

**MINUTES
of
NATIONAL WORKSHOP
ON
MINING, NATURAL RESOURCES AND LIVELIHOODS
19-20 MARCH 2009**



Figure 1: Inauguration by Dir. GSI, Ranchi and GM Environment, CCL

**Venue:
OMRAN VILLA
505 - D, Road No-1
Mandir Marg, Ashok Nagar, Ranchi - 1**

Organized by



**Society for Promotion of Wastelands Development
14-A, Rouse Avenue Lane, Near ITO, New Delhi-110002**

PROGRAMME SESSIONS

DAY - 1 (March 19, 2009)

Welcome Address – **Mr. Sanjay Kumar, SPWD – Ranchi**
Opening Remarks – **Mr Viren Lobo, Executive Director, SPWD – New Delhi**
Inaugural Address – **Mr C. G. Ghosh – CCL Ranchi, Mr. R.K.Prasad, Director GSI, Ranchi**
Overview of Mining Operation – **Dr. M.K.Jain, ISM Dhanbad**
Environmental Degradation due to Open cast Mining - **Prof. Uday Kumar, Ranchi University**
Geological aspects of Mining – **Dr. N. Priyadarshi**
Development of Village Economy by Mineral Appraisal Programme - **Mr. B. Tirkey, Director (Rtd.) GSI**
Reclamation of Degraded Lands - **Dr. R.S.Singh – CIMFR – Dhanbad**
Issues of Mine Labourer, Cycle Pullers - **Mr. Simon Hansda, BIRSA – Ranchi**
Socio Economic issues of Mining - **Prof. Ramesh Saran, Ranchi University**
Study of Coal Mining in Bokaro River Sub-basin - **Mr. Pran Ranjan and Mr. Sharat Singh, SPWD, Eastern Region Office-Ranchi**

DAY - 2 (March 20, 2009)

Recapitulation of Day – 1 - **Mr. Sharat Singh, SPWD ERO-Ranchi**
Environmental Impact Assessment of mining operations – **Ms Kanchi Kohli – KALPVRIKSH – New Delhi**
Societal Development through Rejuvenation Techniques – **Ms Nimisha Tripathi – CIMFR – Dhanbad**
Land Acquisition, Displacement and R&R – **Mr. Ram Lal Prasad, JSP – Hazaribag**
Phosphate Mining in Udaipur – **Mr. Pankaj Paliwal, JJVS – Udaipur (Rajasthan)**
Masonry Stone Mining in Udaipur – **Mr. R.K. Yadav, HVVS – Udaipur (Rajasthan)**
Mining in Niyamgiri hills – **Mr. Biren Nayak – Action Aid (Orrisa)**
Way Forward – **Dr. R.S.Singh – CIMFR – Dhanbad, Mr. Sumit Ghosh, CCL, Mr. Arvind Kumar – LJK, Madhupur, Mr. Viren Lobo – SPWD – New Delhi**
Votes of Thanks – **Mr. Pran Ranjan, SPWD ERO-Ranchi**

DAY - 1 (March 19, 2009)

Welcome Address – **Mr. Sanjay Kumar, SPWD – Ranchi**

Mr. V Lobo
Executive Director
Society for Promotion of Wastelands Development, Delhi

Opening Remark

SPWD had initiated work on reclamation of wastelands 25 years earlier which focused primarily on rehabilitation of mine dumps, however but couldn't do much on this issue and for a long while nothing specific was being done. Recently Center for Science and Environment published a book called Rich lands poor people which reopened the issue of mining from the point of view of natural resources and livelihood. The CSE book draws the link between India's rich mine resources poverty and forest resources, and it appears that mining is being done to uproot forest dwellers which is not the case. Prior to the British over 200 years earlier the technology was different. Large scale mining was first started in the coal fields of Raniganj West Bengal Coal. From 1970-80 onwards mechanisation in the mining sector has increased. Due to the geological formation, commercially viable minerals are located in the forest area and hence mining has become synonymous with environment destruction. In Rajsamand district of Rajasthan the issue is different as it is not tribal area nor is the forest area in the upper catchment being mined.



Figure 2: ED, SPWD delivering opening remarks

Jharkhand State is at the heart of mining in India (primarily of coal) accounting for 13.2% of its GDP and it employs 26% of the workforce engaged in mining across the country. In the context of coal, 78% of the production is being used for electricity and till 2030 also 42% of India's energy requirement will continue to depend on coal. As coal & petroleum are also used for locomotion the role of mining in other sectors of development extend far beyond what is shown as its contribution to the GDP and employment. In the case of Phosphate mining, 90% of phosphate production in the country comes from Udaipur. While a number of people are affected, there are benefits to a large section of the society.

The alternative to coal from hydroelectricity is limited as it leads to submergence of vast areas and consequently one also has to deal with large scale displacement of the human population and effects on the bio diversity. In Chamabal river, Wild life promotion board

has put a halt to the construction of four hydro power stations as they will affect the alligator and dolphin sanctuary which is located in a 26 km stretch.

In case of energy, bio fuel and solar energy will be the major source only after 50 years. America's use of maize for ethanol has doubled the world prices of maize, leading to a crisis for the poor in Africa and other developing countries. To divert from this issue, a canard was being spread that the people India and China are eating more.

Ethanol production of America is equal to the production of ethanol from Brazil from sugarcane. However since the cost of ethanol production is double that of Brazil, it is subsidised heavily. While subsidy for food grain is sought to be reduced (red subsidy), subsidy for biofuel is possible as it is a green subsidy. The issue of biofuel is being used politically to deal with the surplus food grain stocks of the developed countries like America.

Productions of coal and iron ore have increased exponentially over the last ten years in order to fuel the growth in other sectors. Since this is predominantly through large scale mechanization facilitated by open cast mining labour demand has reduced considerably. Prior to 2000, for every one crore rupees worth of production in mining sector 25 people were employed now this has reduced to 8 people in 2008. . This kind of development without corresponding employment potential, is leading to large number of agitations across the country.

Mr. C.G Ghosh, GM Environment, CCL

Coal mining is one of the important industries in Jharkhand. 50% of energy in India comes from coal and 75% of Thermal Power runs through coal. Jharkhand is one of the major producers of coal for development. There is no alternate source of energy for the development of country and for this coal is needed. CCL plans to produce 44MT of coal per annum by the end of 12th plan.



Figure 3: GM, CCL delivering his concerns

CCL responsibilities have increased. Previously there was no law on environment and mine. Environment Protection Act came in the year 1986. Since then environment management plan is being prepared for the ministry of environment and forest. CCL is now mining as per the EMP and doing back filling. Mining causes air, water, noise and land pollution. CCL has now started taking care of these problems.

The discussion at the workshop, would help CCL to interact with grass root agencies in order to better understand their responsibilities not only towards production but also towards maintaining the health of environment.

Mr. RK Prasad, Director GSI, Ranchi Inaugural Address

Mr. R. K. Prasad in his inaugural address mentioned that he is happy to be here for this brain storming session on mining issues. Wasteland development is a larger issue and mining is a part of it. India has major natural resources and is dependent on them for livelihood and well being of the people. India also has a rich heritage of mining activity.

Eastern state like Jharkhand, Orissa, Chattisgarh, W.B are dependent on minerals for their economies but they pay the price in terms of degradation of the environment.



Figure 4: Dir, GSI, delivering inaugural speech

From planning to execution we need to take suitable measures. A number of health problems are being faced by the people as a result of mining and change in the hydrological land use pattern.

GSI was established in 1851 British needed coal for rail industry so needed to do geological survey. After independence there is increase of mining of coal. New minerals came to light with the advancement of technology for mechanization of mines.

Large mines give rise to degradation and large populations are affected. Jharkhand is rich in minerals which generate employment. We can't reject and say no to mines. We have to go for as they are intricately linked with our life style. Pollution at Mining can be tackled at every stage. We have to ensure that people at large are not affected adversely.

On the question of lease of land and evacuation of people, he mentioned that Companies want everything at one site. At every stage one needs to tackle the issues seriously. Jharia is on fire from underground and people are pressurized to evacuate. They do not want to do so, due to livelihood concerns. There is need to take up suitable measure for development of the area.

**Dr. M.K.Jain,
Assistant Professor
Centre of Mining Environment**

Indian School of Mines University Dhanbad

Overview of mining operation

There are two types of energy renewable and non renewable energy. Coal is a non renewable energy.. Primary consumption in India is coal 54%, oil 32%, natural gas 8%, hydroelectricity 5% and nuclear energy 1%. Coal will account for 50% of the projected primary energy consumption in the year 2024-25, whereas oil is 25%, gas 20%, hydro electricity 3% and nuclear energy 2%. Raw coal production in the year 1975 was 79 MT. In 2006-07 it was 360 MT now it is projected to reach 425 MT in the year 2008-09.

Open cast mining is damaging land resources, and other parts of the ecosystem viz air, groundwater and even the fabric of rural society. Mines are generally located in forest areas and in tribal zone. In Jhariya coal fields, the land is damaged. There are many issues related to mining, namely lease of Land, R&R Policy and Public hearing. There is need to relocate the people and improve the quality of life.

While mining has resulted in the creation of a heterogeneous society with a higher living standard, waste disposal of ash from thermal power stations and the extraction of coal from the earth are creating numerous environmental problems. The large quantities of ash will require land for its disposal. With coal production expected to treble in the next ten years, this problem will be aggravated many fold.



Figure 5: Dr. Manish Jain, ISM, Dhanbad

CME is looking at the various chemical and physical properties of ash so as to facilitate its proper utilization. While Netherlands has 110% disposal of ash and Poland 100% , India has only 23% utilization.

Some of the problems from Fly ash are:

- Generation of respirable dust when fly ash is handled in dry conditions.
- Accumulation of the fly ash in underground sump requiring periodic cleaning of sump.
- Water flowing from fly ash stowing district leading to contamination of the ground and surface water due to suspended solids and leaching.
- Fly ash flowing into the working places through barricades degrading the ROM coal quality.
- Damage to the stowing barricades due to hydrostatic pressure created by the fly ash slime with sluggish settling behaviour.

- Strength of fill and the support of fill for the movement of equipments could be affected by the low CaO content in Indian bituminous fly ash.
- Problems related to hydraulic conveyance of fly ash such as chocking of pipes, and wear and tear in pipes

Utilization of Fly ash in rural area is rural road, construction of pond embankment, Irrigation channels, well construction, check dams, building construction, cowsheds, as fertilizer, as insecticides, in wasteland areas, base material for nursery, filling low lying areas, Brick making and as a flooring material for paddy and wheat. Utilization of Fly ash in urban area is building component, roads and embankments, hydro sector, dyke raising, fly over, reclamation of ash pond, reclamation of low lying area, cement manufacturing, zeolites manufacturing, waste water treatment, light weight aggregates, paint and enamels, mining sector and extraction of alumina.

He later discussed about the fly ash based backfill application in which fly ash is mixed with sand can be 30% fly ash and 70% sand. But physical property of fly ash is fine particle in this proposed plan is to make fly ash as sand particle. Financial constraint is the problem in making fly ash as sand particle.

In the discussions that followed , it was mentioned that since bricks made from fly ash have low strength , it is mostly used for non load bearing structures like the wall between concrete pillars which take all the load. Transportation of dry fly ash is banned because of air pollution. However if wet ash is transported, there is a problem with respect to its setting in the backfill dumps. While on the one hand, fly ash dumps will not allow water percolation, on the other , there is danger of leaching of contaminants from the dumps. It was suggested that the mps be filled so that the water drains off from the fly ash to the surrounding area, a layer of normal mud should be around fly ash to facilitate proper drainage and recharge of ground water.

**Prof. Uday Kumar,
P.G. Department of Geology
Ranchi University, Ranchi**

Environment Degradation due to opencast mines

There is a need for judicious usage of mineral resources in terms of applying proper methods for open cast mining of coal and iron in Jharkhand primarily benching to prevent instability of the mining pits. The mineral map of Jharkhand, shows that the northern part of Jharkhand has great reserves of coal as well as other minerals. Important minerals of Jharkhand are coal, iron ore, copper and lime stone. Coal contributes 89.58%, Iron ore 1.94%, bauxite 0.69% and limestone 0.40% to the state revenue collection.

Typically a coal mine has 1:8 ratio i.e. 1 foot of coal to 8 feet of overburden. Management of overburden created by mining is very important. In Rajrapa coal field for instance, there was no proper benching even at work place. This causes a number of accidents to happen. There are number of 'rat holes' from where illegal mining is done by the residents of the region. Local inhabitants of the region, carry coal by cycle to the nearby towns.

Disposal of fly ash has changed the colour of water which has become dark. The digital elevation model of study area, water table contour map, drainage map and ground water flow map showed a number of first order streams implying that there is easy flow of water. *Bhera River* has never dried as many flow lines drain water into the river. There is base flow

even in the month of summer. This implies ground water is contributing to the *Bhera River* which is higher than the surface flow. Similarly *Harmu River* also never dried. *Chutu Palu* and *Gola* provide part of the catchment for *Bhera River*. *Chutu Palu* has thick forest but now many stone quarries are present. *Gola* has good agricultural production. If these catchment areas are not treated, base flow will be reduce in future as the thickness of the water storage lateritic rocks will go on reducing. There will be a cascading effect as in *W. Bokaro* there was 12% agriculture land in 1988 which has reduced to 6% in the year 1998. While mining should continue, there is need to ponder over the need for proper harnessing of natural resources for the sustainable use of man



Figure 6: Prof. Uday sharing the geological perspective

Points raised:

- Ponds which are created due to mine activity are used for recharge of ground water and fishing activity. The *Cutu Palu* study shows that these ponds have limited potential for recharge as the flow lines of the aquifer indicate a more decentralised process which is getting disturbed by mining. This reopens the question of back filling.
- According to Coal India, villagers claim that their wells are being recharged by the water filled in the pond. It is for this reason, that the Government is promoting the closed open cast mines as ponds. These however do not come in the category of natural ponds and disturb the water flows.
- The indiscriminate promotion of open cast mining in the region by Government, is creating havoc.
- *Jharkhand* comes under *Godwana* watershed. There is granite in the basement of *Ranchi Plateau*. While removing the coal and sand stone we are removing the laterite layer which is a good water storage zone and hence reducing the ground water potential of the region.

Dr. N Priyadarshi **Geological Aspects of mining,** **DST, Ranchi**

Mining results in deforestation and hence there is a need to grow trees because growing trees absorb more carbon dioxide. Deforestation also results in the removal of topsoil. The soil of *Jharkhand* is different from the soil of *Bihar*. In *Jharkhand* soil formation is slow through weathering of the rocks. In *Bihar* top soil is carried by the river every year. Wells are being dug every year by *TISCO* & *CCL* but these wells get dry very soon due to mining .

Due to extraction of minerals ground water is getting contaminated. At Chandil the color of water has become red. There is water contamination of fluoride 1.5mg/lit, nickel, chromium etc. According to some reports, Damodar is contaminated with Nickel, chromium, mercury etc. In Jadugora, people have symptom of burning of stomach because they drink water from nearby spring. Even people of this area don't have time to boil water. People also have dependent on organization like TISCO or coal India. At Jadugora there is skin disease due to radioactive radiation.



Figure 7: Dr. Nitin Priyadarshi in center

Groundwater mining is also leading to the problem of water contamination. There is arsenic pollution in Plamau and fluoride at Shebganj. Water resources of the mines provide good breeding ground for malaria. Villagers also cannot use this water for drinking.

In the case of Jhariya , displacement is the only answer as the depletion of the subsurface due to fires are leading to subsidence, but people don't want to go as proper rehabilitation of the population has not been arranged for.

Due to blasting dust particles are thrown into the atmosphere. People located near these quarries have breathing problems. No precautionary measure has been taken at stone query at Ormanjhi or at Hatiya. People are engaged in mining for their livelihood.. Even children are engaged in work along with their mothers. There are occupational health hazard due to surface water problems and deep boring. Mining is generally done in forests were tribal livelihoodsystems are affected. The longlivity of women of these areas is not more than 50 to 55 years. These people are dependent on quacks due to lack of proper health facilities.

**Mr. B Tirkey,
Director (Rtd.) GIS**

Development of village Economy by Mineral Appraisal Programme - DOVEMAP

Concept of DOVEMAP has been started at northeast in Tripura developed with the support from GIS- India. Need to explore the possibility of its implementation in Jharkhand. He laid more emphasis on implementation by government agencies for remedial measures. A micro level environmentally sustainable programme can be developed for each revenue village. The report can be taken up at village, panchayat to district level.

This project is designed to impart thrust to the development activities in rural areas of Tripura state through multidisciplinary approach using 1: 4000 scale cadastral based maps. Theme based maps on each cadastral sheet were prepared by integrating with other socio economic data.

DOVEMAP – Development of village economy by mineral appraisal programme to generate micro level environmental sustainable development plan on the basis of assessment of natural mineral resources available in each revenue villages.



Figure 8: Ex. Dir. GSI, Mr. Tirkey explaining village resource planning

Objective of DOVEMAP

- Rapid Integrated Resource survey at revenue village level.
- Resource survey of low value but high volume minor mineral deposits for utilization in construction of building and small scale industries.
- Terrain evaluation by mapping land use pattern and terrain potential for its optimum use.
- Hazard mapping and suggested mode for their redressal.
- Measure to generate employment opportunities for weaker section of society.
- Quality of water available for various type of use.

Methodology

There are four phases by which investigations are accomplished

1. Regional synthesis of technical data
2. Socio economic collection of data of the selected village
3. Field study on cadastral sheet
4. Collection of data and preparation of thematic maps

There are three thematic maps

1. Geology – geomorphology
2. Land use – soil
3. Natural resources – Hazard

Data collection and compilation will be based on quality of life and technical details. Population, literacy, agriculture, crop pattern, industries, educational institute, flora and fauna, community health problem, land use and demography are data based in quality of

life and hydrological, meteorological, geological, geomorphologic, land use pattern, environmental hazard are various GIS layers superimposed.

Dr R.S.Singh

**Central institute of mining and fuel research,
Central Institute of Mining & Fuel Research - Dhanbad**

Reclamation of Degraded Lands

While mining results in degradation, without degradation there is no development. Land degradation is a long-term loss of ecosystem function and services, caused by disturbances from which the system cannot recover easily. It is linked with loss of biodiversity and climate change. Degradation has direct and indirect effects Direct: Losses of soil organic carbon, nutrients, soil moisture and microbial activities. Indirect: A loss of productive capacity and wildlife habitat. Human-induced degradation manifests as erosion (84%), with 12% chemical alteration and 4% physical alteration. Anthropogenic degradation of soil based on type (erosion, chemical, physical), degree and cause of degradation

Major types of anthropogenic degradation are 35% by overgrazing, 30% by deforestation, 7 % by bad farming techniques, 7% by over-exploitation of vegetation for domestic use (firewood, timber, etc.) and 1% by industrialization.



Figure 9: Dr. Singh, CIMFR, Dhanbad

Stages of Ecosystem Degradation and Resilience

Nearly 50 percent of India's land area (i.e., 67 million hectares) is considered ecologically degraded. Every ecosystem has resilience and degraded land can be rehabilitated. When one looks at the map of India, we can see the correlation between degraded land is equal to below poverty line. There are 63.85 Mha wasteland and 45 Mha cultivable wasteland in India and 12.52 Mha is mine and industrial wasteland.

Ecological Restoration

Ecological restoration of degraded habitats is regarded as an effective response to reduce and reverse the negative effects of habitat loss, degradation, and fragmentation on native biological diversity and ecological processes. Ecological restoration is defined as the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.

The target state for restoration is usually taken to be the state of the ecosystem as it was prior to human disturbance. Recovery is normally taken to imply the revival of – Indigenous species assemblages, Biophysical structure and Ecological functions.

Recovery alternatives:

- Revegetation – Plantation of sapling
- Reclamation – Restoration of damaged land
- Restoration – To its original position
- Rehabilitation – Desire has to be fulfill

Reclamation accelerates the recovery of disturbed land

Reclamation is based on disturbance on Y-axis and time factor on X-axis. There is construction, degradation, erosion, equilibrium and natural recovery is a lengthy process whereas there is construction, degradation, regarding, revegetation and natural recovery.

Restoration and the process of ecosystem development

Restoration and the process of ecosystem development is based on eco system function of bio mass, nutrients and energy and eco system structure of species and complexity.

Technical options

- **Natural regeneration:** is a method to restore degraded forests by protecting them from further disturbances: assuming natural colonization from nearby less degraded forests; Performing enrichment plantings of species with high economic or conservation value.
- **Plantation:** Plantion is done in refractory areas . Early successional species that grow fast, attract seed dispersing animals and are preferably fire tolerant and nitrogen fixing
 - Plantation of monocultures of exotics or natives**
 - **Mixed species Plantation:** More difficult to manage than monocultures, but they increase the survival and structure and function of ecosystem, production and biological diversity.

Factors determining screening of plant species in wastelands

Regeneration material can be used according to the availability and the socioeconomic and climatic conditions of the region namely rainfall, temperature, environment, soil, availability and needs assessment of the people. Availability of seed, saplings, cuttings, tillers and tubers will have to be taken into account. Need assessment can include timber, crop, fuel wood, forage/browsing, income generation and rural employment Some technical aspects to be included are High yield. Regeneration, pest resistant, site tolerance and bio diversity concerns.

Soil quality indicators include: Soil pH, Soil bulk density, soil texture (Particle size), Cation exchange capacity, soil organic carbon, availability N& P, N-mineralization, Microbial Bio mass, Soil macro and microfauna, Heavy metal concentration and Sediment load to water bodies.

A graphical representation of Mean plant height (m) increment of selected trees on wasteland and spoil mine at different ages of plantation of Shisham, Teak, Subabool, Gamhar, Siris, Neem, Chatim, Radhachur, Kathal, Babool and Gulmohar was presented.

This indicated gradual recovery of nutrients of Total N and Organic C (%), Mineral N on an age gradient on wasteland, mine spoil and forest, N-Mineralisation potential on an age series on wasteland, mine spoil and forest. The presence of Microbial Bio mass convert wasteland in grass land in 12 years and forest in 25 years whereas mine spoil will be converted into grass land in 21 years and forest in 34 years.

Fate of carbon after forest degradation

- Any disturbance in forest ecosystem results in the distribution of carbon of standing biomass into several parts.
 - (a) Some of the carbon remains in the biomass itself
 - (b) Some remains *in situ* and a part of it is transferred to the atmosphere as CO₂, CO and CH₄.
 - (c) Some of the carbon enters the forest product sector and the carbon that has been left onsite enters the soil carbon pools.
- The rate at which carbon is sequestered in forest biomass determines the forest ability to remove carbon from the atmosphere.
- In India the standing biomass (i.e., above and below ground biomass) is 8,375 million tons, of which the carbon storage would be 4,178 million tones.
- The general estimations reveal that from 0.85 million cum. biomass, 0.48 million tones of carbon are sequestered.

Concluding remark

- Reclamation of mine spoils and revegetation on derelict mine lands satisfies multiple goals.
- Natural recovery of the mine spoil takes several years to reach the natural condition.
- Besides restoring the fertility status of the soil damaged due to mining by increasing the plant available nutrients in the soil, revegetation acts as a sink for atmospheric carbon.
- Microbial biomass, which is the key factor in regulating the soil nutrient cycling, is increased after restoration of the mine spoil. It governs the rates of net nitrification and net N-mineralization in soil, which are the key indicators of soil fertility.
- The revegetated mine spoils have the potential to restore the mineral N pools, N-mineralization rates, soil microbial biomass and ultimately plant biomass.
- Initially, the mine spoils were devoid of organic carbon contents, so the MBN and N-mineralization were very poor in them. But plantation exerted a catalytic effect to restore the organic carbon content of the mine spoil.
- Age of the revegetation is also important, as plant biomass, mineral N, MBN and N-mineralization increased along an age gradient of the mine spoil after revegetation.
- Thus, revegetation is the best tool to bring the mine spoils back to the level of forest with respect to total biomass, available nutrients, microbial N and N-mineralization rates and there is need of revegetation programme for ecosystem sustainability, economic benefits and also clean environment.

**Mr Simon Hansda,
BIRSA - Ranchi**

Issues of mine Labours, cycle pullers

the presentation covered some key aspects of labour issues in the mines of Jharkhand. The history of mining in Jharkhand is very old since 1774 when East India Company initiated mining in Raniganj To explain the issues, Simon tokk the case study of his grandfather at Sarubera. His grandfather went to work for contractors 30 years back and got Rs3 per day for his labour. There was a feeling of job insecurity, wage related problems, unhealthy working environment, social security and occupational health issues.

Another case study of Parej coal dump, a project of CCL was then described. The project was inaugurated by Sebu Soren (Ex Chef Minister of Jharkhand). People of this region welcome

the project and were very enthusiastic as it promised a great future. Production was started in the year 1998. People start working at this dump, initially youth were associated and later whole village came. There were 300 to 400 trucks daily. People got work as labour earning Rs100/hr. Agriculture became second priority and deteriorated. However slowly the number of trucks reduced and with it, the earning of people. People's earning was reduced to only Rs 100 per week. Finally there was no labour available. In the meantime agriculturists had become wage labourers

While bringing the coal to the market, the cycle loader apart from having health problems, is harassed by the police and others since it is an illegal activity. There are many shares for the produce - Contractors, Local political cadre/local leader, police station and finally own expenses in transportation. This is not the end of this story, they have to travel 60-70 km. At the end of the day they are earning only Rs 45. Initially 10-15 years back only 5-6 people were engaged but now there were more 200 peoples associated with this business from this village alone.

Conditions at Iron ore mines are even more miserable. From head to toe, the children are almost covered with red ash. Their skin, hair, even their eyelids have got a thick coat of the iron ore dust. This is a usual phenomenon in these iron ore belts. The plight of the children and their condition are deplorable.

In the morning parents and other elders in the family are away for the work at the nearby mines and iron ore crushing units. In the morning little children also get ready for work. These children collect some bricks and put blockades on the road nearby the house, which connects several crushers and the railway sliding yards. Every time a dumper arrives, the children stretch their hands and drivers without raising query doles out some cash. The local people say that it is our land. Outsiders are recklessly exploiting it. We cannot take law into our hands, we can, at least, tax them to compensate our health. The money that is received by the children is used for treatment and other expenses. Majority of the children do not go to school. Healthcare facilities are missing in the area.

UCIL is a big company . Here there are 72 labourers working for the last 25 years. They have still not made permanent. To achieve his demand, they are on *Dharna* for last 3 months.

Companies are in favour of open cast mining because less labour is required. As cheap resources and cheap labour will reduce the material cost. Many companies are going for contract labour.

Occupational Health is great problem. Labourers are not getting health facilities at Parej area. Some of the displaced people are kept at Pandra from east Parej area are not getting health facilities. There is no proper school, road and other basic infrastructure for the people displaced by the mines.

1. He said that illegal mining is alternate livelihood.

Major Agenda:

- Unionisation of contract workers
- Wage Determination
- Social Security for Unorganized workers
- Improve Working Condition
- Proper Mechanism for alternative livelihood of displaced community.

**Prof. Ramesh Saran,
Ranchi University**

Socio economic issues of mining

Mining is a robber industry. This is an extracting industry. Things which has been extracted out are not for the place from where it has been extracted. Valuable products are for outside. East Zone is a mining zone. It has been said that coal will bring revolution in this region. History of coal mining shows that British used coal for steam engines and for railway. British impoverished N. Bihar for gun powder and Jharkhand for coal, forest and labour force. British had a policy of not hiring local labourers who are sent outside for work. They did not let local labour work at their place of domicile creating an issue between the domiciled population and outsiders.

Coal is slaughter mining which needs to stop. Mining officers are only concerned about production index.

The book, Kala Sona by Radha Krishnan reflects how society is breaking and extracting as much as possible. The impact of women is greater and are physically exploited. Criminal cases in the mining area are always high. In any discussion on rehabilitation women are generally debarred.

CCL do not give counseling to the people through corporate responsibility, their responsibility ends at the compensation package prescribed by the government. Issues which require integration are not incorporated. People think in term of colony or enclave. There is need for attitudinal change through positive linkages. Stealing of coal has a negative impact.



Figure 10: Dr. Ramesh Saran, Ranchi University, Ranchi

There is prevalence of malaria, HIV/AIDs, Alcoholism in rampant in the coal mining area. Priceless soil resources are destroyed. There is need to rehabilitate the minelands. Salaries of the labourer have increased. This is eaten up by changes in the lifestyle. Exploitation continues in new forms. He cited one example where the price of commodities in the markets near coal mining areas increase in the first 10 days of each month when labourer get salary. Mahajans are operational as there is no cooperative. Mafia in the name of trade union extorts money from the labourer.

Community has collapsed and this has a great impact on women and children. He said that villagers from Saranda are forgetting agriculture as well. Environment damage is

irreversible, uncertain and unique. There is great social impact shifting from *Hadia* to *Chulaiya*. Due to large scale violence, free association among communities is disrupted. Mining companies do not form communities.

Question and Answer session:

- Coal India participants mentioned that CCL has a policy of providing jobs to people. Prof. Sharan asked CCL if it had a proper record of how many people have been rehabilitated and how many of them have got job. How much land has been converted into wasteland and been spoiled. He further added that if payments are done through bank then who keeps their passbook. Prof. Sharan has said that there should be community development center, proper vision and cost benefit analysis. He agreed that there are many things which are not in control of CCL. What CCL can do is that there should be transparency, proper community development center and data base.
- There is Mahajani system in the mining area, the Coal Company does not think it is their interest to intervene in order to end this exploitative System.
- In response to mining being classified as a robbery industry, Mr Ghosh cited the development of cities like Dhanbad and Jhariya as examples of development as a result of coal. The plight of Jharia is well known. In any case the main issue was who benefits and who loses.

**Mr Pran Ranjan and Mr Sharat Singh
SPWD ERO - Ranchi**

Study of coal mining in Bokaro river sub basin

Context of the study

- 35.5% of India's known coal reserve comes from the state of Jharkhand
- 90% of coking coal reserve of the country are in Jharkhand
- Damodar river basin contains 46% of India's coal reserve

Objective of the study

To know about the effects of the mining activities on natural resources and livelihood

Methodology of the Study

- Sampling: A purposive random sampling was taken up for the study (village selection)
- PRA
- FGDs
- Survey Schedule-village level respondents
- Interviews-CCL & Tata Steel Officials
- Secondary data from Libraries & internet
- Satellite imagery and GIS tools

Limitation of the study

- Most of the data is empirical
- Non-cooperative attitude of the mining authorities & government officials.
 - Environmental Management Plan (EMP) was not shared
 - Forest Department did not share data on wastelands due to mining
 - Revenue officials were reluctant to share information on land leasing
- It lacks technical verification in the form of soil testing, water quality testing and air pollution testing

Study area

Upper Damodar river basin

Dhanbad , Bokaro and Hazaribag districts

- Dhanbad - Jamadoba mines of Tata steel
(Underground coal mining area)
- Bokaro - Dhori and Dugdga mines of CCL & BCCL (Open cast coal mining area)
- Hazaribag - West Bokaro mining area of Tata Steel and CCL (part of Bokaro river basin / Open cast coal mining area)

Dhanbad Dist / Underground mining area

Effects on Natural Resource

- Water table is affected so there is crisis for drinking and irrigation purpose
- Land topography is disturbed so also is the agriculture practices
- Depletion of Forest cover, affecting the biodiversity of the area
- Land reclamation effort in fire zone and other areas are successful and it has raised the hope for treatment of the mining wastelands
- Wastewater of mines habitation has become alternate water resource for agriculture.

Findings

- People feel that agriculture is necessary because getting job in the mines are now days not so easy.
- Mining has created job opportunity as mine labour in coal based / fly ash based product creation
- Villagers are not fully aware about the methodology of calculation of the compensation.
- Standing water based crop like paddy area has reduced due to mines beneath the field
- Water based structure like pond etc has reduced drastically so the second crop area has also reduced
- Non availability of water reduced green cover which has affected animal husbandry.
- Outside people came to work in the mines and are not involved in agriculture but are earning more money. This has influenced the local people who lost their original profession of agriculture and are involved in mining related activities

Land Reclamation Efforts

- Land leveling
- Plantation on -waste land and fire zone
- Horticulture promotion in fly ash dumped area
- Agriculture promotion
- Development of recreational places like parks etc. (on Subsided area due to mining)
- Scope of fodder development is there in the area around the places where stream is flowing.

Positive and encouraging efforts

- Recycling of mines waste water for drinking and agriculture purpose (resources are enough)
- Possibility of agriculture in barren land above mines (group agriculture plan can be drawn)

Findings in Bokaro district

- Cash Compensation received but none have got job. Many of them have not received any benefit from it yet. People are still making efforts in this direction.
- People migrate to the nearby town to work as daily wage labourer.

- The main source of drinking water is the stream which flows nearby the village.
- The farmers do not get much return from the land due to erratic rainfall.
- 70% of the land are left fallow due to lack of irrigation
- Both the villages have poor health and education facilities
- Both the villages have acute shortage of drinking water, hand pumps are defunct, wells have dried up and ponds are seasonal

Mining area in Hazaribag / Ramgarh district

- Five villages were identified in Mandu block of West Bokaro mining area
- These villages are having effect of mining due to CCL and Tata steel coal mines
- The villages are: Sarubera, Pundi (Bhutahi), Duru kasmar, Basantpur, Sondiha
 - Sarubera, Pundi and Duru kasmar's land was acquired by both CCL and Tata steel for mining purpose
 - Basantpur has washery of CCL and Sondiha has siding for loading of coal

Finding

- The stream which goes through the area of this village is chutua nala which flows into Bokaro river.
- People are facing the problem of electricity, drinking water and road
- The livelihood of the people of this village was agriculture but they go out in the search of work outside the village.
- They also face the problem of sound and air pollution.
- Depletion of ground water: 5 out of 20 wells are in use but they dry up during summers
- Forest department is compensated for the forest area acquired but the local population dependent on the forest is not compensated.
- The Environmental Management Plan (EMP) is not shared
- The abandoned mines have become huge water bodies which could be used for pisciculture, LI systems could be installed to irrigate the nearby fields but they are not being used for any productive purpose.
- The compensation policy has been revised, earlier in the R&R policy one member of the family was given a job for every three acres of land acquired but now compensation is all cash.
- Cultivable land area has decreased and water for irrigation is in crisis. **(In sample villages 50-75% land were taken up for mining and these include 90% of agriculture land)**
- There is no effort from the mining companies especially CCL to help people for shifting to other vocations as livelihood security for those who have lost their land and agriculture.
- Community is not involved in reclamation process of mines. it is a contractor/Forest Department based process so the quality of reclamation is very poor.
- The role of common lands in the livelihood of the people is totally negated and thus landless people are left with no compensation.

Recommendations

- Involvement of Civil society and local community in preparation and implementation of EMP
- Analysis of soil, water and air quality should be done
 - As mine water is used for irrigation
 - Mine waste water is treated and used for drinking
- Transparency in compensation package delivery mechanism
- Reclamation of unused / abandoned mines

DAY - 2 (March 20, 2009)

Recapitulation of Day - 1 - **Mr. Sharat Singh, SPWD ERO-Ranchi**

Ms. Kanchi Kohli
KALPVRIKSH - N Delhi

Environmental Impact assessment of mining operation

Ms Kohli discussed about the Environment impact assessment policy and its implementation at various levels (Centre, State and grass root level) ground level and discussed its implications with respect to mining. In connection with mining, and Land use and Wastelands - there are varying perceptions as to how to look at the issues. There are many issues to be discussed in connection to mining, degradation of land resources, back filling, fly ash and dumping. The Pre Implementation report should take all these factors into account while looking at cost benefit analysis and restoration issues. There is need to study the impacts of degradation as well and incorporate this into any proposed plan for mining.

Is 8 % Growth rate for the country necessary ? The current growth has been spurred by industry and mining is lagging. There will create an inevitable rat race. How do we see Economic, social, ecological and socio ecological value ? At what level we are seeing these activities ? This requires a systematic process.

Need of an environment clearance regime

High impact project need to be assessed i.e ecological sensitivity area, people's livelihood, impact on wildlife, forest habitat (Bio diversity)

Environment Impact Assessment India

1970-80 no law in India - Central water commission guideline Mandatory requirement with EIA notification 1994 under the EPA, 1980 (12 years-13 amendments). Then came mandatory Public Hearings in 1997.

Environment Impact Assessment notification 2006

Environmental clearance process as defined in notification

Role of state and center Government in four stages for the environmental clearance process.

How EIA will be conducted.

1. Screening - Term of Reference
2. Scoping
3. Public Consultation (including public hearing)
4. Appraisal

Categorisation of Projects listed in Schedule 1 of the notification

Category - A Central level clearance

Category - B State level clearance

All project need to fill form and Screening is done based on form.

Category - B project is further divided in two categories i.e B1 and B2. B1 require EIA whereas B2 doesn't require EIA. There is no guideline of B1 and B2 and totally discretion of state level authority.

Construction sector like real state, shopping complex etc have separate procedure and come under Category B need to fill Form 2 for appraisal. For this category no EIA is require.

Special Economic Zone (SEZs) Need to go through an EIA and public hearing for the entire Zone and not for individual projects. In this condition after clearance of the area there will be cumulative impact.

New institutional structure at state level called State Level Environment Impact Assessment Authorities. Till SEIAA set up, clearance has been done from central level.

Mining and EIA notification, 2006

Current requirement for the mining purpose is of Category A \geq 50 Ha of mining lease and Category B \leq 50 Ha of mining lease clearance has been done by SEIAA.

Public Consultation

Process through which public consultation has been done is a concern of local affected persons and others who have plausible stake in the environmental impacts of the project/activity are ascertained. There will be public hearing and question and answer at one platform.

There are two component of public consultation one is public hearing at the site or in its close proximity- district wise for ascertaining concerns of local affected persons and secondly obtain responses in writing from other concerned persons having a plausible stake in the environmental aspects of the project or activity. Public consultation through public hearing is no longer is for decision making but to finalize EIA document.

No public consultation is required for modernization of irrigation projects; all projects or activities located within industrial estates or parks approved by the concerned authorities, and which are not disallowed in such approvals; expansion of Roads and Highways which do not involve any further acquisition of land; all Building /Construction projects/Area Development projects and Townships and all Category 'B2' projects and activities.

Rejection of Clearance if deliberate concealment, submission of false or misleading information, data but after giving a personal hearing to the applicant, and following the principles of natural justice.

Experience with EIA Notification

This has become a regular work. It has been designed to succeed.

Clearance rate - In the year 1986 - 2006 there were 4016 projects clear whereas in the Eastern region 144 projects of mining and 101 of Industrial project has been cleared. In the time span of Sept 2006 to Aug 2008 there were 2016 projects @ 84 projects a month includes 107 coal mining and 254 non- coal mining clearance which include 146 project from Rajasthan, 47 project from Orissa and 16 Project from Jharkhand. Out of these clearances only three projects are rejected and further reconsidered by Expert committees.

Forest Clearance in the year of 1980-2006: 11,40,176.86 ha of forests diverted and in the year 1980-2008: 1159 mining project cleared. In the Jharkhand- 14,733.74 ha (244 projects); in Orissa- 43,238.99 ha (431 projects) and in Chhatisgarh- 87,795 ha (388 projects cleared).

Shoddy Impact Assessment

Shoddy Impact Assessments are incomplete, inadequate, forged yet clearances are granted. Some of the examples are as follows:

Pala Maneri HE Project, Uttaranchal: Two EIA reports, 1st one shared at public hearing listed only 5 impacts. Important impacts such as those of tunnelling, vibrations, muck disposal etc added only in the 2005 report.

SIPCOT, Tamil Nadu: Preliminary Environmental Appraisal." Passed off as EIA; Air Quality, water assessment, assessment on land use, flora and fauna were not tested.

Utkal Alumina, Kashipur Orissa: Rampant duplication of data; EMP of the mine is the EMP of limestone mining; cumulative impact on the Indravati River Basin, people and habitats not assessed.

Ratnagiri Thermal Power Plant, Maharashtra: Impacts on Alphonso mangoes not considered, even though Ratnagiri is known for this. EC challenge rejected by NEAA

Dandeli Mini Hydel Project, Karnataka and Ashapura Mines, Maharashtra EIA report of another project copy pasted! Ashapura, copy of Russian EIA

POSCO, Orissa: Impacts on turtles, worst case oil spills, air quality changes not looked into

Monnet Ispat, Chhatisgarh: Project proponent could not respond to questions about EIA in public hearing, yet project cleared

Points to Ponder

No autonomy in assessments as consultants are hired and paid by project proponents. EIA treated as a mere administrative roadblock to tackle. There was a case in Arunachal Pradesh where Public hearing not being conducted.

Key Issues

- Documents not available before public hearing (Loharinag Pala, Uttaranchal, JSPL, Chhatisgarh)
- Venue of public hearing not appropriate (Nalwa, Chhatisgarh, hearing rescheduled)
- Presence of police: pressure on people to not raise concerns
- Format often does not facilitate participation (JSPL, Chhatisgarh)
- People not allowed to enter PH premises (Noamundi, Jharkhand)
- Political Platforms (Teesta III, Sikkim)
- No public hearing conducted (Polavaram, no hearings in Chhatisgarh, Orissa)

There are cases of break up of Projects and seeking separate clearances for various components eg. POSCO, Orissa, Vedanta, Orissa and JPL, Chhatisgarh.

Expert Committee

- **Expert Appraisal Committees on different sectors:** mining, river valley, thermal power, industry, new construction projects, infrastructure, nuclear
- **Questions of composition:** Very Few personnel to look after huge task
- **Questions of autonomy:** Most of them are government affiliated and participation of local people is bleak.

Monitoring by MoEF Regional Offices

For Post Environment Clearance Monitoring Dismal there is hardly any compliance of Environment Clearance Conditions of JSPL, Chhatisgarh and Sterlite, Tamil Nadu.

Some of the facts for the monitoring by regional offices are:

- **At present six regional offices have approx.6000 projects to monitor**
- **Staff strength 2-4 officers for environment clearance monitoring at each regional office**
- **Separate monitoring by Forest Department (forest clearance) and Pollution Control Board (consent for establishment/operate approvals)**

One of the Examples of monitoring

Monitoring report JSPL's Project in Raigarh

"A total revamp of pollution control system is needed in the old plant with stand by emergency pollution control system for emergency caps for all six kilns. **Ministry should not approve their BF, Coke Oven approval, which is in offing unless these proposals are submitted with action plans.**" (Monitoring report of Jan 2005. Clearance for expansion granted in July 2005)

Agencies have cluster of 2 to 3 projects and passed from center because it is easy to get clearance.

MoEF's Eastern region Office states significant projects in the region are selected for monitoring based upon ecological sensitivity and importance as per the earlier inspection reports.

As discussed during workshop that EIA which can be a strong tools for environment decision making is completely undermined and underutilized.

Every year from 2004-2008 between 84 to 119 projects are monitored. Number of Environment Clearances from 1986-2006 was 480 and many more after the 2006 notification.

National Environment Appellate Authority, Delhi still there are authority where EIA are challenged. This Authority specifically set up for redressal related to grant of environment clearance.

All these and many other issues have been repeatedly pointed out to the relevant authorities at local, regional and national level. People's faith in EIA and Public Hearing process as a tool for environmental decision are diminishing. EIA which can be a strong tool for environment decision making is completely undermined and underutilized.

EIA 2006: Key Issues

- Process for drafting (under stiff protests)
- Against the Spirit of the EPA
- No EIA for B2 projects: 450 MW thermal power plant can be cleared at state level without EIA
- Undermining Public Consultation (only draft EIA report available; no civil society participation; cancellation of PH)
- Monitoring role of MoEF not mentioned
- Exemptions: construction sector
- New amendments proposed in January 2009

All previous problems remain and newer ones added. Some progressive provisions like recording of Public Hearing proceedings and use of MoEF website are suggested.

At the end of this session Mr. V. Lobo mentioned that there is a need to asked who has decided that 8% growth is in national interest and from where the assumptions have come. If we take this paradigm for granted, we cannot simultaneously see how EIA can be more effective. Priority given to EIA necessarily means reexamining the growth trajectories and examining who benefits from them.

Dr. Nimisha Tripathi
Scientist (WOS)

Societal development through rejuvenation technique in coal mining area

Bio-Environment Division

Introduction

- Surface mining operations cause complete destruction of flora, microfauna and contaminate the soil along with air and water of the surrounding areas.
- Mine spoils pose adverse conditions for soil microbes and timely succession of plant growth.
- Contaminated mine wasteland result in stunted plant growth, defoliation and deformation of leaves, and finally death of the plants.
- To make the contaminated mine wasteland conducive for plant growth is a challenging task.

Plant species have potential to adopt the phyto-toxic condition after limited amelioration of soil, which helps in the succession of annuals followed by perennial herbs, shrubs and trees.

AIM

Rejuvenation of contaminated mine spoil and its recovery through pot experiment followed by field study with socio-economic improvement

Objectives

- Characterization of the contaminated mine wasteland with respect to physico-chemical characteristics.
- To screen the aromatic and medicinal plants and study the plant biomass and productivity.
- Develop agro-technique for the cultivation of desired crops and doses of ameliorant for recovery of the mine wasteland.
- Train the local and rural people on cultivation techniques and extraction of essential oil.
- To prepare the management plan and strategies for the re-vitalization of mine wastelands for the economic development of rural people.

Study sites

Mine wastelands from Tara Coalmines, Bengal EMTA, Asansol, Hirri Dolomite Mines, SAIL, Bilaspur and an adjacent forest of Topchachi

Materials and Methods

- Procurement of high oil yielding plant saplings of lemon grass, *Citronella*, khus grass, French mint, from CIMAP, Lucknow
- Sowing/Plantation of selected medicinal (viz. Ashwagandha, Ghritkumari, Kalmegh) and aromatic plant sp. (viz. *Citronella*, lemon grass, khus grass) in CIMFR nursery.
- Pot experiment using the soil of contaminated sites for evaluation of the growth performance with and without ameliorant.
- The doses of FYM were 100, 200, 300, and 400 g/plants. Among the selected doses 300 g was the most appropriate dose for the maximum biomass and productivity of the aromatic plants.
- Plantation of saplings/slips of aromatic and medicinal plant species at the contaminated study site.

Categorization of plant species

1. High tolerance : Lemon grass
2. Medium tolerance : Vetiver grass
3. Low tolerance : Citronella grass

As these plant species are free from animal grazing.

Socio-economic development

1. Growing medicinal and aromatic plants
2. Timber yielding plants
3. Fruit yielding plants
4. Production of essential oils
5. Training to rural people

Some of the aspects highlighted where: Physico-chemical characteristics of EMTA coal mine wastelands based on pH, WHC (%), Moisture (%), BD (g/cm³), OC(%), Total N (%), Total P (%); Physico-chemical characteristics of dolomite mine wastelands based on pH, WHC (%), Moisture (%), BD (g/cm³), OC(%), Total TN (%), Total TP (%); Heavy metal concentration of metal (mg/kg) Cr, Zn, Pb, Cd, M, Mn, Fe in coal mine wasteland and dolomite mine wasteland during rainy, winter and summer season; Nitrate - N (g/g), Ammonia - N (g/g), Net nitrification (g/g/mo), N- mineralisation (g/g/mo) and MBN (g/g) in coal mine wasteland and dolomite mine wasteland during rainy, winter and summer season.

Also described was Bio - mass production through pot experiments after one growing season, for lemon, Vetiver and citronella grass based on g/plant/pot and tiller Numbers and mean Bio mass and production of naturally grown plants (gm-2) of Eupatorium and Lantana Camara based on Bio mass production and Leaf tiller.

Employment generation and economic benefits suggested after revegetation in mine wastelands will be helpful in:

- Checking soil erosion
- Attenuates air and water pollution
- Provide employment opportunities (more than 400 man days per hectare to the local people on short-term basis).

Cultivation and processing of medicinal and aromatic crops are labour intensive propositions and thus, have tremendous potential for employment-generation and poverty-alleviation in the rural sector.

**Mr Ram Lal Prasad,
Secretary, Jan Sewa Parishad, Hazaribag**

Land Acquisition, Displacement and R&R

Jan Sewa Parishad is working in Hazaribag, Koderma, Dhanbad, Chatra, Giridih, Ramgarh, Bokaro, East Singhbhum, Ranchi, Pakur, Jamtara & Gumla, Jharkhand since 1974. Area of intervention of the NGOs is Natural Resource Management, Awareness generation, Policy Advocacy, Research & Publication, Health, Community Empowerment, Disability Management and mainstreaming of socially deprived.

Mr Ram Lal ji has narrated impact of mining on Land, Water Regime, Air/Environment and Forest which is directly affecting on Agriculture, Forest Dwellers and Mining Zone.

Youth are leaving agriculture and involved in illegal selling of coal . They load coal on their cycles and sell in the market. This has bad effect in health of these youth and at after the age

of 35 years they are generally infected with TB and Asthma. Jharkhand has provided coal to the country, but here people are facing problem of water. They don't have water for drinking as well as irrigation due to mining. Open cast mining create problems of dust. This dust creates problem in agriculture and results in the death of flowers on plants.

In Jharkhand due to small land holding and terrain condition people cultivate land with Ox. Pair of one ox cost Rs 20000 and here people don't practice stall feeding. These animals go for free grazing and die in six months to a year due to dust accumulated on leaves from open cast mining. Sprinkling of water to allow dust to settle is not sufficient to solve the problem.

Harmful effect of mining can be observed on Land as it results in large scale excavation, removal of top soil, change in agricultural pattern, dumping of solid waste. Massive migration and low productivity; lowering of water table, acid mine drainage contamination of drinking water, disrupts growth and reproduction of aquatic plants and animals. Less availability of water for agricultural purposes; on Air/Environment are Noise pollution, problem due to vibration, Problem with greenhouse gases, increased acid rainfall, increases in bronchitis and asthma; and on forest have a negative effect on bio-diversity, Effect on flora and fauna and disturbance in traditional forest dwellers life support systems have changed the livelihood systems of the region.

Participatory approach should be followed for implementing the rehabilitation policy. In this connection it was mentioned, that there are considerable problems in getting the revenue map. As department think they these revenue maps might be misused. Full Rehabilitation package should be provided. Some have not got compensation, others after 2-3 notice. In one case, of land acquisition and displacement in *Mahuatand* of Mandu Block due to mining, the agency provided small houses badly made *morrah* road and no health and education facilities. Toilets were provided inside the house for people having the habit of going outside. Women go to toilet in a group at particular place which is now disturbed. They have been provided public toilets which are of no use.

He said that there is need to give full package as per their requirement of food habits, culture of the place of *Sarna* and involvement of youth and people. Agriculture which is family oriented has been disturbed due to the nature of packages provided.

Ensure proper distribution of profit share

Company does mining in community land but people do not get get proper share. Government also does not have normal schemes in rehabilitated village because they say that these village are getting facilities from the concerned Company.

Use of controlled blasting techniques

Open cast mining should be stopped as people are being badly affected by this type of mining. Underground mining is not cost effective as compared to open cast mining. So company gets more profit from open cast mining so community should get more shares in the profit.

While mining is necessary, there is a need for facilities like construction of effluent treatment plant and Construction of sewage treatment plant. Banks are getting more profit through mining activities so in this condition, bank should provide facilities to the community. Bank should reduce interest rate for SHGs in loan.

This type of workshop is also necessary for grass root people who will benefit by understanding the gamut of issues invol;ved.

Mr. V Lobo commented that since mining is a national interest and production has increased considerably it should be in a position to compensate adequately for the disturbance in the lifestyle of a few. The current rehabilitation package is an economic one, but one actually needs to look at life for life. Will the rehabilitation package replace the conditions of life which are lost ?.

Mr. Gulab Roy
Damodar Bachao Abhiyan, Bokaro

The Abhiyan has been taking up the Damodar issue for last 10 years. There is fire in the stomach of Damodar. Damodar starts from Khiladi . Due to mining its tributaries are affected. Forests are not regenerated and whole world knows that Damodar is polluted. There is demand for water but rivers are diminishing. Livelihood is not secure. Land is polluted so the livelihoods are affected. There is a need to look at the human development indices like malnutrition, Health, education and discrimination.

Mr. V lobo

This is not only the responsibility of CCL alone, it is the responsibility of government as also the entire civil society. Individually everybody is taking decision. India is an international player and comparatively what are the conditions of life provided as a result of development. This is not a discussion of one individual organization. It is sometimes difficult to identify the affected person from a single point source. There is sometimes a need to look at the entire process of development. Mining is part of development system and its impact on people are interrelated to other aspects as well. If it is affecting then how does one compensate. Government should intervene providing compensation. There are many options by NREGA or Company. There are limitations in only asking the individual company to provide all the solutions. The related questions will have to be answered by the civil society as well .

Mr. Pankaj Paliwal and Bhanwar
Jagaran Jan Vikas Samiti, Udaipur (Rajasthan)

Phosphate Mining in Udaipur

One pertinent question to ask, is for whom we want to do development? Is it development of Man, Animal, Land or Forest.

Jagaran Jan Vikas Samiti, Udaipur is working for integrated development in Udaipur district of Girwa, Salumber, Sarda, Dhariyawad, Jhadol Falasiya and Gogunda Panchayat Samiti. There are 7 Phosphate Private Fertilizer companies functioning in the catchment area of 12 villages directly affected and 19 villages which are indirectly affected. To find the exact position of these affected villages due to Phosphate mining JJVS, Udaipur has conducted survey in two villages i.e one in Umarda Zapa in Kanpur Garm Panchayat and Parola in Zamarkotra Gram Panchayat. Organisation has conducted this survey based on Agriculture of Food grain and Vegetable and Animal Wealth. This impact study of the area is based on these indicators are taken from year 1992 and year 2008. In case of food grain of maize, wheat, paddy, Teel, Chana, Jaw, Gawar. Total production of Food grain in the year 1992 was 3415 Qt of Rs 40.60 lac whereas this has decreased to 885 Qt of Rs 9.94 lac. Vegetable production was 578 Qt of Rs 8.58 lac worth also reduced to 74 Qt of Rs 1.53 lac. Indicators for animal wealth which has been taken during survey are Cow, Buffalo, Ox, Goat, Sheep,

Camel, Horse, Dog and hen etc. During survey it is found that numbers of animal are 3201 in the year 1992 has been reduced to 337 in the year 2008 is a remarkable loss.

Environment has been polluted inspite of this Gram Panchayat has given NOC to these company. Animal also are dying.



Figure 11; Mr. Paliwal presenting his experiences from Rajasthan

Houses in the vicinity of 3 to 4 Km from the mines zone have developed cracks due to blasting. Vegetation is also affected with open mining. Water which is coming out in these mines is sent to Udaipur for household purpose. This decreases the water level in the region. The terms of Agreement which were set forth in 1970 have not been applied. The mines have leased land in 9 sq km area and there are person who have *Bilanam* land who have not been allotted land. These companies are not providing facilities for health and education. Factory is making DAP which is polluting the water of these villages. Water becomes so hard that they even unable to make tea from it.

Animal do not eat fodder and die in six months to one year time period. Numbers of T.B and Asthama patients are more in Umarda village. Agriculture production is decreasing day by day. Slowly villagers are selling their land to middleman. Initially these villages provided milk to SARAS Dairy now milk come from Udaipur.

People from adjoining villages named this village as *Chokala*. Nobody gives their girls in marriage to men from this village. The condition has become miserable. Jagaran Jan Vikas Samiti, Udaipur has given memorandum to the concerned authorities but no solution for improvement of the condition of the affected villages has been worked out.. Jhamari Bachoo Andolan has been formed, and is working for the rights of people of this area.

Mr R. K. Yadav and Chunilal Gameti,
Secretary, Hanuman Van Vikas Samiti, Udaipur (Rajasthan)

Masonry Stone Mining in Udaipur

“Jai Ambey Adivasi Khan Theeka Shakari Samiti ltd” at Village Karget (Bhalo Ka Guda) of Girwa Block of Udaipur District.

Prior to the year 1994 in villages of Karget, Sakroda, Sihada, Taunk, Chota Guda, Bhekda, Bhalo Ka guda in Girwa Block and Bhesda Kurd Bhesda kala, Chandesra, Bekrami, Debari, Tusli dasji ki Sarai in Malvi Block of Udaipur district illegal masonry stone mining was

conducted by the local laborer for livelihood. These local labourers were getting Rs 120 for stone cutting and Rs 50 for filling of stone in truck whereas contractors used to take Rs 40 per truck as commission. During those days fixed rate for one day labour was Rs 200 as prescribed by mine bureau but labourer gets only Rs 80 as well in addition to the fear of getting caught by the mine department.

For the solution of these problems some of the youth from village Karget with help from HVVS formed a labour Union in the year 1994 and was later registered in the name of Jai Ambey Adivasi Khan Theka Shakari Samiti Ltd under cooperative act 1956 in year 1998.

Objective for the formation of this Samiti is:

- To end the contractor tradition
- Increase the minimum rate of labour
- Unit the labourer
- Labourer should become owner
- To stop migration

21 Mines are located in Sihada, Modi, Tank, Karget Nalla, Karget and Bhekra. A total of 400 workers are engaged on these Mines for in and around of the year. There are an average of 70 trucks per day loading 15ton/truck in addition there are 20 tractors per day loading 6ton/tractor.

Activities which have been conducted by this cooperative are:

- To get royalty from mine department
- To issue *Patta* from mine department
- To inform the members of samiti of different programme during monthly meeting
- To organize health camp for health check up for the labourer working at mine

Expenditure per truck has been calculated by the HVVS. These are 5% expenditure on driver, 34% in diesel, 5% in sale tax, 8% in royalty, 14% expenditure to truck labourer where as 34% goes to mine labourer. HVVS has done a detailed study of total expenditure has been done on this mining business in Girwa and Malvi Block. Finding of this study is that 44% of the share goes to truck owner, 29% to labourer, 7% to government department, 2% to samiti and 18% on diesel in Girwa Block. For Malvi block 55% of the share goes to truck owner, 18% to the labourer, 8% to Government, 2% to Samiti and 17% expenditure on diesel.

Mr Biren Nayak

Action Aid (Orissa)

Mining in Niyamgiri hills

Niyamgiri Mountains of Lanjigarh area (Kalahandi district, Orissa state of India) is 4248 feet high. It is the source of 32 rivulets contributing to Vansadhara and Nagavali River flowing through Kalahandi and Rayagada. It contains elephant, sambhars, leopards, tigers, barking deers, various species of birds and other endangered species of wildlife in 672.018 ha forest land. More than 75% of the hill is covered by thick forests with an average density of 0.6. It has more than 300 species of plants, trees, etc. including about 50 species of medicinal plants. Six of the species are listed in the Red Data Book. These forests are yet to be surveyed properly for their floral and faunal wealth. This is because the bauxite is oolitic and pisolitic with high level of porosity resulting in high water retention capacity. It occurs beneath the laterite-capped plateaus and is characterized by the existence of a plateau supported by relatively impervious laterite layer with poor water retention capacity.

Two major rivers – Vansadhara and Nagavali and 64 perennial streams are flowing through this forest. Three Primitive/ most vulnerable communities Dongaria, Kutia and Jharania Kondha live in Niyamgiri for generations.



Figure 12: Mr. Nayak sharing Niyamgiri experiences

Impact of mining in Niyamgiri

- Vedanta - Sterlite want to mine bauxite from Niyamgiri and process the same at the foot hill of Niyamgiri.
- Increased heat and depletion of ground water
- Bio Diversity under attack through blasting
- Deforestation of indigenous variety of trees killing number of tubers and creepers
- Plantation of commercial tree – No food
- Drying up of tributaries & rivers
- Blasting leads to sand casting on cultivable land
- Water, air and soil already contaminated by industrial waste
- Sharp fall of NTFP food items and medicinal plants
- Poisoned water air and land
- Liquor flow through mafias causing violence against women (Trafficking)
- Company goons exploit the community especially women

The Plight

- The community hung between modern civilization and their lost identity
- Suffer from break of social fabric leading to forms of violence especially against women
- Lack of alternative livelihood and loss of livelihoods forces them to flee from the area
- Indigenous/ tribal communities facing extinction in the process

Campaign to Save Niyam Raja

- PTG/MVT groups struggling for survival in Niyamgiri – Schedule area – Niyamgiri Surakshya Samiti, Sachetan Nagarik Manch, Adim Adhikar Surakshya Samiti
- Dongaria, Kutia and Jharania Kondh have taken vow to protect their place of worship Niyamgiri through Mass Worship of Niyam Raja
- Participation in the AGM held in London during '06, '07 and '08
- Massive online and Post Card Campaign

- Photo exhibition in important locations in Delhi to sensitizs others on tribal issues
- Highlighted in the International Media
- Peoples' struggle going strong on the ground - burning cloth distributed by Vedanta
- Stopped Vedanta from mining Niyamgiri
- Construction work by Vedanta was delayed due to the peoples' protest
- Action against Vedanta by Norway by withdrawing pension fund
- Case of Human Rights presented to UNSR - Prof. Annaya
- Network with Chatishgarh, Jharkhand & Andhra Pradesh

Concern - Recommendation

- From where will the tribal community draw the traditional food, medicines and livelihood they are depended on for generations?
- What about the loss of traditional knowledge that sustained not only the tribal but the civilisation?
- How do they deal with the pollution and the poison emitted from mining and processing?
- How would their development be ensured while protecting their environment?
- What sustainable alternatives could be proposed to displacement induced development?
- Will the indigenous community get extinct because of our benefits in the name of development?
- How can mother earth be protected from dying - global warming and climate change?

People of Niyamgiri are saying that they will not sell their god for profit. So they want that Vedanta to Quit Niyamgiri. Slogan of the people of Niyamgiri is *if We die ... you die too* Biren Nayak has said that what rate of extraction of mining is necessary and for whom benefit. One group is running forward. Development should be broad based and participatory system to be adopted by civil society, local community, mining company and regulatory board and should have cultural value.

Mr. V Lobo

Sand depositions in Vansadhara river (Niyamgiri is in the upper catchment area) is due to shifting cultivation. This is a fragile area and the extreme force of the river, even cuts the stone. Opposition to the mines, is because the people know that employment from Bauxite mining done by Vedanta, will not go to the local community. The livelihood of these Pimitive Tribal Group is mainly forest dependent. There are at present very little options which will provide satisfactoray rehabilitation and alternate livelihood to these PTG and hence they ae opting for the slogan of mining in Niyamgiri.

WAY FORWARD

Dr R. S. Singh - CIMFR - Dhanbad

In most of the mining EIA implementation part is poor and done on paper. Implementation part is all respect is threat to the country. People are not aware and need public awareness.



Figure 13: Concluding session

Shri Sumit Ghosh – CCL

Many people came of different problem but few suggestions have come from them. Some the suggestion Sumit Ghosh has provided during his speech are:

- Effective involvement of community in decision making
- Training, capacity building and resources to the community
- R&D for sustainable development
- EIA clearance, preparing mine plan will get direction
- Community engagement for the livelihood from the initiation of the project rather provide during closer of the project.
- Formation of cooperative society in the affected village like coal cooperative shareholders
- Provide necessary facilities and participation in transportation
- Illegal mining will be legalized
- Systematic approach of extracting coal
- Community mobilization and proper administrative system
- Still in Jharkhand there is no Panchayat Raj Institution so there no Panchayat at village level. In this condition we have depend on selective people as you can't involve the village.
- Land ownership record is not update. Department don't have exact numbers of affected people.
- CCL new policy as transport tender can take 20% by the cooperative. Through this aspect will improve the people participation.
- For the sustainability of the project Government need to involve in post planning for land use. This can be of like gardening, home, recreation etc. For this Government has to play a major role. Government has to work with the CCL for the sustainability of the people.

Mr Arvind Kumar Lok Jagriti Kendra, Madhupur

What is the present situation in term of wastelands and degradation? He said that laws are always formulated correctly. In Giridih there are cases of public hearing in a close room.

Ownership is a bigger issue we seldom think. Land owner compel to leave their land. How ownership will be intact with the landowner. There is land dispute and forcefully compel to leave the land.

Does we ever sit with the villagers and discussed. We always think for the profit but never talk for loses. What type of luxury people are thinking. Companies are thinking in its own way. Issue of Kanthikund is a sensitive issue.

There is a matter of cultural heritage as people are living in community as well animal are also living in community. There is need for democratic institution through cooperative but think about the capacity of these cooperative. Now think of freedom rather of cage.

Giving the example of Chitra Coal Mine where coal was loaded in Bullock cart. But after the nationalization of this coal mine in 1974 cow dung goes to Chulha rather in field. Farmer becomes criminal after this nationalization of these coal mines.

There was forest everywhere in the mountain of Santhal Paragana. Now tree are cut and mining has taken away stone. Sources of water has extinct due to man made destruction.

**Mr. V Lobo,
Executive Director
SPWD, Delhi**

There is demand driven increase in production. To meet the demand for the industry mining will support particularly of coal. But another thing is that people are affected and what will be the solution. Land rights are not clear so collective approach may provide some solutions. Research institutions like CIMFR & ISM. Mine provide some directions as to possible options. If possible, communities can get into an arrangement for benefit sharing from the mining area in general and in terms of the rehabilitated land in particular. State has the power to acquire land to mine minerals as mentioned in constitution of India. This is often in contradiction with the needs of the local community. For ecological issue, there is need for the engagement of civil society. Problem is societal and solutions are sought to found from the company on one hand while the State comes to their rescue to acquire the land. There are limitations in trying to seek sustainable solution at the individual level.

NGOs are seeking some solution through livelihood experiments. Scale needs to be much larger to understand the ecological context. There is need for in-depth studies in some locations. For SPWD Bokaro will be the model testing ground. Some formal collaboration is needed with the mining industries and central government, scale can be decided.

There is a larger conceptual problem and need of research project in action research mode.

Votes of Thanks By Mr Pran Ranjan, SPWD ERO - Ranchi