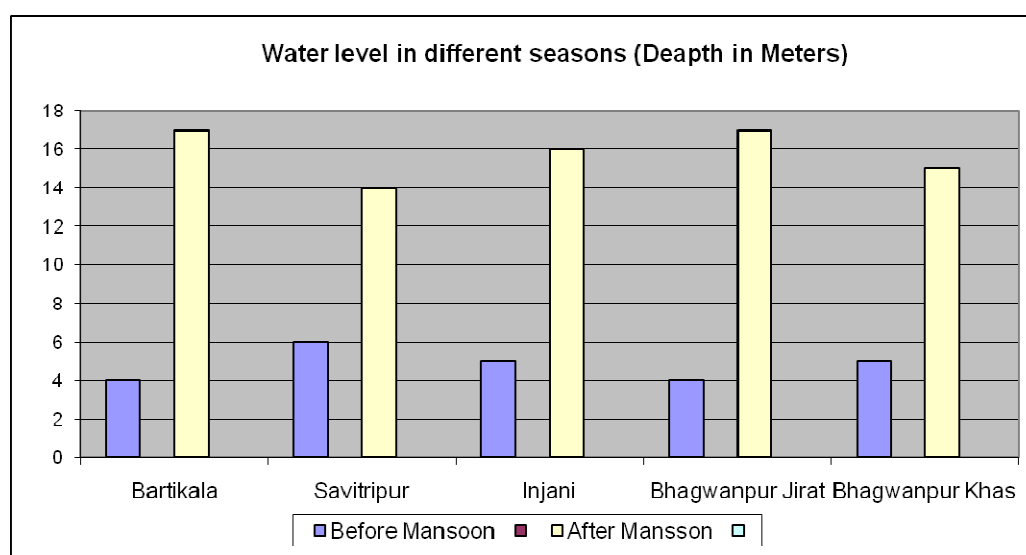


Table 3.1.12
Water level in different seasons (Depth in Meters)

Season	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas
After Monsoon	4	6	5	4	5
Before Monsoon	17	14	16	17	15

Source: Field Data Field measurements and interview with owners of observed wells. October 2010



3.1.13 Cleanliness.

There is no toilet in Project affected villages and it is common to go in the open. There are some public run toilets in the villages. In general toilets are available in Government buildings.

3.1.14 Health Infrastructure.

As per census 2001 none of the Project affected village has the basic amenities of primary health center, for any health facility one has to travel to a distance of 10 KM to wadrafnagar. There exist Primary Health Center in Village Bartikala and Bhagwanpur Khas, where community Health worker are available.

Table 3.1.13
Health facilities in Project affected villages

Health facilities	Bar tika la	Savit ripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas
Available Allopathic Hospital (10to 15KM away)	3	3	3	3	3
Available Primary Health Center (10to 15KM away)	3	3	3	3	3
Available Primary Additional Health Center	1	0	0	0	1

3.1.15 Educational Infrastructure.

There exist Primary School and Middle school in all the five villages for their exclusive needs. Bartikala and Injani villages have Secondary and in Bartikala there is a higher secondary school. Children who has to study up to 12th.Class from Other villages Savitripur, Injani, Bhagwanpur Jirat, Bhagwanpur Khas, have to go to Higher secondary school situated in Bartikala. The nearest college from these villages is situated in Tahsil Wadrafnagar which is 15 – 20 KM away.

Table 3.1.14
Educational Institutions near Villages

Discription	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpu r Khas
Primary School	Within village boundary	Within village boundary	Within village boundary	Within village boundary	Within village boundary
Pre Secondary School	Within village boundary	Within village boundary	Within village boundary	Within village boundary	Within village boundary
Secondary School	Within village boundary	5 KM Away	Within village boundary	5 KM Away	5 KM Away
Higher Secondary School	Within village boundary	5 KM Away	5 KM Away	5 KM Away	5 KM Away
College/ University	Wadrafnag ar 10 – 15 KM	Wadrafnaga r 10 – 15 KM	Wadrafnaga r 10 – 15 KM	Wadrafnagar 10 – 15 KM	Wadrafnag ar 10 – 15 KM
Industril Training/ Politechnic	Wadrafnag ar 10 – 15 KM	Wadrafnaga r 10 – 15 KM	Wadrafnaga r 10 – 15 KM	Wadrafnagar 10 – 15 KM	Wadrafnag ar 10 – 15 KM
Adult Education center	-	-	-	-	-

Source: Community discussion with villagers October 2010

3.1.16 Social Institutions/Community Infrastructure

The available Social Institutions/Community Infrastructure in each village is depicted Table No 3.1.15.

Table 3.1.15
Community Facilities.

Name	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas
1.Social Institutions					
Youth Club	1	-	-	-	-
Mahila Mandal	-	-	-	-	0
Anganbadi	1	1	1	1	1
Bhajan/Kirtan Mandali	0	0	0	0	1
Entertainment Club	-	-	-	-	-
2.Religious Place					
Place of worship	1	1	1	1	2
3.Community Center					
Community Center/Meeting Place	1	-	-	-	1
Passenger Waiting Hall	0	0	0	0	0
Hospital	1	0	0	0	1
Retairing Room	1	1	1	1	1

3.1.17 Fairs and Festivals

Table No 3.1.17 depicts the list of Fairs and Festivals. All the villages join in on these occasions.

Table 3.1.15
Fairs and Festivals

Discription	Purpose of the community	Month/Season	Duration	Expected No. of group
Nawakhai	New crop of Paddy	July/ August	One Day	Entire village and peripheral villages
Poorva Purnima	Kans Badh (Mama of Bhagwan Krishna)	November/December	One Day	Kirtan Mandali and their expectators.
Holi	Holika Dahan	February/March	One Day	Entire Village
Dipawali	Worship of Devi Lakshmi	October/November	One Day	Entire Village
Independence Day	Devotional National Anthem	15 th .of August and 26 th .January	One Day	Entire Village
Dashahra	Ravan badh	October	One Day	Entire Village
Vishwakarma Puja	Worship of tools and tackles	17 th .September	One Day	Entire Village

Source: Community discussion with villagers October 2010

3.1.18 Main Objectives- Project affected People

Following are included in the Main Objective of Project affected People.

First - Educational level being low, specific skill development has not taken place. There will be adverse effect on the economic status due to loss of occupation of project affected people for the time being. Therefore it is imperative to impart them training for skill development so that they become capable of holding an occupation in the mine alternatively a self employment opportunity is arranged.

Second - Majority of people of the village are poor due to being dependent on the agriculture. The work related to agriculture depend on rain and agriculture production also on weather. This is the only reason for their unstable earning. None other type of job is available. Supplimentary occupation ie.collection of leaf in the forest, collection of saal seed is the only alternative. Therefore people are more reliant on community resources. Status of female is underprivileged.

Third - 219 Families will be resettled else where from their present settlement leading to adverse effects on female due to being in a new location. This resettlement will deprive their community resources, which has been a particular source of income. That is why, considering these points necessary resolution is required to be done.

Forth - The reach to the available existing infrastructure (Personal and community) is quite poor. All Houses(barring a few) are of Clay and very few or no provision of cleanliness exist in them. Likewise the source of water is also unsafe, therefore the rehabilitation plan is an important component in provision of infrastructure.

3.2 Socio economic survey of project affected villages.

(Additional information about Amended Chhattisgarh State Model R&R Policy, 2007)

3.2.1 The description of affected population is depicted in Table No 3.2.1

Table No3.2.1

Social group Structure of Affected people

Social Groups	Bartikala	Savitripur	Injani	Bhagwanpur Jirat	Bhagwanpur Khas	Total
Scheduled Tribe	186	81	68	234	615	1184
Others	15	0	102	180	195	492
General	2	0	5	12	15	34
	203	81	175	426	825	1710

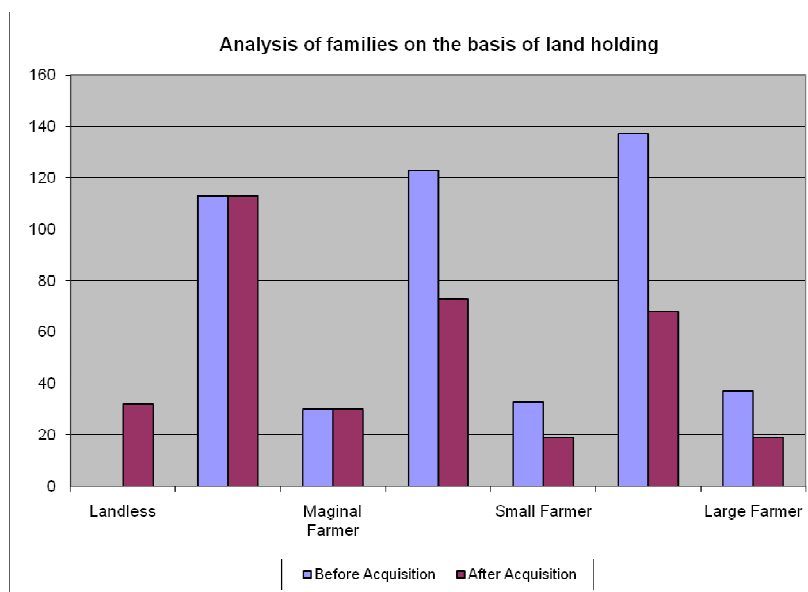
Source: Community discussion with villagers October 2010

Discription of Land Holding of concerned families of project affected people is depicted in Table No 3.2.2

Table No 3.2.2

Analysis of families on the basis of land holding											
Village	Status										
			Landless		Maginal Farmer		Small Farmer		Large Farmer	Total	
				(<1ha)		(1 to 2 ha)		>2ha			
		No s	%	Nos	%	No s	%	No s	%	No.s	%
Bartikala	Before Acquisition	0	0	12	27	16	35	17	38	45	12
Saviotripur	After Acquisition	7	16	18	40	8	17	12	27	45	12
Injani	Before Acquisition	0	0	3	30	3	30	4	40	10	2

Analysis of families on the basis of land holding											
Village	Status										
			Landless		Maginal Farmer		Small Farmer		Large Farmer	Total	
Bhagwanpur Jirat	After Acquisition	6	60	2	20	2	20	0	0	10	2
Bhagwanpur Khas	Before Acquisition	0	0	10	23	15	34	19	43	44	12
Bartikala	After Acquisition	17	38	7	16	6	13	14	33	44	12
Saviotripur	Before Acquisition	0	0	28	34	26	32	27	34	81	22
Injani	After Acquisition	25	30	35	43	10	12	11	13	81	22
Bhagwanpur Jirat	Before Acquisition	0	0	60	31	63	33	70	36	193	52
Bhagwanpur Khas	After Acquisition	64	33	51	26	47	24	31	17	193	52
Total	Before Acquisition	0	0	113	30	123	33	137	37	373	100
	After Acquisition	119	32	113	30	73	19	68	19	373	100

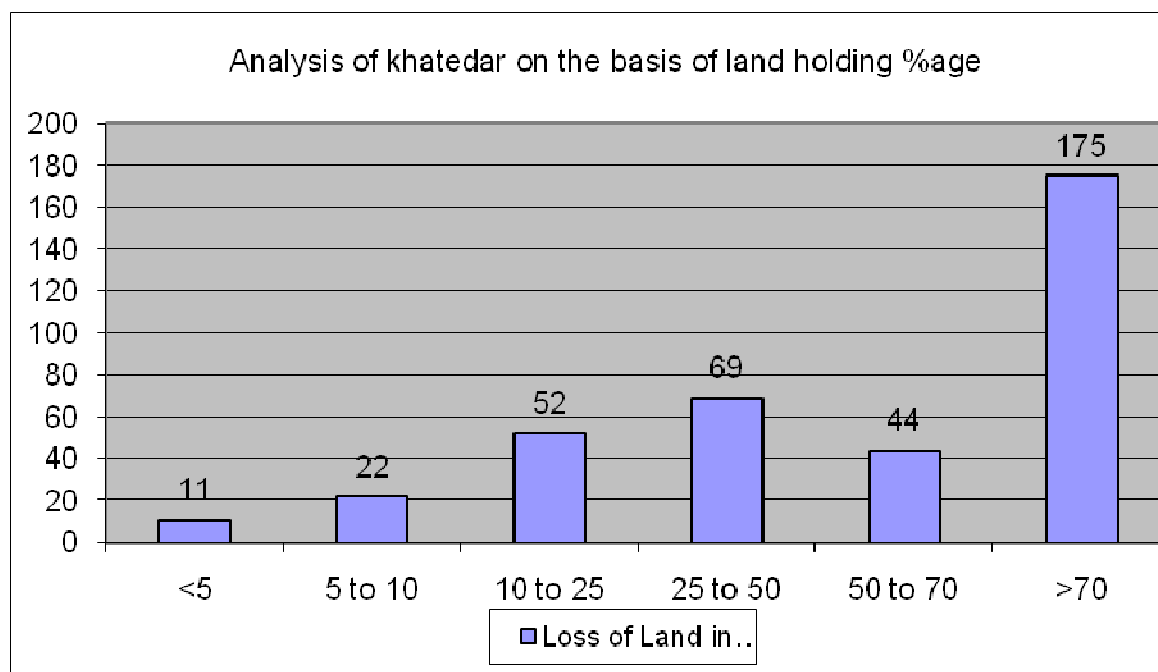


The description of Percentage loss of land of project affected people is depicted in table No 3.2.3.

Table No 3.2.3

Analysis of khatedar on the basis of land holding %age

S.N.	Loss of Land in %age											Total	
		Bartikala		Savitripur		Injani		Bhagwanpur Jirat		Bhagwanpur Khas			
		Nos	%	Nos	%	Nos	%	Nos	%	Nos	%	Nos	%
1	<5	5	11.63	0	0.00	1	2.33	0	0.00	4	2.23	10	2.83
2	5 to 10	5	11.63	0	0.00	3	6.98	5	6.41	7	3.91	20	5.67
3	10 to 25	8	18.60	2	20.00	5	11.63	6	7.69	28	15.64	49	13.88
4	25 to 50	7	16.28	1	10.00	8	18.60	16	20.51	34	18.99	66	18.70
5	50 to 70	2	4.65	0	0.00	5	11.63	11	14.10	22	12.29	40	11.33
6	>70	16	37.21	7	70.00	21	48.84	40	51.28	84	46.93	168	47.59
	Total	43	100.00	10	100.00	43	100.00	78	100.00	179	100.00	353	100.00



3.2.4 Discription of displaced people whose houses will be affected.

(A) Discription of khatedars whose house is to be acquired for the project is depicted in table No 3.2.4

Table No 3.2.4

Displaced whose house is affected due to the project.

Group/Subgroup	Bartikala	Savitripur	Injani	Bhagwanpu r Jirat	Bhagwanpu r Khas	Total
House constructed on private land	-	-	-	-	-	-
House constructed on encroached land	-	-	-	-	-	-
total	19	15	31	55	99	219

3.3 The description of land of project affected people whose land is being acquired for the project is attached as Annexure "A".

(In compliance to Annexure 2 of section 1.4 of Amended Chhattisgarh State Model R&R Policy, 2007)

3.4 A list of families whose houses are affected , their family, age, educational qualification is attached as Annexure "B"

(In compliance to section 2.2 of Amended Chhattisgarh State Model R&R Policy, 2007)

3.5 The Amended Chhattisgarh State Model R&R Policy, 2007 is attached as Annexure "C".

3.6 Land for the resettlement of families displaced due to Sondiha Project has been acquired just outside the project lease area.

(In compliance to Annexure 2 of section 2.3 of Amended Chhattisgarh State Model R&R Policy, 2007)

CHAPTER 4

The rehabilitation of project Displaced/affected people.

4.1 Rehabilitation of displaced people.

(In compliance to Annexure 2 of section 1.8 of Amended Chhattisgarh State Model R&R Policy, 2007)

(A) Employment.

A member of displaced family, on account of displacement due to coal extraction and mining will be eligible for employment on the basis of suitability, requirement and necessity. The employment opportunities will be available on a regular interval with the progressive development of the mine.

Eligibility for Employment.

(In compliance to section 7.1 (C) of Amended Chhattisgarh State Model R&R Policy, 2007)

- (i) The displaced person should be a resident of the area for the last three years, and doing trade or business, or working for livelihood, alternatively doing farming on his land for last three years (as illustrated in section 2.1(Kha and Gha) in Amended Model Chhattisgarh State R&R Policy, 2007) and whose land falls within villages Bartikala, Savitripur, Injani, Bhagwanpur Jirat and Bhagwanpur Khas prior to issue of notification under section 4(1) of land acquisition act 1984 for acquisition of land required for the development of Sondiha Coal Block, in tehsil Wadrafnagar, District Sarguja (Chhattisgarh). In the case of land acquisition of such person, he will be eligible for employment after scrutiny of his age, health, character, educational qualification, training, specific work and experience. On the basis of available vacancy in the project, and as prioritized in further chapters, employment will be provided.
- (ii) The relaxation of age for employment.

(In compliance to section 7.1 (Sa) of Amended Chhattisgarh State Model R&R Policy, 2007)

- (A) Employment for fourth grade posts ie:- Gardener, Labourer etc, will be eligible for employment up to the age of superannuation.
- (B) Displaced due to land acquisition and eligible for employment, will be granted relaxation of 2 years in the employment for posts of grade 3.
- (iii) Priority for consideration in employment.

(In compliance to section 7.1 (Fa) of Amended Chhattisgarh State Model R&R Policy, 2007)

(A) Provision for employment to eligible displaced families will be done in the following order.

1. Land looser whose 100% of agricultural land as well as house has been acquired
2. Land looser whose 100% of agricultural land has been acquired
3. Land looser whose more than 75% of agricultural land is acquired
4. Land looser whose more than 50% of agricultural land is acquired
5. Land looser whose more than 25% of agricultural land is acquired
6. Other land losers family

(B) In the above descending order, and on the basis of available vacancy in the project, Priority in providing employment will be given to persons whose land has been acquired.

(C) Scheduled cast and scheduled tribe candidates will be given preference if percent of land acquisition is the same to other candidates.

(D) Such displaced who do not qualify for employment as per section 4.1(A) or are not considered eligible or do not wish for employment or in case of inavailability of employment opportunity in the company, they may select an option among the following alternatives for their occupation in place of employment.

Alternative -1: As per the provision within section 7.1 (Ja)(1) of Amended Chhattisgarh State Model R&R Policy, 2007, in addition to the

compensation provided to the displaced family, one member of the family will be provided with a permanent shop in the project area or adjacent to it or constructed shop in the Block Headquarters, or Nagar panchayat/ Nagar palika area (as per their wish) on land provided by Collector. The cost of construction will be borne by the joint venture of Chhattisgarh mineral development corporation Limited.

Alternative -2: In such Displaced family where only old or minor person is available, the land owner of the displaced family may nominate a minor son for future employment, whose age is minimum 15 years. In this situation the land owner will continue to receive benefits within alternative-3, until the nominated son do not get an employment under section 4.1(A)

Alternative -2: In case of non fulfillment of desire by above alternatives Under section 11.2.2 of Amended Chhattisgarh State Model R&R Policy, 2007, they will be provided with an amount equal to wages for 200 days in a year as provided in the employment guarantee scheme of the Government. The above payment will be done after 6 months from the possession of land to the owner till his attainment of the age of superannuation.

(Sa) With the progress of developmental activities of the mine and as per requirement of workers the provision of employment will start from April 2012 to March 2016 in different stages.

(Da) Under section 11.2.2 of Amended Chhattisgarh State Model R&R Policy, 2007, the employment opportunities to eligible residents of the State will be available for the regular vacancies of the project in following succession and as per availability of vacancy.

1. Project affected person.
2. Other residents of project affected area.
3. Any other resident of the State.

4.2 Resettlement Assistance measures for displaced families.

- A. As per the section 1.1.2 of the amended Chhattisgarh Model Rehabilitation Policy, 2007 an effort has been made to minimize the effect on residential houses, and considering the welfare of people displacement from only those houses are affected which are essential for the project. It will be ensured for such displaced families, that they are rehabilitated in a better way and necessary compensation is paid to them and they get superior facility.
- B. As per the section 1.1.1 of the amended Chhattisgarh Model Rehabilitation Policy, 2007, before the acquisition of houses of the concerned displaced existing in the land for the project, they will be rehabilitated prior to acquisition of their house.
- c. Displaced families will be allotted land for house construction as per following.

(In compliance to section 6.1 of the amended Chhattisgarh Model Rehabilitation Policy, 2007)

The size of plots to be allotted to displaced families.

Table 4.1

Catagory	Plot area
(Ka) Landless family	300 ² Meter
(Kha) Small and Medium Agricultural Family (Small Family- land owner with land below 0.5 hectare) (Medium Family- land owner with land from 0.5 hectare to 2 Hectares))	450 ² Meter
(Ga) Other Agricultural Family	600 ² Meter

(Da) Rehabilitation for illegal encroachers. (As per section 3.9 of the amended Chhattisgarh Model Rehabilitation Policy, 2007)

1. The encroachers of revenue Land as well as revenue forest land will also be rehabilitated until and unless they are in possession of the of the said land continuously for the last three years prior to notification of the project.
2. Those encroachers of revenue Land, revenue forest land or Government land will also be considered eligible for resettlement if
 - a) Doing agricultural work on the said land prior to the year 1990.

Or

- b) Residing on the said land for the last 3 years prior to the issuance of the notification for land acquisition under section 4(1) of land acquisition act.

The decision of Chhattisgarh Government will be final in this regard.

(Ya) For the allotment of land in a new area the formula of “ One Family One Plot” will be applied.

(Ra) In addition to plot allotment free of cost, the displaced families whose house is being acquired, will be provided with one time displacement assistance lump sum of Rs. 11000/. . (In compliance to section 8.1 of the amended Chhattisgarh Model Rehabilitation Policy, 2007)

(La) Additionally each family will be provided with an assistance of Rs.1000/ for transportation of their pet animals. (In compliance to section 8.2 of the amended Chhattisgarh Model Rehabilitation Policy, 2007)

(Va) The displaced families will be identified for the Government assisted self employment schemes (Dairy development, Poultry, pisci culture, small handicraft industries etc) and will be provided assistance to avail loan facility from financial institutions and will be benefitted. (In compliance to section 7.4 of the amended Chhattisgarh Model Rehabilitation Policy, 2007).

(Ha) It will be tried to engage the self help groups working in the area with the activities of setting up of the project. For this concerned departments will come forward to organize seminars/training programs for them. (In compliance to section 7.6 of the amended Chhattisgarh Model Rehabilitation Policy, 2007).

(Ga) Proposed resettlement Colony. (In compliance to Annexure 2 of section 2.3(Ka) of the amended Chhattisgarh Model Rehabilitation Policy, 2007).

1. For the resettlement Colony construction 33.04 Hectare of land is required. This land has been selected just outside the lease boundry on the southern border. This land is situated in village Bhagwanpur Khas. The said land has been included in the land acquisition Proposal. Selection of land is done on the basis of its suitability in all respects.
2. None of the house is affected in the proposed resettlement Colony.
3. All the displaced families can be rehabilitated, In the resettlement Colony.

(Ha) The main characteristics of the resettlement Colony. (In compliance to section 1.1 of the amended Chhattisgarh Model Rehabilitation Policy, 2007).

The proposed resettlement Colony for the displaced has been designed in such a way that the residents will avail far better amenities than they are presently enjoying. There will be provision of Water, Road, power, community hall, administrative building etc which are described as follows.

1. Road. The roads of resettlement Colony will be connected to main road. All the residential plots will be connected to permanent roads. There will be construction of internal road of resettlement Colony, which will be about 5Km in length. The width of internal roads will be 2.5 meter and the width of the main road will be 6 meter. Both the roads will be metalled roads.
2. Drinking water. Hand pump will be installed for a cluster of 20 houses each for drinking as well as household use. In addition to that construction of sufficient number of wells will be done which will cater to the need of drinking water in the event of hand pump being out of order.
3. Electrification. Each road of the resettlement Colony will have electric pole and each house/plot of land will be provided with electric connection. The expenditure on consumption of power of road will be borne by village panchayat where as expenditure on consumption of power in house will be borne by residents.

4. Community Development Building. The construction of Community Development Building, Primary School and development centre is proposed. The village panchyat or committees constituted by residential colonies will be entrusted to run the Community Development Building constructed in the colony area.

(Cha)It is proposed that the New Rehabilitation Colony be named as “Nawagaon”

(Both area will be in the reconstructed colony)

(Ja) Following committee will work as observer for Rehabilitation of the displaced families.

1. Member of State Rehabilitation Board –

1	Chief minister of Chhattishgarh	President
2	Leader of Opposition, Chhattishgarh vidhan Shabha	Member
3	Minister in charge Finance Department , Chhattishgarh Government	Member
4	Minister In Charge Rehabilitation Department, Chhattishgarh Government	Member
5	Minister in Charge, Revenue Department, Chhattishgarh Government	Member
6	Minister in Charge Law Department, Chhattishgarh Government	Member
7	Minister in Charge, Administrative Department of project Concerned Area, Chhattishgarh Government	Member
8	President, All District Panchyat Surguja	Member
9	Member of Parliament and Member of Legislative Assembly	Member
10	Chief Secretary, Chhattishgarh Government	Member
11	Secretary of Minerals and Resources Department , Chhattishgarh Government	Member
12	Representative of MD, CMDC Limited or Its Joint Venture	Special invited member
13	Commissioner, State Rehabilitation Department	Member secretary

2 District Level Rehabilitation Committee

1.	Minister in charge, Surguja District	Member
2.	President of district panchyat , Surguja	Member
3.	Member of Parliament or Member of Legislative Assembly Nominated by Govt.	Member
4.	Sarpanch of the Villages whose Rehabilitation is done	Member
5.	District Mines & Minerals Officer Surguja	Member
6.	Representative of CMDC Limited or Its Joint Venture MD	Special invited member
7.	Collector , District Surguja	Member secretary

4.3. ALTERNATIVE EMPLOYMENT AND SELF EMPLOYMENT FOR THE REHABILITATION OF DISPLACED INDIVIDUALS WHO'S LAND WILL BE ACQUIRED.

(In complince to Annexure 2 clause 2.3 (c) of Amended Model rehabilitation policy 2007 of chhattishgarh government)

4.3.1 The alternative employment will be created for the adult members of households through the cooperative institutions, as the only regular employment. This shall be like distribution of dividend by the cooperative institutions and shall be a source of additional income for them. Following types of employment would be proposed through cooperative institutions -

A. The task of logistics of the accessories, example-

1. Handling movement of materials used in the construction of building.
2. Movement of Materials used in mines.
3. Handling and movement of goods kept in the godown.

B. Gardening & Harticulture work-

1. Planting of trees in the premises of Minearea and township.
2. Maintaining the plantation of the-Mine area and township.

- C. Small civil work- Digging of soil during the construction work and its transportation.
- D. To provide artisan (manpower) to the major contractors.
- E. Removal of debris from the township and plant premises.
- F. House keeping inside the township and plant premises.
- G.

4.3.2 SELF EMPLOYMENT OPPORTUNITIES-

1. Job to supply milk to the residents of township as well as in the Mine canteen.
2. Job to supply vegetables to the residents of township as well as in the Mine canteen.
3. Job to supply essential groceries to the residents of township as well as in the Mine canteen.
4. Job to supply all the daily need items like bread, biscuits etc to the residents of township as well as in the Mine canteen.
5. Hotel and restaurant.
6. General store.
7. Sweets shop.
8. Flour mill.
9. Sand transportation
10. Tailoring.
11. Taxi, auto operation.
12. Small workshops to repair machines.
13. Medicinal plants & Jatropha Plantation
14. Poultry Farm
15. Basket & pack thread work
16. Medicinal plantation of the medicines (Herbal)
17. Bakery items
18. Nursery.
19. Plants & Gardens for the Distribution of fertilizers
20. Auto Repairing

4.4 COMPENSATION FOR THE PROJECT AFFECTED FAMILIES-

(In compliance to section 4. of Model rehabilitation policy amended 2007 of Chhattishgarh Government)

4.4.1 COMPENSATION FOR LAND (SECTION 4.1)

1. According to land acquisition policy, the compensation for the land acquisition shall be given to the land owner as undermentioned in the table no-4.1.2

Table no. 4.1.2

CATAGORY OF LAND	TOTAL COMPENSATION AMOUNT
Waste land	Rs 6,00000/- per acre
Un irrigated land (single crop)	Rs 8,00000/- per acre
Irrigated land (double crop)	Rs 10,00,000/- per acre

2. The land compensation will be given according to the section 4.1.5 (g) of Model Amended rehabilitation policy 2007 of chhattishgarh state government. 4(1) On the date of the notification and by the guide lines issued by the collector for the purpose of rate to pay stamp duty will be determined , under the land acquisition policy the rate is calculated over market, so the minimum amount payable to the land holders is calculated as per the section4 (1) of notification of the publication date the current guide lines of rate or depending on which ever is more.

3. COMPENSATION FOR HOUSE (SECTION 4.3)

- (i) The affected families has to opt one option from the undermentioned 3 options

OPTION 1-

The cost of construction of the house will be compensated for the house constructed on the land whose acquisition is being done.

OPTION 2-

Those families whose residential houses will be acquired , in return will be given a constructed house of area of 400 sq ft and also a shed for domestic animals in area of 200 sq ft.

OPTION 3-

These affected families who's residential houses will be acquired will get compensation of Rs 1, 00,000/- for the construction of new house and also get Rs 10,000/- for the construction of shed for the domestic animals.

- (iii) Residential houses constructed on encroached land shall be provided compensation only for the houses constructed on the acquired land.

(Sa) COMPENSATION OF OTHER ASSETS (SECTION 4.3.1)-

Other immovable assets like well, garden etc will be compensated on the valuation of the competent authority and guidance of State Government, and as per the assessed value of displacement. The compensation for structure present on the encroached land will be given if it is constructed prior to the year 1990 and special recommendation for the same has been granted by the District level committee/ State Government.

(Da) COMPENSATION FOR TREES (SECTION 4.2)-

The compensation for trees which exist on land/ adjacent to house on the acquired land will be payable on the cost calculation by Competent Authority/ Central Costing Board, Raipur/District Collector.

4.5 TRAINING AND SKILL DEVELOPMENT PROGRAMS FOR PROJECT AFFECTED INDIVIDUALS AND DISPLACED FAMILIES-

(In compliance to section 2 of Amended Model rehabilitation policy 2007 of Chhattishgarh Government)

To provide maximum benefits to the project affected individuals, following programs are proposed for imparting them training in various fields and upgrading their skills.

TRAINING FOR EDUCATED YOUTH

1. Educated youth from these displaced families will be admitted in the Industrial Training Institutes run by the government in the

district Sarguja, and their training fee/ expenditure will be provided by the Project Management. This benefit will be provided for first 5 years after the date of notification for land acquisition for the project by the Chhattishgarh Government.

2. The educated youth from displaced families who opt for entrance in Diploma in Engineering in colleges in the state run by the Government, their training fee/ expenditure will be borne by the project Management . This benefit will be given for first 5 years from the date of notification for land acquisition for the project by the Chhattishgarh Government.

In addition to the above facilities, to transform the project affected families to a better condition from their previous status, they will be provided profits from other beneficiary Projects run by Government in which there are self employment schemes also.

4.6 GRIEVANCE REDRESSAL-

Following mode of action will be adopted for the redressal of grievances of the project affected families who may have complaints/ problems regarding the relief and rehabilitation process adopted.

1. Land ownership, land measurement or any other dispute regarding the land area will be settled by the land acquisition officer.
2. The dispute regarding Number of trees, their density and valuation of trees, which are present on the acquired land, will be solved by the land acquisition officer and the tahsildar according to the Amended Model rehabilitation policy 2007 of Chhattishgarh Government.
3. The dispute regarding building, well, garden etc will be settled by the land acquisition officer and on the advice of authorized valuation officer within the Amended Model rehabilitation policy 2007 of Chhattishgarh Government.

4. Other complains related to eligibility for allotment of residential plot, basic amenities in the rehabilitation colony etc will be settled by the state level and district level committees. The coordination work will be done by the nominated officer and civil engineer of Son diha Coal Company Limited a joint venture of CHHATTISGARH MINERAL DEVELOPMENT CORPORATION (CMDC) LIMITED (A Govt. of Chhattisgarh Undertaking) who will act for the land allotment to displaced families for rehabilitation. In this process in case of financial expenditure, the civil engineers will prepare proposal and put up to the Managing Director of the joint venture Son diha Coal Company Limited for financial approval.
5. Head of the grievance committee will coordinate with the state level and district level committees and member secretary, District Level Committee and State Government for the redressal of the grievances of the project affected families.
6. Grievance Committee, will coordinate with the Managing Director and prepare report of every 15 days regarding grievance resolution.
7. Managing director will appoint an officer/representative to look after the grievances regarding the project affected families (like Employment /alternative employment/ training etc).
8. Managing Director CMDC will appoint a grievance redressal committee alternatively the Managing Director of the joint venture company will constitute a grievance redressal committee with following officials as its member.

1. Senior Manager or Senior Officials of the joint venture company.	Head of the Committee
2. An Official of the finance and accounts department	Member
3. An Official of civil section	Member
4. An Official of welfare section	Member secretary

The committee will have a meeting every week and will settle small grievances and take approval as per necessity from the managing director.

NECESSITY OF DISPLACEMENT- (According to Annexure 2 clause 2.1 of Model Amended rehabilitation policy 2007 of Chhattishgarh Government)

Coal Ministry, Government of India has allocated Sondiha Coal Block to Chhattisgarh Mineral Development Corporation Limited or its joint venture on dated 25.07.2007. Mining projects are land specific projects. Hence the project can not be shifted elsewhere. Since Sondiha Coal Block has been allocated to Chhattisgarh Mineral Development Corporation Limited, this allotment has been made due to availability of coal in the area, therefore shifting this project elsewhere is not possible.

With the development of Sondiha project , there will be significant contribution in the development of Chhattisgarh State. The managing Director will be free to sell the coal anywhere except the customers of CIL and SECL . With the development of this project, Sarguja district will be developed and local scheduled caste, scheduled tribes and educated unemployed will get employment and others will have the opportunity of self employment. With the opening of this project, there will be a new beginning of industrialization in the extremely under developed District of Sarguja.

4.7 Activities Of Social Work And Developmental Plan For Project Affected Areas (In compliance to Annexure 2 clause 1.11 of Amended Model rehabilitation policy 2007 of chhattishgarh government)

Chhattisgarh Mineral Development Corporation Limited not only consider its moral and social responsibility to bring improvement and development in the life style of the project affected families but also of the people in the periphery of the plant without affecting their social religious customs. Considering the above, on the site of Sondiha coal Block, it is preparing a plan to develop following basic facilities for the benefit of displaced.

Health :

- The joint venture company Chhattisgarh Sondiha Coal Company of Chhattisgarh Mineral Development Corporation Limited, will provide financial help to develop the existing Block hospitals.
- The officials of Chhattisgarh Sondiha Coal Company will Organize Rural Health Camps in surrounding Villages and provide free medical examination.

Education

- Chattisgarh Sondiha Coal Company will provide financial assistance to develop the schools situated in the project affected area for construction of additional rooms, drinking water facility, fitting of fans etc.
- Chattisgarh Sondiha Coal Company or Chhattisgarh Mineral Development Corporation Limited, will admit children for education in their schools on no profit/ no loss basis.

(Sa) Community Development

- The mines management of Chhattisgarh Sondiha Coal Company will make available help in the project affected areas for the development of drinking water facility electricity facility, construction of approach roads and development of community halls through Gram panchyats.
- The management of Chhattisgarh Sondiha Coal Company will participate actively in the regional/social activities of the project affected area and will provide necessary help.
- Chhattisgarh Sondiha Coal Company will provide training to members of project affected family in the Government run Industrial training institutes.
- Chhattisgarh Sondiha Coal Company will make an expenditure on CSR amount of 2.5 Crores as suggested by EAC MoEF, GOI **(In compliance to Annexure 2 clause 11.2.1 of Amended Model rehabilitation policy 2007 of chhattishgarh government)**

TENTATIVE ACTION PLAN AND BUDGETARY ALLOCATION FOR CSR.

(Amount in Lacs)

Sl. No.	Activities	Capital cost	Recurring Cost
A	Health		
1	Mobile Clinic with testing and diagnostic facilities	10	5
2	Upgradation of local PHC with equipments and infrastructure and medicines	3	2
3	Partnership with Govt. for National Health Programmes like Polio, TB, Malaria etc	0	1
4	Health Camps for Family Planning, HIV/AIDS and other communicable diseases.	2	2
5	Addressing local health related issues through audio visuals and group meetings	1	1
6	Subsidized treatment in hospital with which tie-up will be there	0	4
7	Specific Programmes for hygiene and sanitation	0	2
	Sub Total A	16	17
B	Education		
1	Targeted programme development and organisaton for primary education for specially girl child	1	1
2	Augmentation of infrastructure and equipments, furniture, blackboard, toilets etc in villages schools	2	2
3	Scholarships to meritorious students	0.5	1
4	Adult education	0.5	3
5	Partnerships in state sponsored education programmes	1	1
6	School wall boundary maintenance	0	2
7	Existing govt. School Strengthening by boundary wall construction, construction of toilets, roof repair, drinking water taps, etc	3	1
8	Monetary contribution for expansion of govt. school from 6th to 8th class (construction of classrooms, field, toilets, taps, etc)	2	2
9	Monetary contribution for expansion of govt. school from class 9th to 12th class	3	1

	Sub Total B	13	14
C	Physically Challenged		
1	Helping aids to each category of physically challenged as per requirement	1	1
2	Eye camps to address the issue of cataracts specially	0	3
	Sub Total C	1	4
D	Water		
1	Provision of potable drinking water supply in near by villages through wells, hand pumps, tankers etc	10	5
2	Awareness campaigns for water borne diseases, sanitation and hygiene	1	2
	Sub Total D	11	7
E	Tribal Development Programm	170	170
	Sub Total E	170	170
F	Capacity Building		
1	Scholarship for ITI training outside for 20 persons	5	4
2	Sponsorship of land losers / wards for full term courses	1	1
3	Short term courses for skill up gradation	2	2
4	Vocational training (dairy, poultry, bee keeping,etc.)	2	1
5	Specific Programmes for Ladies (stitching, knitting, embroidery, tailoring etc)	1	2
	Sub Total E	11	10
G	Vulnerable Persons		
1	Pensions to vulnerable (Elderly/ Widows etc)	2	2
2	Gainful engagement on priority	1	1
	Sub Total G	3	3
H	Infrastructure		
1	Construction of roads, drainage, community halls, school buildings, health centres, street lighting, equipments to educational institutions, public utilities, sanitation facilities, etc in nearby area.	15	15
	Sub Total H	15	15
I	Sports and Culture		
1	Regular Rural Sports	1	1
2	Facilitation / Sponsorship to local talent	1	1
3	Promotion of local festivals	1	1

4	Participation of local community in national festivals	1	1
5	Preservation of culture and heritage	1	1
	Sub Total I	5	5
J	Miscellaneous		
1	Construction of temple in village	3	3
2	Anganwadi	2	2
	Sub Total J	5	5
	Grand Total	250	250

Chapter 5

Tribal Development Plan

5.1. INTRODUCTION

Schedule Tribes in India is an integral part of the Indian Society and commonly referred as “Adivasi”. The “adivasi” is an umbrella term for heterogeneous set of ethnic and tribal groups claimed to be the aboriginal population of India and carry a specific meaning of being the original and autochthonous inhabitants of a given region, and were specifically coined for that purpose in the 9130.

The Constitution of India defines Schedule Tribe as “such tribes or tribal communities or part of or groups within such tribes or tribal communities as are deemed under Article 342 to be the schedule Tribes (STs) for the purpose of this Constitution”.

Although the Article 342 of the Constitution of India defines the procedure for specification of a schedule Tribe; however it does not contain the criterion for the specification of any community as schedule Tribe. An often used criterion is based on attributes such as:

1. Geographical isolation – they live in cloistered, exclusive, remote and inhospitable areas such as hills and forest
2. Backwardness – their livelihood is based on primitive agriculture, a low – value closed economy with low level of technology that leads to their poverty. They have low level of literacy and health.
3. Distinctive culture, language and religion – communities have developed their own distinctive culture, language and religion
4. Shyness of contact – they have marginal degree of contact with other cultures and people.

All these attributes not necessarily to be satisfied by a tribal group etc. to be defined as schedule Tribe under the Constitution of India, but there are certain attributes which are common to the attributes discussed above for the tribes which were classified under schedule Tribe by the President of India in THE CONSTITUTION (SCHEDULED TRIBES) ORDER, 1950.

From the beginning of the independence of India from Colonial Rule and adoption of the Constitution of India by Republic of India efforts are made to alleviating the conditions of the Schedule Tribe people in general. These efforts includes the brining Schedule Tribes representation in mainstream by way of increasing their participation in political decision making, participation in administration my providing special provisions for protecting right of the Schedule Tribe in the Constitution if India Itself and formulation of different policies. However, the efficacies of these provisions/ policies are still much debated.

But there is one point that everyone agrees that in true sense of Democratic framework the protection of rights of the Schedule Tribe should form an integral part of any developmental effort, whether it is policy matter of central govt./ state govt. covering larger size of the Schedule Tribe population or the project level Schedule Tribe population whether it is developmental effort by the Govt or private investment. Proposed Sondiha OC – cum – UG Coalmining (Project) covering five villages in Balrampur District (previously Surguja District) of Chhattisgarh State has been granted Terms of Reference for Environmental Clearance by Ministry of Environment and Forest (MoEF), Govt. of India (GoI) vide its letter no. J – 11015/331/2010 – IA.II(M), dated 23rd December' 2010 and subsequently the project proponent of Sondiha OC – cum – UG Coalmining Project proponent Chhattisgarh Mineral Development Corporation Limited (CMDRC), Raipur has submitted a EIA – EMP report to the MoEF, GoI on 28.03.2012.

The project proponent, CMDRC, for acquiring the land required for the proposed Project has prepared and Rehabilitation and Resettlement Plan (R & R Plan) following the Model R &R Policy, 2007 of Government of Chhattisgarh (GoCG) and included a chapter dedicated as Tribal Development Plan (Chapter 8 of the R & R Plan) giving details of the strategies specifically addressed to development of affected Schedule Tribe from the Project. This R & R Plan including the Tribal Development Plan has been a part of the EI – EMP submitted.

The Expert Appraisal Committee (Thermal & Coal), the EAC (T&C), reviewed the EAI – EMP in its meeting on 23rd – 24th April' 2012 and desired that Tribal Development Plan with specific allocation of fund for implementation of Tribal Development Plan on long term basis.

As per desire of the EAC (T&C) the already prepared Tribal Development Plan (Chapter 5 of the R & R Plan) has been revisited with following objectives:

- To analyze segregated data of the Schedule Tribe from the data collected for preparation of the R & R Plan to identify specific problems, needs associated with the Schedule Tribe
- To Identify specific positive and negative impact from the project to the Schedule Tribe
- Implement plan and programs to minimize/ mitigate any negative impacts anticipated to the Schedule Tribe

The Table 5.01 gives the overview of the differences between the R & R Plan and Tribal Development plan covered in the Chapter 8 of R & R Plan.

<u>Table : 5.01</u>			
Sr. No	Item	R & R Plan	Tribal development Plan
01	Data Analysis	Analysis is carried out the different socio economic data for the project affected displaced population in context to the land to be acquired for the project.	Specific analysis of socio economic data for the affected Schedule Tribe population
02	Data relevancy	Only the data of the population whose land will be acquired and comes under the definition of project affected displaced persons/ family (par 3.6	All the ST persons/ family whose land or any means of livelihood comes in the approved Mining Lease Area and can be termed affected person.

		of Model R &R Policy, 2007 of the GoCG)	
03	Objective and outcome	To prepare customized rehabilitation and resettlement plan for project affected displaced persons/ family	To identify the broader policy framework required to address the issues with schedule tribe people in question who are identified as project affected person/ family, to formulate plans addressing specific issues, implementation of plan with allocated budget and monitoring the effectiveness of plan on certain measurable critical success factor.

5.2. **PROJECT DESCRIPTION**

The detailed description of the Project is given in Chapter 1 of the R & R Plan and referred to.

The salient points of the project are given as below:

- Sondiha Coal Block is proposed to be developed in Balrampur district (previously Surguja District) of Chhattisgarh State over an area of 810ha.
- As per the approved Mining Plan, the coalmining project is proposed to produce at 1 MTPA coal of its peak capacity.
- The extraction coal will be from opencast and underground mining.
- The life of the coalmining project is for 36 years and will generate employment in the tune of 1355 for the life of the project.
- Under provision of the R & R plan the project proponent has proposed employment of the land loser (whose land will be acquired) and other compensation/ benefits for the land loser. The details are covered in chapter 4 - of the R & R plan.

- This coal mining project involves acquisition and use of XXX ha of land from 810 ha of approved Mining Lease area.
- The 763.110ha of land includes cultivable land, forest land (protected forest & revenue forest) and government land.
- Rehabilitation & Resettlement is the main issue that has to be addressed by the Project Proponent while acquiring the land required.

5.3. BASE LINE DATA OF SCHEDULE TRIBES IN SONDIHA AREA

The base line data considered here have been collected in Socio Economic Survey conducted during 2010 by the project proponent for formulation and preparation of the R & R Plan. The total household surveyed was 1381. The survey data includes the ethnicity of sampled household and the data consist of 592 household belonging to Schedule Tribe for the five villages to be affected by the project. The detail analysis are based on these 592 sample collected and not necessarily each of the household surveyed represents household whose land will be acquired. However the analysis presented in the R & R Plan Chapter 3 is a subset of these 1381 surveyed household whose land will be acquired and some of the household considered in this analysis for tribal development plan also elements of this subset.

The detailed analyses are given below:

- Population

The table 5.02 gives an overview of the Schedule Tribe Population in the study area as per census 2001. 51.31% of the total population in the five villages under study is Schedule Tribe and village Injani has lowest population of Schedule Tribe (29.85%) and Bhagwanpur Khas has highest Schedule Tribe Population if 85.96%.

Table 5.02						
Description	Name of the village					
	Bartikala	Sabitripur	Injani	Bhagwanpur Jirat	Bhaqwanpur Khas	Total
Total Population	2003	385	1417	420	1211	5436
Schedule tribe Population	828	258	423	239	1041	2789
	41.34%	67.01%	29.85%	56.90%	85.96%	51.31%
Source: Registrar of census,2001						

- Schedule Tribes in the Sondiha Area

The data pertaining to 592 household surveys contains some of the information for the different Schedule Tribe in these affected villages. Out of the 592 household data, 365 household data actually depicts the different ethnic Schedule Tribe household. The Table 5.03 indicates the percentage of different distinct ethnic scheduled tribe household in the sample.

Table: 5.03		
Sampled Schedule Tribe Household		
Sr. No	Schedule Tribe	%age
01	Gond	78.47%
02	Gond – Agaria	4.97%
03	Gond – Ghasia	2.76%
04	Kodaku	7.73%
05	Oraon	5.25%
06	Khairwar	0.82%

Typically it has been observed that majority of the schedule tribe population in the area, as sampled are Gond.

- The Population, Male & Female population and Sex Ratio
 - I. The male female composition of the total population for all age group is 52% and 48%.
 - II. The average sex ratio (number of females per 1000 male) for the sample population is 923¹. The sex ratio for Chhattisgarh State in 2011 is 991¹ and all India average is . 940¹
 - III. Further analysis of the population on age group wise has been carried out. The average sex ratio for only the adult population (who has attained an age of 18 years) calculates to 897 for the sample studied. Another important sex ratio need to be observed here is the sex ratio for 0 – 6 age group population. The sex ratio for this age group is 901 for the sample under study. The national average and for Chhattisgarh state the ratio for the same age group is 914¹ and 964¹ respectively.

- Education
 - I. For the analysis of literacy the population belonging to age group 0 – 6 Years has been excluded as population not either expected to attend school in rural area or if though attending school not expected to be literate in true sense.
 - II. The average literacy rate for the male population for this sample calculates out to be 59.17%, which much below the average literacy rate for male population in Chhattisgarh 81.45%¹ and national average of 82.14%¹.
 - III. The average literacy rate for female population in the sample is alarmingly low at 41.69%. The literacy rate among the female population for Chhattisgarh State and national average is 60.59%¹ and 65.46%¹.
 - IV. Further segregation of the data to look into the literacy rate among the school – collage going age also been carried out to understand specifically whether the illiteracy is predominant among the age group of 7 to 18 years or adult population.
 - V. Literacy rate under the age group of 7 to 14 years is 81.57% for male population and 81.69 % for female population which is the key focus of the RTE Act, 2010 (6 to 14 years).
 - VI. The adult literacy rate for male population calculates out to be 50.53% and merely 24.82% for the female adult population of the sample. However, the data of state specific and national average of such classification is not available as on date for a comparative analysis.
 - VII. Further analysis of education level among the total literate population and adult literate population in the sample has been analyzed.
 - VIII. Out of total literate population 49.15% educated up to primary level, 29.09% completed middle school level, 9.02% completed high school level, 7.57% higher secondary level, 1.69% are graduates and merely 1.13% are post graduate. In post graduate level female population percentage is 0.

- Health Care

- I. Potable Water Availability

- a. The entire household surveyed has no access to treated piped potable water which is considered safest source of potable water.
 - b. However, the common system of securing potable water is either well or hand pump/ tube well for the sample. However 1.35% of the sampled household uses other source like pond as the source of potable water as reflected in the sample.
 - c. 66.21% of the sampled household depends on the common provided source for the village for meeting their requirement of potable water and remaining 33.79% have their privately build facilities for securing their potable water need.

- II. Availability of Medical Care

The availability of medical facilities is common for Schedule Tribe population and nonscheduled tribe population and details are given in the R & R Plan, Chapter 3, and Table 3.1.13.

- Employment Pattern & Skill level:

- I. For the analysis the adult populations who have attained age of 18 years only considered. 65.29% of the adult population in the sample is unemployed. However this unemployed percent includes housewife who are treated as not gainfully employed.
 - II. One of the key focus areas of tribal development is the representation of ST population in the government service and for that numerous reservation policy is vogue. However, for the sample only 1.33% is employed in the government service.
 - III. Looking at the female population 93.18% of the female are sampled as unemployed as expressed in the survey by individual house hold. However, this sample includes the housewife also.
 - IV. Out of total 21 graduates only 5 are employed in govt. service and 5 are employed in private service. However, the income of this category is not available for comparing whether their education actually reflects their income.

- Housing & Sanitation
 - I. The 99.16% of ST household surveyed lives in thatched (kachcha) house and there is no Brick Mortar (pucca) house hold by the household surveyed.
 - II. The details of the sanitation provisions were not collected during the survey.
- Income
 - I. The detail analysis indicates 9.80% of the household surveyed has earning less than Rs. 5000 per annum. Similarly in the upper bound range of more than Rs. 1 lacs per annum has only 4.56% of the household sampled.
- Socio – cultural Setting
 - I. General information of Schedule Tribes of Sondiha Area

In general the predominant Schedule Tribe in the Sondiha Project area is Gond and therefore the culture, custom and practices of the Gond Tribe is discussed in the following paragraphs.

- ✓ Introduction: Gonds are the largest of Indian tribes with a net population between 4 and 5 million The Gondi (Gōndi) or Gond people are people in central India, spread over the states of Madhya Pradesh, eastern Maharashtra (Vidarbha), Chhattisgarh, northern Andhra Pradesh, and Western Orissa. While their precise history cannot be dated before 890 AD (Deogaonkar, 2007, p 37), their roots are certainly older.
- ✓ Origin of the Gonds: Mehta (1984) has studied the Gonds from different perspectives and also their history and mythology in detail (Mehta, 1984, p 105 – 166). Based on linguistic studies, Mehta (1984, p 168) considers them to be an ancient community. It is believed to be one of the oldest tribes in India whose roots go back to pre-Dravidian arrival in south India around 2000 BC (Mehta, 1984, p 214). Mehta (1984, p 185) identifies later Bramhinal influence on their stories. Based on ideas of Totem poles and other signs of early religion (Mehta, 1984, 197 – 199) he makes a very strong case to consider them to be one of the earliest inhabitants of

Central India with the core in Kalahadi region of Orissa (Mehta, 1984, 215). Interestingly however, the Gonds consider themselves to be later entrants into the God's world through the penance of Shiva's son Karta Subal (Mehta, 1984, p 177). It is also suggested that they were descendants of Ravan (Mehta, 1984, p 205). Aatram (1989, p 141 – 143) has suggested a connection between the Gonds and reference to Kuyevu tribe mentioned in Rig Veda. History of the Gonds (Deogaonkar, 2007, p 34- 55) suggests that they occupied large stretches of land in central India and were its primary rulers from 1300 to 1600 AD (Deogaonkar, 2007, p36). However, one of the conspicuous aspects of the Gond lifestyle has been that they did not transform from primitive farmers to urban, settled population until very recently. They did not settle down as formal civilisations in cities with large trading practices and large nonagricultural population. This may have been due to a lack of need to create surpluses, conserve resources and specialise the population groups (see e.g. Vahia and Yadav, 2011).

Sociologically, Gonds ruled large parts of central India before the rise of the Mughal Empire in Delhi. Several forts and other residues of Gond kingdoms, suggest their dominance over Central India during the period. The fact that they built forts and not castles also suggests a lack of desire to move from agricultural roots to urbanisation. Their current lifestyle is also indicative of farming traditions rather than aggressive kingdom building. The impact of aculturalisation from their original roots and subsequent integration into respective state linguistic and religious traditions has resulted in a new strong desire for revival of original traditions and group identity.

Their population size has increased from about 1 lakh in 1860's (Deogaonkar, 2007 p 23) to about 32 lakhs in the 1941 census (Agrawal, 2006, p 35) to 41 lakhs in 1961 (Deogaonkar, 2007, p 13). Compared to this, the population of India as a whole rose from about 25 crores (of undivided India) in 1870 to 36 crores 1950 and

49 crores in 1965 (Maddison, 1989; p129). The relatively steep increase highlights the fact that the Gonds have essentially lived in low density population groups over large tracks of land with low life expectancy. However, a change in this trend and integration into the larger civilisation and resultant changing lifestyles has all resulted in increased survival of the population.

- ✓ Language & Script: Gondi (Gōndi) language is spoken by the Gond Schedule Tribe. It is a South-Central-Dravidian language, spoken by about two million people (Beine, David K. 1994) and chiefly in the states of Madhya Pradesh, Gujarat, Andhra Pradesh, Maharashtra, and Chhattisgarh and in various adjoining areas of neighboring states. Although it is the language of the Gond people, only about half of them still speak it.

Gondi has a native script, which was lost for a long period of time, but got recently rediscovered. It has a rich folk literature, examples of which are marriage songs and narrations. The language has a two-gender system, substantives being either masculine or nonmasculine. Gondi departed from the parent Proto-Dravidian language by developing initial voiced stops (g, j, ḍ, d, b) and aspirated stops (kh, gh, jh, dh, ph).

- ✓ Religion and customs of Gonds: In religious terms, they are known to have nine distinct groups of gods whose lineage is followed by all Gonds. Their primary God is Bada Deo or Mahadev (Pen) who is conventionally thought to be Shiva of the Hindu traditions. However, at operational level, these are nine groups gods and are referred to by numbers (1 to 7, 12 and 16). References to twelve gods (from 1 to 12) named simply as Undidev saga, Randudev Saga all the way to Padvendev Saga (10th God), Pandunddev Saga (11th God) and Panderdev Saga (12th God) can be found. They also have names. Each Gond is a follower of one of the numbered groups of gods. Members belonging to the lineage of even numbered group gods are permitted to marry only those belonging to odd numbered group of gods but this tradition is

changing now. In addition, they have further subdivisions by surname and gotra. Conventionally they are believed to have 750 distinct gotras, a number that is marked on their flag (Kangali, 1997, p 183 to 185). They have 24 major festivals as listed in table below:

No	Festival name in Gondi	Festival name	Lunar calendar date	Approximate Gregorian Month
1	Say Mutholi	Worship of Panch	Magha Full	January -
2	Sambhu Naraka	Shiv Jagran	2 days prior to Magh New Moon	January - February
3	Shivam Gavara	Worship of Shica (Shigma)	Fagun 5th day from New Moon	February - March
4	Khandera	Worship of Meghnath	Fagun 5th day	February - March
5	Raven Muri	Worship of Ravan	Fagun 5th day from Full Moon	February - March
6	Mand Amas	Worship of Mand	Fagun New Moon	February - March
7	Kuvara Bhimal Puja	Worship of Bhivsan	Chaitra Full Moon	March - April
8	Mata May Puja	Worship of Mata May	Chaitra 5th day from Full Moon	March - April
9	Nalenj Puja	Worship of Moon	Chaitra New Moon	March - April
10	Naya Khana	Festival of new food	Vaishakh Sr" day since New Moon	April - May
11	Budhadev Puja	Worship of Budhadev	Vaishakh Full Moon	April - May

12	Sajori Bidari		Jyeshtha Full Moon	May- June
13	Hariyommat	Worship of fruits and plants	Jyeshtha New Moon	May- June
14	Thakur. Dev Puja	Time for sowing seeds	Akti	
15	Khut Puja	Worship of Khut	Ashadh Full moon	June - July
16	Saag Pen Puja	Worship of Saag Pen	Ashadh New Moon	June- July
17	Naag Panchami	Worship of Snake, particularly King Cobra	Shravan 5th day from New Moon	July- August
18	Saila Puja	Worship through dance	Shravan Full Moon	July- August
19	Pola	Worship of Pola	Shravan New Moon	July - August
20	Naya hana	New Food Festival	Bhado 5th day from New Moon	August - September
21	Navaratra	9 day festival of worship of Durga	Ashvin 10th day from Full Moon	September - October
22	Jango — Lingo Lati Puha	Worship of iango and Lingo (Sun and Moon)	Kartik Purnima	October - November
23	Nagar Puja	Worship of the village	Kartik Purnima	October -

				November
24	Kalimay Puja	Worship of Kali Kankali	Paush New Moon	December - January

Gond customs also vary significantly from the classical Hindu customs. Conventionally, they bury their dead with the head of the body facing equinox south in most traditions but west in some traditions. They consider north to be a direction of ill omen that brings disasters. By contrast, south is considered to be a holy direction. This is the reverse of the Hindu conventions. A small stone marks the location of burial. However, traditions of creating hero stones closer to home and common community worship are also known.

In certain community, reference to other gods which include Kali, Kankali, Maikali, Jango, Lingo, Jari-Mari, Maanko, Tadoba, Vagoba, Guru, Pahandi-Kupar (Kangali, 1997) can be found.

Their primary temples worship snakes and Mahadeo but temples dedicated to weapons and other iron tools and memorials of Rani Durgavati can also be found. The primary symbol of worship is a complex fertility symbol. It is interpreted as having a feminine representation at the bottom followed by the male lingam with Earth and the Sun on top, all interconnected in some representation and shown separately on flags etc.

Kinship and marriage customs among Gonds reflect broader regional patterns. The norm is cross-cousin marriage (for example, marrying one's mother's brother's daughter), which is typical in southern India. Gond groups that have been influenced by northern peoples such as Marathas, however, follow northern customs in determining marriage partners. Similarly, northern Gonds allow widows to remarry a brother of the deceased husband.

Gonds typically choose their marriage mates, and a tribal council approves the matches. The father of a groom pays a bride price. Gond weddings include many significant ceremonies. The main part of the wedding occurs when the bride and groom walk seven times around a wedding post. Newlyweds live with the groom's family until it is possible for them to move into a house of their own.

Sometimes, Gond matches are made when a groom and bride elope. These marriages must be approved later by relatives and the village council. The council also can approve divorces.

Gonds celebrate most festive occasions with song and dance. In some instances, such as with the Dandari dancers, dances retell events from Gond mythology. At other times, dances are performed simply for fun. Dhulia are a professional musician caste and Pardhans (bards) preserve legends, myths, and history, passing these traditions on from generation to generation. Gonds also enjoy assembling on full-moon nights to sing and dance. Cockfighting is a favorite pastime.

Both men and women enjoy wearing heavy silver ornaments. Women also like to wear colored glass bangles and marriage necklaces made of small black beads. They often tattoo their bodies.

Gonds have a rich arts tradition that includes pottery, basket making, body tattooing, and floor painting. They paint designs in red and black on the walls of their houses. These drawings often celebrate festivals and depict animals, birds, human figures, hunting, and dancing. Gonds make musical instruments.

However, effects of the modernization have been observed and the traditional assumption that geographical isolation, shyness to contact etc. is not prevalent in this area.

Representation in the political system has been ensured by law as all the five villages panchayats sarpanch post are reserved for the

Schedule Tribe with two panchayats are reserved for Schedule Tribe Women.

II. Relationship of Schedule Tribes with local/ national groups

Representation in the political system has been ensured by law as all the five villages panchayats sarpanch post are reserved for the Schedule Tribe with two panchayats are reserved for Schedule Tribe Women.

In the study area also participation of the Schedule Tribe in formulation of plans and programs related to local governance have been through the Gram Sabhas and effective participation of Schedule Tribe is observed.

There is no isolation of the Schedule Tribe population from the mainstream population.

- Economic Context and Resource Use
 - I. The sample indicates that majority of Schedule Tribe population in the sturdy area own lands and mainly use it for agriculture for their sustainability.
 - II. The ownership of land comes from the family holding and majority of the household are living in the area for decades.
 - III. The availability of forest resources like fuel wood, fodder grass for domestic animals etc. also plays major role for sustainability of the Schedule Tribe population in the study area.

5.4. LEGAL FRAMEWORK

- Preparation and Implementation of Tribal Development Plan

The President of India exercising powers vested under Clause (1) of article 342 of the Constitution of India and in consultation with State Government concerned have promulgated orders specifying the Schedule Tribe in relation to state and union territories. For state of Chhattisgarh such order has been passed in 2000 (The Scheduled Castes and Scheduled Tribes Orders (Amendment) Act, 1976 and as inserted by Act 28 of 2000).

- Government's approach to schedule Tribe Development

The Constitution of India incorporates several special provisions for the promotion of educational and economic interest of Scheduled Tribes and their protection from social injustice and all forms of exploitation. These objectives are sought to be achieved through a strategy known as the Tribal Sub-Plan (TSP) strategy.

The strategy seeks to ensure adequate flow of funds for tribal development from the State Plan allocations, schemes/programmes of Central Ministries/Departments, financial and Developmental Institutions. The cornerstone of this strategy has been to ensure earmarking of funds for TSP by States/Union Territories in proportion to the scheduled tribes population in those State/Union Territories. Besides the efforts of the States/Union Territories and the Central Ministries/Departments to formulate and implement Tribal Sub-Plan for achieving socio-economic development of scheduled tribes, the Ministry of Tribal Affairs is implementing several schemes and programmes for the benefits of scheduled tribes.

Special Central Assistance (SCA) is given to States/Union Territories to supplement their efforts in tribal development through TSP. This assistance is basically meant for family-oriented income-generating schemes in the sectors of agriculture, horticulture, minor irrigation, soil conservation, animal husbandry, forests, education, cooperatives, fisheries, village and small scale industries and for minimum needs programme. Grants are also given to States/Union Territories, under the first proviso to article 275(1) of the Constitution to meet the costs of projects for tribal development and for raising the level of administration of Scheduled Area therein on par with the rest of the State/Union Territories. Parts of the funds are utilized for setting up of Residential Schools for providing quality education to tribal students.

The objective of the strategy is twofold:

- Socio-economic development of scheduled tribes, and
- Protection of tribes against exploitation.

SCA primarily funds schemes/projects or economic development of scheduled tribes. SCA is released for the economic development of the following:

Integrated Tribal Development Project (ITDP) area contiguous large area in which scheduled tribe population is 50% or more out of a total population.

Modified Area Development Approach (MADA) pockets identification of pockets containing 50% or more of scheduled tribe population out of a total population of 10,000 and above.

Clusters-identified pockets containing 50% or more scheduled tribe Population out of a total population of 5,000.

- i. Primitive Tribes-identified isolated communities among the scheduled tribes characterized by the low rate of population, pre-agricultural level of technology and extremely low levels of literacy (so far 75 Primitive Tribal Groups (PTGs) have been identified.
- ii. Displaced tribal population outside (i),(ii),(iii) and (iv) above

- Declaration of Scheduled Areas

The criteria followed for declaring an area as Scheduled Area are (i) preponderance of tribal population; (ii) compactness and reasonable size of the area; (iii) under-developed nature of the area; and (iv) marked disparity in economic standard of the people. They embody principles followed in declaring 'Excluded' and 'Partially-Excluded Areas' under the Government of India Act 1935, Schedule 'B' of recommendations of the Excluded and Partially Excluded Areas Sub Committee of Constituent Assembly and the Scheduled Areas and Scheduled Tribes Commission 1961.

- Declaration of Tribal Areas

Tribal areas generally mean areas having preponderance of tribal population. However, the Constitution of India refers tribal areas within the States of Assam, Meghalaya, Tripura & Mizoram, as those areas specified in Parts I, II, IIA & III of the table appended to paragraph 20 of the Sixth Schedule. In other words, areas where provisions of Sixth Schedule are applicable are known as Tribal Areas. In relation to these areas Autonomous District Councils, each having not more than thirty members have been set up. These councils serve as an instrument of self-management and have powers of legislation and administration of justice apart from executive, developmental and financial responsibilities. There are no areas in the project states declared as Tribal Areas.

- Development of Primitive Tribal Groups

There are certain tribal communities who are having low level of literacy, declining or stagnant population, and pre-agricultural level of technology and economically backward. 75 such groups in 15 States/Union Territories have been identified and have been categorized as PTGs. Each of these groups is small in number, differentially developed with respect to one another, of remote habitat with poor

administrative and infrastructure back up. Therefore, they are in need of priority to be accorded for their protection and development.

- Legal Framework

- Scheduled Caste and Scheduled Tribes (Prevention of Atrocities Act), 1989:

This Act prevents the commission of offences of atrocities against members of the Scheduled Tribes and Castes and provides for a special court for the trial of offences against SCs and scheduled tribes. It also provides for the relief and rehabilitation of victims of such offences.

- Provisions of the Panchayat (Extension to Scheduled Areas) Act (PESA), 1996:

The PESA Act, 1996 is meant to enable tribal society to assume control and to preserve and conserve their traditional rights over natural resources. The provisions of the 73rd Amendment, with some modifications, were extended to the tribal areas under Schedule V of nine States, namely, Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Maharashtra, Madhya Pradesh, Orissa and Rajasthan.

- The Constitution (Eighty-Ninth Amendment) Act, 2003:

Through this amendment a separate Commission for the scheduled tribes was constituted to address all matters relating to the safeguards provided for the Scheduled Tribes under the Constitution of India, other laws in force, Government orders, and to evaluate the working of such safeguards.

- The Schedule Tribe and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006:

This Act recognizes and vests the forest rights and occupation in Forest land in forest dwelling Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded; and it provides for a framework for

recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land.

- Draft National Tribal Policy, 2006:

The Ministry of Tribal Affairs, Government of India has drafted a National Policy on scheduled tribes to bring them into the mainstream society through a multi-pronged approach for their all-round development without disturbing their distinct culture. The Policy stipulates that displacement of tribal people should be kept to a minimum and undertaken only after possibilities of non-displacement and least displacement have been exhausted. When displacement becomes inevitable, each scheduled tribe family having land in the earlier settlement shall be given land against land. To handle the problem of shifting cultivation, land tenure system is proposed giving tribal population the right to land ownership. The Policy seeks to tackle tribal land alienation by stipulating that:

- ✓ Tribals have access to village land records.
- ✓ Land records be displayed at the Panchayat.
- ✓ Oral evidence be considered in the absence of records in the disposal of tribals' land disputes.
- ✓ States prohibit transfer of lands from tribal to non-tribal.
- ✓ Tribals and their representatives are associated with land surveys

5.5. ANTICIPATED IMPACTS OF SONDIHA PROJECT ON SCHEDULE TRIBE IN AND AROUND SONDIHA AREA

a) Positive Impacts

I. Employment in the project for those whose land will be acquired for the Project as per Model R & R Policy' 2007 of Govt. Chhattisgarh leading to better quality of life. Agriculture, the main livelihood option of the Schedule Tribe population in the study area is non-remunerative as lack of irrigation facilities, crude method of cultivation with low yield etc., but with regular employment in the project there will be substantially high constant income for those whose land will be acquired.

II. With pacification of economic activities in the area number of indirect employment will be generated and the schedule tribe whose land is not acquired also benefited.

III. There will be additional benefits from improved infrastructures like road, access to electricity, education, health care etc. to be built by the project proponent.

b) Negative Impacts

IV. The change in environment is one the major negative impact in general for the all population in the area which includes the schedule tribe population too.

V. Post-acquisition of land for the Project, the affected displaced schedule tribe population (whose land will be acquired) will be constrained of their traditional source of resource, land, both forest and agricultural land. However few household will be totally land less.

VI. Primary skill set of the Schedule Tribe population is farming and once the employment in the project happens, the Schedule Tribe population to be employed need to acquire new skill set. This may be difficult for Schedule Tribe population without proper training from their customary knowledge of farming and crafts they are adapted to.

5.6. OBJECTIVE OF SCHEDULE TRIBE DEVELOPMENT PLAN

- a. Ensuring the participation of the project affected Schedule Tribe in the entire process of preparation, implementation and monitoring of the different activities (Sub – Project) initiated under Schedule Tribe Development Plan.
- b. Equal distributions of the benefits form the Project to the Schedule Tribe population and others.
- c. Improve overall socio economic status of the Schedule Tribe population in and around the project through identified problems and needs.
- d. Respect to the rights, customs and culture of the different Schedule Tribe.

5.7. DEVELOPMENT AND MITIGATIONS PROGRAMS

A. Problems Identified

- ✓ Low level of employment among the affected schedule tribe population.
- ✓ Low literacy rate in general and alarmingly low literacy rate among the female population.
- ✓ Low household income
- ✓ Sanitation and availability of safe drinking water
- ✓ Skewed male female ratio and opportunities for empowerment of women.

- Needs Identified

During the consultation phase for acquisition of land required the Project through gram sabhas and analysis of the socio economic sampled data the needs are identified in priority wise as below:

- I. Focused thrust in education to curb illiteracy with specific focus on women literacy
- II. Improved health facilities in general
- III. Training in known skill set for further enhancement of income generation like advance farming practices, entrepreneurship
- IV. Improved marketing channels for enhancement of income
- V. Training for new skill set required on account of implementation of the project

Sl. No	Negative Impacts	Mitigation Measures
1	Limiting Access to Resource, Land & assets holding	Uniform compensation package for land and assets to be acquired
2	Adaptability to new skill set required for new environment created by project – migration from agriculture to industry	Training for the persons to be employed in the mine as land looser covered in R&R Plan
		Sponsoring educated youth for training in trades required for

		mining through ITI
3	Limiting Access to Resource, forest	Improve marketing channels for NTFP produce to compensate opportunity loss from deforestation arising out of project
		Training for development of entrepreneurship for production final product for consumption in lieu of merely supplier of raw material
		Special program for encouraging creation of women SHG from affected Schedule Tribe population for production of product for final consumption
4	Right of Schedule Tribe for equal quality of life	Schedule Tribe displaced families shall be provided with at par quantity of land for construction of new house as covered in R&R Plan
		Equal access to the infrastructure to be created in the resettlement colony for upliftment of quality of life (potable water, medical facilities, road, community center etc.)
5	Protection of extended family	Eligibility of sub family of displaced extended family for allotment of land for house in the

		resettlement colony
		Allotment of plot for sub family in next available and as far as possible adjacent plot
6	Emotional attachment to long time holding of land for generation	Resettlement site chosen near to the original site, in one of the partial affected village with no additional displaced population
7	Inclusion to society and participation in decision making	Already sarpanch post in panchayats are reserved for Schedule Tribe – default empowerment by Government
		Provision for formation of R&R committee for grievance redressal adopted in R&R Plan. Special thrust will be provided for representation of Schedule Tribe & women in the Committee
8	Equal opportunity in improvement of earning capacity	Focused action for facilitating availability of credit through nationalized bank under special program addressed to Schedule Tribe
		Training in already adapt skill like animal husbandry, poultry etc.
		Facilitating improvement in productivity of remaining agricultural land through govt. sponsored program for

		productivity improvement
9	General benefits accrual	Availability of benefits under CSR program at par
		Focused program under CSR for education, health improvement for women and children
		Engagement of NGO expert in Tribal Development for different programs.

5.8. STRATEGY FOR PARTICIPATION OF SCHEDULE TRIBE

- Participation of Schedule Tribe in planning, implementation , monitoring and evaluation and Grievance Redressal

Participation of the Schedule Tribe in the committee proposed in the R & R Plan will be ensured. However the decisions which are required to be approved by the gram sabha under the law will be placed before the gram sabha concern for consultation, planning, implementation and evaluation.

5.9. MONITORING AND EVALUATION

Monitoring of the Schedule Tribe Development Plan will along with the R & R Plan by the project R & R Committee, District Level R & R Committee and Member of State Rehabilitation Board. However if specific requirement arises for formation of any committee for specific objective that will formed with adequate representation of Schedule Tribe.

5.10. BUDGET

Sl. No.	Proposed Activity	Capital Cost in Lakh	Recurring cost in Lakh
1	Community Empowerment & Management		
a	Improving Education Level	5.00	5.00
b	Skill up gradation of Affected Families	15.00	15.00
c	Agriculture & Horticulture Development	10.00	10.00
d	Community Infrastructure Development	25.00	25.00
2	LIVELIHOOD ENHANCEMENT		
a	Community Based Forest Management Syatem	15.00	15.00
b	Livestock Production Improvement	20.00	20.00
c	Strengthen off farm and non-farm occupations	15.00	15.00
d	Promote irrigation improve dry land farming Integrate with animal husbandry and watershed development programmes	20.00	20.00
e	Production of goods from Non-Timber Forest Produce	25.00	25.00
f	Need based agricultural extension and support services	10.00	10.00
g	Miscellaneous	10.00	10.00
Grand Total		170.00	170.00