

**REPORT**

**ON**

**LIMESTONE QUARRIES OF**

**JHARKHAND AND WEST**

**BENGAL**

**INDIA**

**2005**

**AJOY KONAR**

WITH ASSISTANCE FROM

KUNTALA LAHIRI-DUTT

THE AUSTRALIAN NATIONAL UNIVERSITY, CANBERRA

## **PREFACE AND INTRODUCTION**

Limestone deposits are found in the southern part the state Jharkhand, namely in the district West Singhbhum and in the south western part of the state West Bengal, namely in the district Purulia. Limestone deposits, when sub soil, these are generally 1500 to 2000 meter in diameter and 30 to 80 meters deep. In some parts these are above ground, generally large bands of rock on a hill or mountain.

In Chaibasa, the district town of West Singhbhum there is one large limestone quarry near by: 'The Rungta mining company'. Actually there are four limestone quarries running surrounding Chaibasa in a radius of 25 kilometers. Those are at:

- a) Lupulgutu;
- b) Kamarhatu;
- c) Suryabasa;
- d) Jagannathpur.

All these are sub soil in nature and generally under 10 to meters of earth's surface.

In Purulia, West Bengal, there are two limestone quarries running in Jhalda block, near Jharkhand boader. Both are near the village Chirugora Marlong. Here limestones are collected from hills like Jabar pahar, where from the river Kangsabati emerges.

In these districts one geographical feature is common, i.e. the land is arid, agriculture is scanty and these areas once were covered by dense jungle. Due to unplanned deforestation top soil has been destroyed. Underground water level is down below 120 to 350 ft. digging a well is too much costly and deep tube well is almost out of question as people live here are very much poor. Rainfall is very low in these areas.

Besides agricultural work, which is as said earlier, scanty, people have to depend on these quarries for their earning. The quarry owners are not rich businessmen, especially in Bankura and Purulia of West Bengal. There are at least some owners who were previously labours of such quarries. Almost 90% people of these areas belong to scheduled tribe community, namely Santals, Kurmi, Ho, Oraon, Munda and Scheduled caste like Bagdi. Initially these people were dependent on forests. Basically they were forest people since early human history. Destruction of forest forced them to become labourers of these quarries and in agricultural field of other fertile districts like Barddhaman, Nadia, Hooghly, Howrah, Birbhum, Murshidabad etc. So one thing can be seen in these quarries of Bankura and Purulia that these quarries run for 6 to 7 months a year as in rainy season and in winter no labour is available for these quarries. They go to do agricultural work in neighboring districts.

The West Singhbhum district has a population 2,080,265 in an area of 9,907 sq. kms. District in Chaibasa urban agglomerations are Chakradharpur and Jamshedpur.

District Purulia has a population 2,536,516 in an area of 6259 sq. kms. Male is to female ratio is 51.18:48.82. Rural is to urban people ratio is 89.93:10:07.

It is commonly believed that women are not fit for mining works. But in these quarries women labours participate in quarry works with their male counter parts. In a quarry ratio of men: women labour is 60 : 40.

## **1. NUMBER OF MINES**

### **1.1 What is ASM: definition**

The mines which possess not more than 35 people as labourers and officials and produce not more than 300 ton a day and area of the mine not more than 2 acres is defined as small mines by the Directorate of Mines Safety, of Govt. of India.

### **1.2 ASM Sector Units studied**

The Rongta mines of Lupungutu, West Singhbhum, Jharkhand and Jabarpahar quarry of Bharat Super, Cement, Jhalda, Purulia, West Bengal has been taken under survey.

### **1.3 Structure of the Industry Concerned**

In these quarries number of persons engaged is like the following

- a) Agent - 1
- b) Manager – 1
- c) Drill man – 1
- d) Mate – 1
- e) Bluster – 1
- f) Loading labour (both male and female) – 10
- g) Breaking stone (from bolder of 30 to 45 in dia length to 'cheli' of 12 to 18 cm. In length) – 10
- h) Cleaning labour (mainly female) – 8

In the crushers for these quarries the persons engaged is like this:

- a) Agent (common with the quarry)
- b) Manager - 1
- c) Mate - 1
- d) Loading Labour – 20 - 35

### **1.4 ASM Standing/Advisory/Controlling Body**

These quarries are run by big industrial houses. They appoint agent to look after the quarry, the crushers and marketing. If cement factory is also run by same house, the events concern in the factory also controlled by the agent.





### **1.5 Local Context: Physical Extent of the Area, Administrative Units**

In Jharkhand the land for digging mines is leased by the Block Development Officer (hereinafter BDO) but license for mining is given by District Mining Officer (hereinafter DMO) and the safety measures should taken by a mine is controlled by Directorate of Mines Safety (hereinafter DGMS) of the district. Annual revenue is given to DMO.

In West Bengal land is leased by the BDO and revenue is also collected by his office. Only mining permit is given by DMO.

### **1.6 Previous Estimates by Others**

No such estimates found for the area studied.

### **1.7 Your Estimates**

In West Singbhum district almost 400 people are engaged in 4 limestone quarries.

In Purulia some 100 people work in the two quarries and in the cement factory.

## **2. ORIGINS/TRADITIONS**

### **2.1 Local Economic Traditions**

<b>Some Classification of Land Utilisation Statistics in the district of Purulia</b>					
					(in '000 hectares)
Year	Total according to D.L.R., W.B.	Forest area according to State Forest Department	Current fallow	Other fallow land other than current fallow	Net Cropped area
1	2	3	4	5	6
1998-1999	623.41	87.60	81.39	7.39	343.83
1999-2000	623.41	87.60	86.43	8.68	328.13
2000-2001	623.29	87.60	113.23	7.32	311.69
2001-2002	623.29	87.60	93.50	5.02	335.83
2002-2003	624.11	87.17	167.79	4.93	256.94

Source: Directorate of Agriculture, Government of West Bengal

## 2.2 Present Power Structures

Consumption of Electricity by different sectors in the district of Purulia									
(Thousand K.W.H.)									
Year	Domestic	Commercial	Industrial	Public lighting	Agricultural irrigation & Dewatering	Public water works & sewage pump	Railway traction & non-traction	Miscellaneous	Total
1	2	3	4	5	6	7	8	9	10
1998-1999	19880	9550	9230	760	1940	250	-	-	-
1999-2000	51340	12200	8978	800	1950	320	20058	26587	122233
2000-2001	43792	4962	7027	-	891	-	24448	10725	91845
2001-2002	51087	7667	8117	-	194	365	23354	170	90954
2002-2003	53757	7621	9365	1080	181	252	20533	125	92914

Source: Divisional Engineer, (O&M), W.B.S.E.B., Purulia

## 3. LOCATION AND DISTRIBUTION

### 3.1 Regional Distribution

#### 3.1.1 Regional Distribution of ASM/Informal Hard-Rock Mining

In Chaibasa, the district town of West Singhbhum there is one large limestone quarry near by: 'The Rungta mining company'. Actually there are four limestone quarries running surrounding Chaibasa in a radius of 25 kilometers. Those are at:

- e) Lupulgutu;
- f) Kamarhatu;
- g) Suryabasa;
- h) Jagannathpur.

In Purulia, West Bengal, there are two limestone quarries running in Jhalda block, near Jharkhand boader. Both are near the village Chirugora Marlong. Here limestones are collected from hills like Jabar pahar.

## 4. GROWTH

### 4.1 Introduction: History

In Jhalda town, Purulia district, West Bengal, and some surrounding villages to it there is a large community, known locally as 'Bagdi', were solely dependent on lime making by burning limestone and selling their product locally. This was there family tradition since ages. There can be found many other tribal populations in these areas of Jharkhand and West Bengal who were the indigenous lime producers.

Use of Portland cement is comparatively a new concept, hardly 200 years old in this country. Establishment of cement factory stared no earlier than 1930's.

## 4.2 Prediction of Growth in the Short-Run

The deposits in these areas are not sufficient. Growing public requirement of cement may be able to supply the raw limestone for next two decades.

## 4.3 Long-Term Growth Outlook

### 4.3.1 Reserves of the Resource

Actual total deposit of limestone in these two states has not yet been prospected properly. There are other reserves in these two area mentioned above which are not yet either mined, or prospected, or both.

### 4.3.2 Rate of Consumption of the Resource

Per day consumption from 4 quarries of West Singhbhum is around 400 tons and from jabalpahar quarry of Purulia it is 50 tons a day.

### 4.3.3 Other Resources outside Mining Areas

In Jhalda block of Purulia there are many other hills which contains limestone rock bands.

In West Singhbhum also there are many deposits already found which either of inferior quality is or the deposit is not worth mining. There are some other deposits where minin not yet started.

## 5. GROWTH FACTORS

### 5.1 Governance Factors

#### 5.1.1 Legal Environment

<b>PURULIA at a Glance</b>			
<b>Description</b>	<b>Year</b>	<b>Unit</b>	<b>Particulars</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Administrative set up :</b>			
District Head Quarters			Purulia
Sub-division	2002	Number	3
Police Station	2002	Number	20
Inhabited Villages	1991	Number	2456
Mouza	1991	Number	2685
Municipal Corporation	2002	Number	-
Municipality	2002	Number	3
Block	2002	Number	20
Panchayet Samity	2002	Number	20
Gram Panchayet	2002	Number	170

Gram Sansad	2002	Number	1925
<b>Area of Population :</b>			
Area of Population	2001	Sq. Km.	6259.00
Population	2001	Number	2536516
Density of Population	2001	Per sq. km.	405
<b>Percentage :</b>			
Male	2001	Percent	51.18
Female	2001	Percent	48.82
Rural	2001	Percent	89.93
Urban	2001	Percent	10.07
<b>Industry :</b>			
Registered Working factories	2002	Number	69
Small Industrial Establishment (Registered under C&S.S.I.)	2002-2003	Number	8966
<b>Employment in :</b>			
State Government Offices	2001	Number	14008
Registered Working factories	2002	Number	4922
Small Industrial Establishment (Registered under C&S.S.I.)	2002-2003	Number	54585
<b>Employment Situation :</b>			
Applicant on live register	2002	Number	189230

\* C & SSI = Directorate of Cottage & Small Scale Industris.

Source: District Statistical Hand Book, 2003, Purulia.

### 5.1.2 Administrative Constraints

Permission for mining is not controlled by a single authority. This is controlled by:

- 1) District Mining Officer (hereinafter DMO),
- 2) Directorate of Mines Safety (hereinafter DGMS),
- 3) District Magistrate or District Collector, locally by the Block level Officer on behalf of him,
- 4) District Land and Land Reforms Officer,
- 5) State Pollution Control Board,
- 6) District Forest Officer,

Local administrative bodies have no practical influence on these big industrial houses. For example, the Rungta Mining Company of Chaibasa is actually the largest iron ore exporter of this country whose mines are running in the state Orissa. They have direct access to the Central cabinet ministers, Secretaries of the Central Government and leaders of big political parties.

## 5.2 Socio-economic Factors

### 5.2.1 Socio-economic Environment

In both states limestone quarries run in remote places. These places were covered by dense jungle even some decades earlier. People live in these area are mostly tribal Santal, Munda, Ho and of such other community. Basically these people were dependent on the surrounding forests. Deforestation caused total socio – economic changed to these communities. They are now the contract labours for agriculture to some distant places or they are the labours of such quarries, stone crushers and in local cement factories.

Employment scenario in States					
<i>(CDS basis)</i>					
States	Employment Growth 1993 - 1994 to 1999-2000 (% p.a.)	Unemployment Rate		Employment elasticity 1993 - 1994 to 1999-2000	GDP growth (% per annum) 1993 - 1994 to 1999-2000
		1999 - 2000 %	1993 - 1994 %		
Jharkhand	1.59	7.32	6.34	0.353	4.5
West Bengal	0.41	14.99	10.06	0.056	7.3
<b>All India</b>	<b>1.07</b>	<b>7.32</b>	<b>5.99</b>	<b>0.160</b>	<b>6.7</b>

Source: Planning Commission, Government of India.

### 5.2.2 Shortage of Herder Income Opportunities

Except working in the agriculture fields of other districts in working seasons, the local tribal people have no alternative for earning. Those who live nearby a quarry may get employment there.

### 5.2.3 Shortage of Framework Income Opportunities

There is no industrial infrastructure in these places so no employment is possible in such fields.

Earlier, especially in Jhalda I block of Purulia district, West Bengal, there was a large industry on production and processing lac. It used to provide at least two to three thousand man-day of work to the local people surrounding this area. Presently this industry is totally destroyed by present day's commercial varnishes.

There was another industry running in this area. This was production of lime from burning limestone. Limestone is abandoned in this area on the hills and these are exposed rock bands on mountains. The local Bagdi community, at least three to five hundred families, was solely dependent on this profession. Present day's cement factories produce commercial packet lime and sell those in the market. These has been destroyed the local demand of the lime produced locally.

### 5.2.4 Desire for Higher Education



Present policy of Indian central Govt. emphasized on free primary education to every child. This has been enhanced the desire for education among rural backward people also.

Total number of Recognised Educational Institute (2001 - 2002)						
State	Primary/Junior Basic School	Middle/Senior Basic School	High School/Higher Secondary Intermediate/Pre-degree/Junior College	Colleges for General Education	Professional Education	Universities/Deemed University and institution of National Importance
1	2	3	4	5	6	7
Jharkhand	16643	4187	1157	0	0	6
West Bengal	52426	2384	9436	354	88	28

Source: Selected Educational Statistics 2001 2002, Ministry of Human Resource Development, Govt. of India.

Literacy Rate (1951 - 2001) (in %)						
State	1951	1961	1971	1981	1991	2001
Jharkhand (previously part of Bihar)	12.20	21.80	19.90	26.20	38.50	47.53
West Bengal	24.00	34.50	33.20	40.90	57.70	69.22
<b>All India</b>	<b>18.30</b>	<b>28.30</b>	<b>34.45</b>	<b>43.57</b>	<b>52.20</b>	<b>65.38</b>

Source: Office of the Registrar of General of India.

Gross Enrolment Ratio in Classes I - V, VI - VIII and I - VIII									
State	2001 - 2002								
	Classes I-V (6-11 years)			Classes VI-VIII (11-14 years)			Classes I-VIII (6-14 years)		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Jharkhand	100.51	76.34	88.56	43.86	30.76	37.56	78.02	58.83	68.83
West Bengal	112.72	106.82	109.8	60.51	46.96	53.88	92.14	83.50	87.88
<b>All India</b>	<b>105.29</b>	<b>86.91</b>	<b>96.30</b>	<b>67.77</b>	<b>52.09</b>	<b>60.20</b>	<b>90.69</b>	<b>73.56</b>	<b>82.35</b>

Source: Selected Educational Statistics, 2001 - 2002, Ministry of Human Resource Development, Govt. of India.

### 5.2.5 Reasons for Engaging in Illegal Mining

In Jharkhand some people engage themselves in illegal coal mining as they have no alternate source of income in one hand, in other hand, the simple local tribal people

used to think that the things on an under earth is given for the use of some of the soils by mother earth.

In Purulia, West Bengal the Bagdi community who used to live on homely production of lime, still use limestone from the quarry run by other owner. They are forced to do this to earn a living.

### **5.3 Geological Factors**

#### ***5.3.1 Combination of Special Geological Factors***

The two fields taken under this survey of two adjoining East Indian sates have some common geological features, at least in some areas. The limestone deposits are not alike in character in these two areas. Limestone deposit in Jharkhand is totally sub soil. On the contrary deposits of Purulia district of West Bengal is as rock bands on mountains.

### **5.4 Mining Sector Factors**

#### ***5.4.1 Resource Losses due to Mining Operations***

The area under study was completely covered by dense jungle earlier. Even in some areas forest was in its full bloom some to decades earlier. These mines are causing total deforestation.

#### ***5.4.2 Resource Losses due to Mineral Processing***

Crushers depending on these mines causing air pollution with suspended stone dusts. These dusts are getting deposited on agricultural fields and also causing some lung diseases like silicosis etc.

#### ***5.4.3 Resource Losses due to Mine Closures***

Sub soil mines leaving the left mines fields without filling those.

## **6. SOCIO-ECONOMIC CHARACTERISTICS**

### **6.1 Who are the Miners**

Miners are from the local poor community. Mostly they are belonging to some tribal casts.

#### ***6.1.1 Introduction to the Miners***

Mostly this people are the local inhabitants living near by the quarry concern.

#### ***6.1.2 Previous Employment of Males***

Mostly males were engaged in either agricultural work or fetching fuel wood from near by forest and selling those in local market or both.

#### ***6.1.3 Previous Employment of Females***

Women earlier were engaged in agricultural and household works, namely fetching water and fuel wood, herding cattle and goats.

### 6.1.4 Classification of Miners by Age

Minors are mostly in the age range of 25 to 45. Some times there are miners below or above this range, but that is not regular feature.

## 6.2 Categories of Miners

### 6.2.1 Actively Involved in Alternative Occupations (farming, herding...)

Most people were engaged in agricultural works in the time of monsoon and in harvesting season. The people don't have their own agricultural land go to other places where they can earn from this kind of work.

### 6.2.2 Formerly Involved in Alternative Occupations

There are some people who were engaged in some brick fields.

### 6.2.3 Alcoholism

Alcoholism is prevalent among male workers of all age. Female workers drink only in weekends or during festival time.

## 6.3 Socio-economic Influences

### *Jharkhand:*

*Economy:* The net state domestic product at current prices (new series) in 2000 – 2003 (advance estimate) was Rs.27, 358 crores. The per capita net state domestic product at current prices (new series) in 2002 – 2003 (advance estimate) was Rs.9955.

*Agriculture:* The main crops grown in the state are paddy, wheat, pulses and maize.

### *Purulia, West Bengal:*

Number of Enterprises in Rural and Urban Areas in the district of Purulia												
Sector	Establishment				Own account Enterprise				Total			
	1990		1998		1990		1998		1990		1998	
	Agri.	Non-Agri.	Agri.	Non-Agri.	Agri.	Non-Agri.	Agri.	Non-Agri.	Agri.	Non-Agri.	Agri.	Non-Agri.
Rural	259	9897	477	12645	3668	38375	2114	45143	3929	48272	2591	57788
Urban	71	4277	200	6128	250	7891	110	7927	321	12168	310	14055
Combined	330	14174	677	18773	3918	46266	2224	53070	4250	60440	2901	71843

*Source: Economic Censuses 1990 and 1998, Bureau of applied economics and statistics, Govt. of West Bengal.*

Number of Person Working usually in Rural and Urban Enterprises in the district of Purulia												
Sector	Establishment				Own account Enterprise				Total			
	1990		1998		1990		1998		1990		1998	
	Agri.	Non-Agri.	Agri.	Non-Agri.	Agri.	Non-Agri.	Agri.	Non-Agri.	Agri.	Non-Agri.	Agri.	Non-Agri.
Rural	11	526	24	736	57	573	38	754	68	1099	62	1490
Urban	4	342	11	439	5	103	3	135	9	445	14	574
Combined	15	868	35	1175	62	676	41	889	77	1544	76	2064

Source: Economic Censuses 1990 and 1998, Bureau of applied economics and statistics, Govt. of West Bengal.

## 7. GENDER CONCERNS

### 7.1 Women's Work Participation: History of Region/Country

Women among tribal community of this region taken under survey have equal role in family and in society. This is not true among rural or urban middle class society, at least decades earlier. There is prominent division of labour among men and women in middle class society. But in tribal community or among lower economic group of backward classes other than the tribal people men and women share there job.

### 7.2 Gender Roles

#### 7.2.1 Recent Changes in Gender Roles

Infiltration of urban culture and invasion of cable TV network changing the live pattern of these tribal people. One interesting think noted among them is adolescent boys like to maintain four or five girl friends at a time on the contrary, girls are not interested to mix up with the boys of their own community. Free mixing and uninhibited sex was the norm of tribal community like Santals, but they hate to mix up with the people of other community.

#### 7.2.2 Family-Kin Networks

These people under survey maintain a closely knit family with grand parents and other members. The total community also lives together and the village is controlled by an elder member of the society known as 'Gaonbura' they have there own code and court for any social or family dispute.

#### 7.2.3 Women's Needs

Women among these communities need some institutional education. This is already looked after in some areas but it should be available to all. Public health service is almost lacking. Especially medical help should be available to the would be and new mothers.

### **7.3 Gender Roles in Mining and Processing**

#### ***7.2.1 Division of Labour in Mining***

In mining ratio of female is to male labour is 40:60.

#### ***7.2.2 Division of Labour in Processing***

In processing ratio of male is to female labour is 60:40.

#### ***7.2.3 Division of Labour in Transporting***

In transportation ratio of female is to male labour is 60:40.

#### ***7.2.4 Division of Labour at Home***

At home household works are done by females. In cases where females go out for external work their male counter part performs the domestic works, especially it is seen in Santal community. In other communities male don't takes part in household works. If the women goes out to other works, she has to it in addition to the household works.

### **7.4 Wages**

#### ***7.4.1 Wages in Other Activities***

In other activities like agricultural work earn a labour Rs.60 a day for 8 hours work. Those who are engaged in fetching fuel wood from forest earn only Rs.35 for a days work.

#### ***7.4.2 Wages in ASM/Informal Mining***

It varies from Rs.70 to Rs.120 a day depending on the total work done in a day by a labour. Because in mines workers appointed in contract.

#### ***7.4.3 Women's Views on Wages***

At least in this part of country women are paid equally to the men. So they don't have any complain against their wages.

### **7.5 Working conditions**

#### ***7.5.1 Provision of toilets, crèches***

There is no provision of toilet or crèches in or around a mining area because these mining are very small and number of working women here is not more than 12 to 18 in a mine.

#### ***7.5.2 Household chores, family support***

Household chores are carried out by women in general. But in some cases they are supported by their other family members like her husband, son or brother and the household chores are shared by them.

#### ***7.5.3 Sexual harassment***

These are very small quarries and no labour colony culture is there. Infrequent incidents of sexual harassment take place sometimes but there are seldom police cases.

#### **7.5.4 Women's Perceptions of Sexual Harassment**

Most of the women victim of such cases don't like to make fuss with it. Some of them take such incident as professional hazard.

### **7.6 Work Organisation and Division of Labour**

#### **7.6.1 Gender-based Structure**

<b>Percentage distribution of hired workers in non-agriculture establishments and females employed in non-agricultural enterprises in the district of Purulia</b>				
<b>Sector</b>	<b>Hired Workers</b>		<b>Female employed</b>	
	<b>1990</b>	<b>1998</b>	<b>1990</b>	<b>1998</b>
Rural	4.25	4.77	3.20	4.08
Urban	1.15	1.34	1.01	1.39
Combined	2.06	2.42	2.44	3.11

*Source: Economic Censuses 1990 and 1998, Bureau of applied economics and statistics, Govt. of West Bengal.*

## **8. CHILD LABOUR ISSUES**

### **8.1 Introduction**

#### **8.1.1 Overview**

Concern of children and the elimination of child labour continue to be an area of great concern and article of faith for successive government. According to the census 2001 figures, there are 1.25 crore working children in the age group of 5-14 as compared to the total child population of 25.2 crore of which 1.07 crore working children are in the age group of 10-14.

Existing laws prohibit the employment of children below 14 years of age in factories, mines and hazardous employment and regulate the working conditions of children in other non-hazardous areas of employment. The government of India adopted a national policy of child labour in 1987 with a three fold strategy; legal action plan, general developmental programs and project based action plan. Under the project based under plan, the Government of India has adopted two schemes, namely, National Child Labour Project Scheme (NCLP) and Grant-in-Aid to voluntary organizations for taking up action oriented programs in the field of rehabilitation of child labour. There are currently 100 NCLPs covering 2.11 lac working children. Government has approved the continuation of the above schemes during the tenth plan. It has also been decided to sanction additional 150 NCLPs during the tenth plan. Action is already underway for sanctioning these new NCLPs. Under the Grant-in-Aid Scheme, voluntary organizations involved in rehabilitation of child labour have been provided financial assistance for the projects undertaken by them in areas not covered by the scheme of NCLP.

### **8.1.2 Children of Miners OR Child Miners?**

A large number of children of miners are presently gone to school. But these children rarely continue their education. Mostly they dropped their study after primary level. Very few continue up to secondary standard.

Child miners in this particular field are almost absent.

### **8.1.3 Opinion of Parents**

Most parents of present day one they are child should study at least up to 10+2 standard so that he or she can get some white collar job.

## **9. LABOUR PROTECTION, HEALTH AND SAFETY ISSUES**

### **9.1 Labour Protection**

#### **9.1.1 Labour Protection in Mining**

Regional office of the Director General of Mines Safety looks after the labour protection. This doesn't help labours much. It only sees whether there is a blasting shed or the labours are getting protective eye glass.

### **9.2 Working Conditions**

#### **9.2.1 Opinions of Miners on Working Conditions**

The conditions in which a miner has to work are not judged by them. They are happy if the amount and more of payment is good. They are not aware whether there should be any accident policy or any medical policy covering them.

#### **9.2.2 Labour Pressure**

There is organized labour union almost in all mines, stone crushers and cement factories. But these unions only are interested in raising the payment. They don't care to pressurize the mining authority for labour insurance or for any other necessary matters.

#### **9.2.3 Mining Season**

Everywhere the season is from January to May and from September to November

#### **9.2.4 Working Hours**

Working hour in these mines is from 8 to 12 in the morning and 2 to 6 at afternoon, that is 8 hours.

### **9.3 Health and Safety**

#### **9.3.1 Opinions of Miners on Health Conditions**

Most of the miners are unaware about their right of getting medical support against health hazard. Only they get some medical health on behalf of the owner company in cases of accidents.

## **10. METHODS AND EQUIPMENT**

### **10.1 Tasks**

#### ***10.1.1 Mining Tasks***

After prospecting the upper earth surface is removed and limestone deposit is taken out during mining.

#### ***10.1.2 Processing Tasks***

Taken out limestone from the mine in the form of boulders are taken to a stone crusher. The crushed stone are then taken to a cement factory or to limestone factory has the case may be.

### **10.2 Equipment**

#### ***10.2.1 Mining Equipment***

Earth cutters are used to remove the top soil. Drills and compressors are used to dig holes in the limestone. Gelignite sticks are used for blasting. Boulders produced after blasting is broken down in smaller pieces manually. These pieces are taken to a crusher by dumpers.

#### ***10.2.2 Processing Equipment***

Smaller pieces of limestone of the size 6 to 8 inches long are processed in a stone crushers to be used in cement factories.

### **10.3 Method – Transport**

Method of transport is by trucks or dumpers because most of the mining companies employ their own transportation system and if necessary they construct earthen road to the mine or they influence local authorities to construct roads.

### **10.4 Methods and Equipment in One or Two Case Study Village(s)**

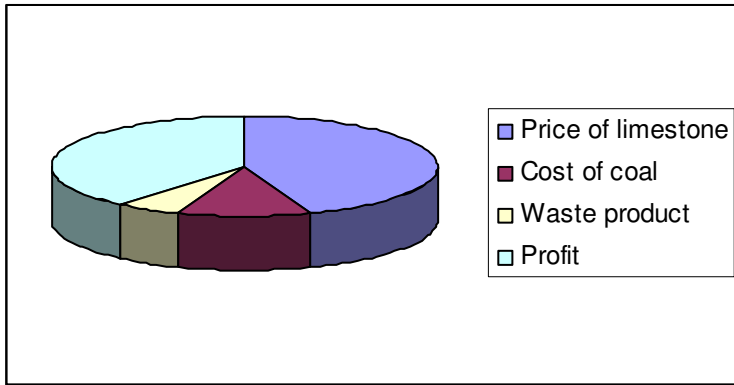
One especial case study worth mentioning. In Jhalda town of Purulia district there is a large Bagdi community who earlier where the limestone miners and producer of processed limestone. Still some of the families follow this profession.

Women of this community are engaged in this work. They purchase limestone form the casual miners, mostly from the Santal community stay nearby. This limestone is then burnt in a earthen furnace for 12 hours. This is the processed lime used in painting houses or to be used with beetle leaves or with tobacco. In this process one woman of a family can earn Rs.1000 to Rs.2000 a month.

The community who were dependent on breaking limestone from a hill and sale those to the women who make lime generally earns Rs.1200 to Rs.2000 a month.

#### ***Profit from home made lime:***

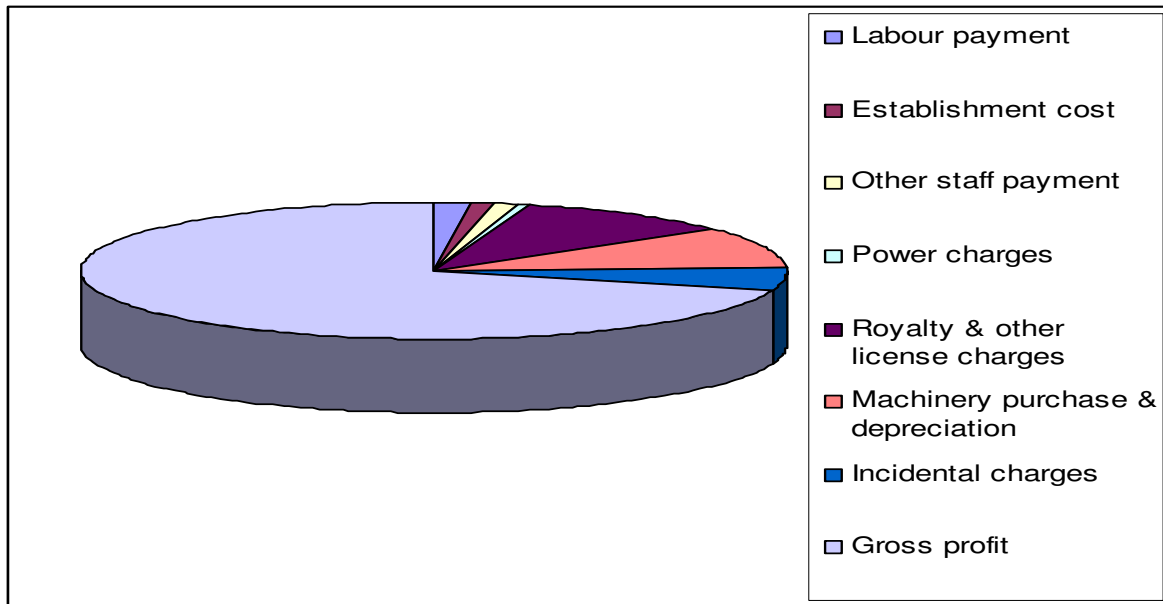




## 11. INCOME AND FINANCIAL FLOWS

### 11.1 Income

#### 11.1.1 Annual Income



## 12. LEGAL AND ADMINISTRATIVE ISSUES

### 12.1 Law and Order and Human Rights

#### 12.1.1 Law and Order

Generally law and order situation in and around mining area is trouble free. The people work here come from such a community who have their own code of conduct of their life and have a constant surveillance over their social activity.

#### 12.1.2 Human Rights

No such activity is seen for maintaining and perseverance of human rights from any govt. or non-govt. agencies.

## **12.2 Overview of Legal Issues**

### ***12.2.1 Exploration Licenses***

Exploration license is provided by the district mines office.

### ***12.2.2 Mining Licenses***

This is given by the Director General of Mines Safety, District Mining Officer and District collector or District Magistrate, District Land and Land reforms Office and District Forest Officer.

### ***12.2.3 Central Government Measures to Legalise Informal Mining***

So far limestone mining is concern; it is not any informal field.

## **12.3 Conflicts with Traditional Rights**

### ***12.3.1 Conflicts with Traditional Land Use Rights – Pastures, Forestry and Farming***

Not a large area is required to run a limestone quarry. This is not the direct cause for destruction local forestry and pastures. The only thing these mines causing deprivation to the local people is they have taken away the access to use the limestone for their own survival.

## **13. ENVIRONMENTAL ISSUES**

### **13.1 Environmental Factors**

#### ***13.1.1 Negative and Positive Factors***

The negative aspect of limestone mining is that it is indirectly causing deforestation of the area and loss of pastures for the cattle raised by the local people. Only positive aspect of a quarry is it provides employment at least to 35 – 40 people and providing some part of the government revenue.

### **13.2 Key Impacts**

#### ***13.2.1 Local Ecosystems***

During initiation of a quarry it is necessary to clear up the earth surface. This localized deforestation encourages the local wood mafia to destroy the total forest of that region. Mines run normally in arid regions where rainfall is low. Destruction of forest causing lack of rainfall in those regions which has a long run impact on the local agricultural field and so on the people who depend solely on agriculture.

State wise summary status in 17 category of highly polluting industries				
State	Total no. of Units	Status (No. of Units)		
		Closed	Compliant	Defaulters
Jharkhand	21	3	16	2
West Bengal	66	17	44	5

Source: Ministry of environment and forests.

### **13.2.2 Entire Ecosystems**

As mentioned earlier, starting a new quarry in some area causes permanent damage to the entire ecosystem.

### **13.2.3 Forests**

All the quarries running in this moment, be it in Jharkhand or in West Bengal, are in such a place which was earlier dense forest. Directly or indirectly these forests were lost due to mining.

### **13.2.4 Biodiversity**

Loss of forest in a area causes displacement of forest animals. Most are killed in the process of deforestation. Animals like elephants, when displaced they try to find out new are places for their grazing ground. Loss of forest in Jharkhand and in West Bengal forced many herds of elephants to invade on cultivation land in other districts even some 300 kilometers away. This is a regular problem t the districts dependent solely on agriculture.

### **13.2.5 Cultural Heritage**

Many people in these areas who earlier were lime makers are now displaced by these organized mining houses. They are forced to be labours in some distant brick fields where they are to live in slums getting uprooted from their own village, society and customs. They are getting alienated from their own culture and tradition.

### **13.2.6 Indigenous Peoples**

As mention earlier people live in these areas are tribes of Santal, Ho, Oraon, Munda and such other casts. They were originally the forest people depending solely on the flora and fauna of a forest. They were the real preserver of forest lands. Civilized country law all over the world deprived them from their own assets.

## **14. COMMUNITY ISSUES**

### **14.1 Community Benefits**

#### **14.1.1 Poverty Reduction and Employment Generation**

The mine running in a area causing at least some reduction of poverty in a locality as they cause employment to some people.

### **14.1.2 Local Economy**

May be in a minimum level but these mine have some impact on local economy as these are providing some raw money at least to some percentage of that locality.

### **14.1.3 Transport**

May be indirectly, but these mines are causing enhancement of local transport system.

### **14.1.4 Raising Revenue**

These mines are earning the government at least some revenue. May be this is not much in respect of the total annual budget of a state, yet this is a concrete earning for the government.

## **15. CONTACT LIST OF NGOs, RESOURCE PERSONS AND GOVERNMENT OFFICIALS**

- 1) MR. S. MURLIDHAR RAO, AGENT, RUNGTA MINING CO. LTD., JAMSHEDPUR.
- 2) MR. P.K. NAYAK, MANAGER, RUNGTA MINING CO. LTD., LUPUNGUTU, CHAIBASA.
- 3) MR. SANJEEB MALLICK, RUNGTA MINING CO. LTD., CHAIBASA.
- 4) MR. DEBEN SAU, ENGINEER, TULIN, PURULIA.
- 5) MR. AMAR SANKAR MAHADONI, JHALDA, PURULIA.

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