

AGEING WITH MINING



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Ageing with mining

A study on the socio-economic condition of
older mine workers and their access to entitlements





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**A study on the socio-economic condition of
older mine workers and their access to entitlements**

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Author's Note

This study on Older Mine Workers seeks to assess the livelihood and health status of older mine workers and identify major challenges faced by them. It looks at their access to various entitlements that are provided by the state. The study covers an important area that has not been covered so far – the condition of older mine workers of sandstone mines of Jodhpur. The mining area is a major source of employment. It is also infamous for being a hotbed of silicosis. In spite of proven high incidence of silicosis in the mines, workers continue to work in the mines in large numbers as there are few other avenues of employment. The study explores the situation of workers who are more than 50 years old.

The author thanks Gramin Vikas Vigyan Samiti (GRAVIS) for providing the opportunity to undertake the study on this important subject. The field work was undertaken with help of GRAVIS field team. I thank all of them. I also thank Bansilal of Bhil basti, Sukh Deo of Jiya Bera, and Pokhar Ram of Bhuri Beri as representatives of all the older mine workers who took out time to meet the author and share their issues with him. It is not possible to name all of them here. Lastly, I thank Dr Prakash Tyagi for providing overall guidance and framework for the study and tracing the development of GRAVIS work with mine workers.

Sudhir Katiyar

1. BACKGROUND

Rajasthan is a major mining state in India with a large number of major and minor minerals. It leads the country in production of dimensional stones used in construction industry. Millions of workers are engaged in quarrying and mining operations in the state. One estimate puts the number of mineworkers at 2.5 million engaged in 64 kinds of metallic and non-metallic mineral extraction activities in the State of Rajasthan (Sharma 2021). Nearly all the mineworkers are unorganized with no organization to represent their interests. The mine work can be said to be placed in the informal sector with workers having no social security. The area around Jodhpur District of Rajasthan is a major centre of sand stone extraction. A large number of workers find employment in the mining industry in Jodhpur.



A stone mine

GRAVIS has been working with mineworkers for a long time now. It has had a pioneering role in highlighting the problems faced by mine workers in Rajasthan. In early nineties, it played a leading role in highlighting the plights of mineworkers along with other civil society organizations. This was the first concerted effort by the civil society to document and highlight various problems of the mineworkers in the State. It has conducted a number of studies at regular intervals with mineworkers.

GRAVIS has also worked extensively on the issues of older people in rural India along with HelpAge International. It has promoted formation of Village level Older People's Association (VOPA) in a number of villages where the projects focused on older people are being implemented.

This study on Older Mine Workers seeks to assess the livelihood and health status of older mine workers and identify major challenges faced by them. The study focuses on special challenges faced by older people who have worked in mines. Thus, it overlaps the older people's issues and mineworkers' issues.

There are two broad set of issues that the study deals with – livelihood and health. The study documents the current status and access to entitlements with respect to both these aspects.

Livelihood Issues: The study has mapped the current livelihood status of the older people. Are they economically still active? Are they self-sufficient for their economic needs? If not self-sufficient, do they have enough family support?

Health status: The study mapped physical, mental, and emotional health of older mine workers. It assesses the impact of mine work on health of workers after having worked a long time. As lung health issues are critical for mineworkers, study lays special focus on this aspect including silicosis. Other major health problems have also been mapped.

Access to entitlements: The study targets a particularly vulnerable group. The Government of India has come out with some social security schemes for older people. The lung health status of mine workers has been a major area of concern and focus. The mineworkers suffer from TB and silicosis and often from both that is termed as silico-tuberculosis. Both these diseases are targeted by State programmes. The State has an elaborate program to track TB patients and ensure that they get regular medicines. The study looks at the access to the TB programme of the State. The Rajasthan Government has come out with an extensive package to provide compensation to workers affected with silicosis. The study assesses the implementation of this package. What are the challenges being faced by mine workers in accessing this package?

The study also maps access of workers to the other social security entitlements like old age pension and widow pension.

The report has a section on the methodology. This followed by the Study Findings section. The main conclusions and recommendations follow this. The references and bibliography section presents the results of the secondary literature survey.

Methodology

The study was conducted using a combination of the primary data collection and secondary sources.

Secondary literature survey: GRAVIS has been undertaking studies on various aspects of mineworkers – their health and welfare. These were studied. In addition, other studies documenting the situation of mineworkers were also studied.

Primary data collection: The consultant made a field visit to the settlements of the mine workers. The visits were spread over two clusters – one in the vicinity of Jodhpur city and the other in Balesar block. The settlements of Hari Nagar, Dudha Bera, Serhoni Nagar, Jiya Bera and Jiya Beri in Balesar were visited. Individual and group discussions were held with older mine workers to assess their situation. A mining area was also visited to interact with the workers and mine-owners. The settlements visited in the mining area around Jodhpur included Bhil Basti, Chandra Nagar, and Bhuri Beri.

Individual schedule: An individual worker schedule was delivered to 50 older mine workers that included 10 women. The schedule was field tested and modified.

In Depth Interviews were undertaken with select workers to develop case studies.

Focus Group Discussions (FGDs): In the settlements visited, group discussions were held with the older mine workers to understand the situation of older mine workers.

Study area: The study has been carried out amongst workers employed in sandstone quarries near Jodhpur and Balesar. The study author visited both the areas to have discussion with workers. However, the individual forms were mostly filled in settlements in near Jodhpur city. The FGDs cover both the areas.

The distribution of the individuals interviewed through the schedule across the settlements is given in the table below

Table 1: Workers' settlements covered

S.No.	Name of the settlement	No. of respondents
1	Beldar Basti	6
2	Sodho ki Dhani	7
3	Kali Beri	6
4	Unto ki Dhani	3
5	Dharmapura	5
6	12 Mile	4
7	Bhuntiya	2
8	Ambedkar Nagar	5
9	Ma ki Ghati	5
10	Bhil Basti, Argaji, Mokalvas	7
	Total	50

2. STUDY FINDINGS

Individual survey: As shared, 50 older mine workers were administered a structured schedule. The findings from this survey are given below:



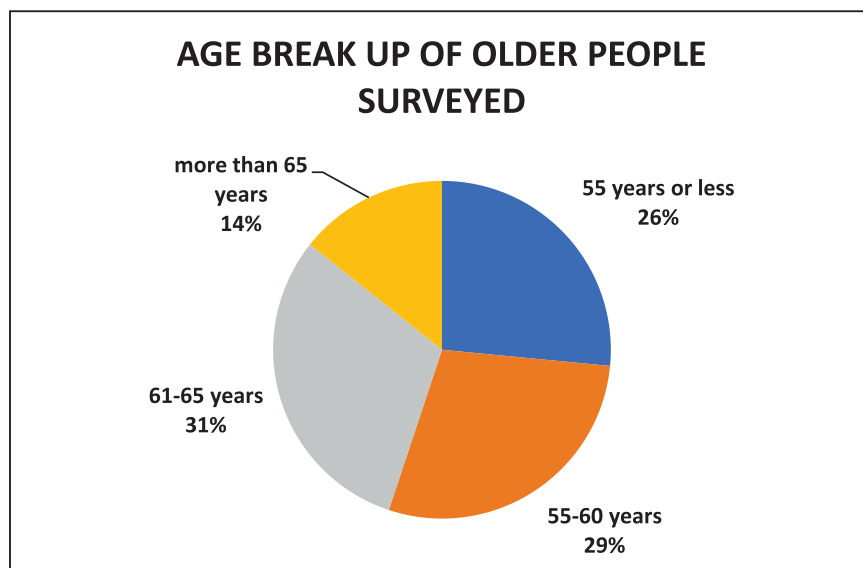
Harsh conditions in mines

Age Break Up: It was decided to survey older people above 50 years of age. Definition of old age changes with time depending on the health and nutrition status, culture, and technological development. Generally, old age is considered to set in early for workers engaged in manual work considering the hard work they undertake. For the purpose of this study, 50 years was considered to be the cut off.

The age break-up of workers covered is given in the chart below. It is almost equally divided between those below 60 years and those above it.

Current work status: The workers were asked about their current work status. Only a little more than one third – 38 percent – reported working in mines. A comparison of this chart with the previous chart giving age break up of respondents reveals that workers start leaving the work between 55 and 60 years of age.

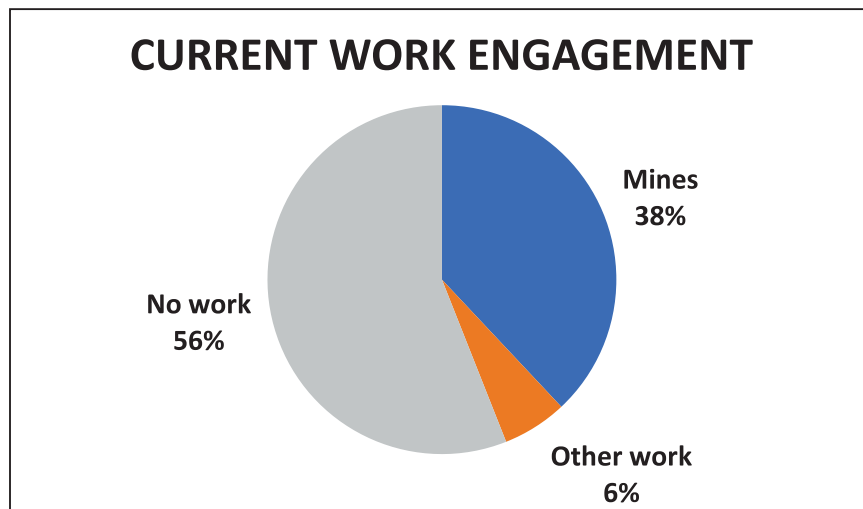
Chart 1



Workers who were still working in the mines were asked how long they will continue to work. Most workers said that they will work from two to five years more. A few said that they will continue to work as long as possible.

It is clear that workers continue working till it is possible for them to work. Once they develop silicosis, it leads to gradual deterioration of health. There are a few cases where workers continue to work even after developing silicosis.

Chart 2

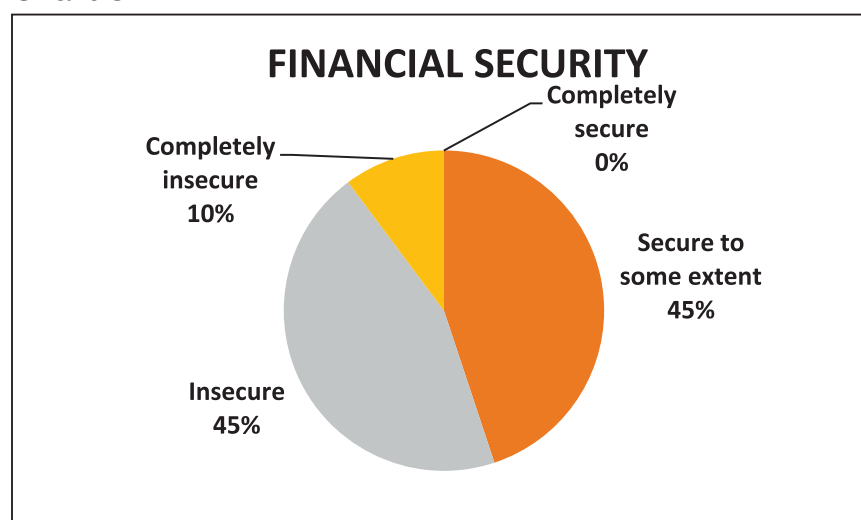


The chart also shows that people beyond the age of 60 years who have retired from mine work, generally do not take up any other work. Only a couple of respondents said that they were engaged in animal grazing. Another couple of workers reported undertaking guard work in a nearby factory that does not require much hard work.

Years of work in the mines: Average number of years worked is 27. However, this figure may not be very accurate. Workers do not have a very good idea of the time span. What is clear that for majority of the mine workers, this is their sole occupation. They start working early and then continue lifelong.

Financial Security: Attempt was made to assess the financial security of the respondents. The responses were sought on a four-point axis ranging from completely secure to completely insecure. No one said that they were completely secure. More than half the respondents expressed some level of insecurity.

Chart 3



Bank account: The respondents were also asked if they have a bank account. The coverage is 100 percent. This might be owing to the recent *Jan Dhan Yojna*, that sought to open bank accounts for everybody. The 100 percent coverage might also be deriving from the linkage of workers with social security schemes of the State – old age pensions and silicosis compensation and pension scheme. This requires a bank account.

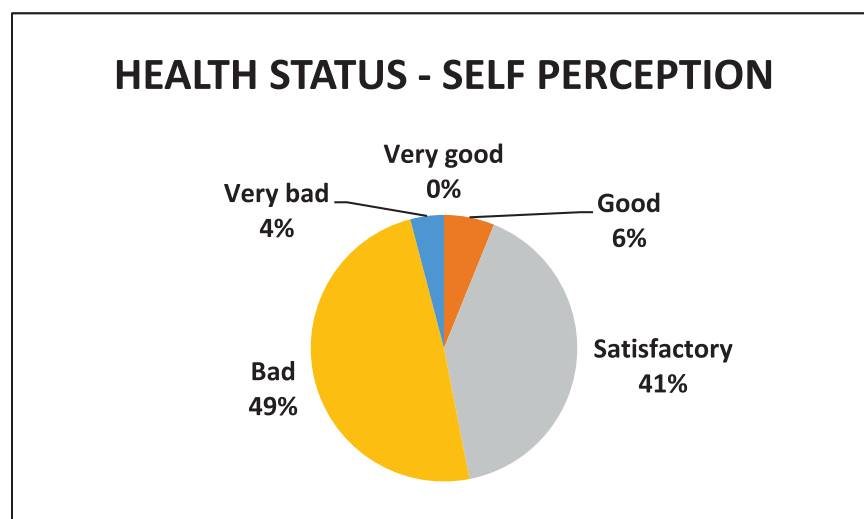
Care from the household: Care of older people is a major issue as the older people are not economically productive any more. The workers do not have any social security provision for their old age (except a small sum received as old age pension). So, who are the household members taking sufficient care of them? The respondents were asked to respond to a question asking if their family members are looking after them properly. While majority of the respondents said that their family members are looking after them well, a high percentage at 38 percent responded in the negative.

Landholding: Majority of the workers, 70 percent, reported that they do not hold any agriculture land. Of the remaining 30 percent who reported land ownership, the average land holding was 10 bighas that places them in the category of marginal farmers. This finding is a little surprising considering that land holding is almost universal in arid zones. The survey has been focused on workers settlements on the periphery of the mining areas in Jodhpur city. These settlements are populated by long term migrants who came to work in the mines many generations ago. They might have owned land in the villages where they came from, but have now lost ownership. The land holding status is also an indicator of the financial insecurity faced by the workers.

Health status of the workers: One of the major objectives of the study was to document the health status of older mine workers.

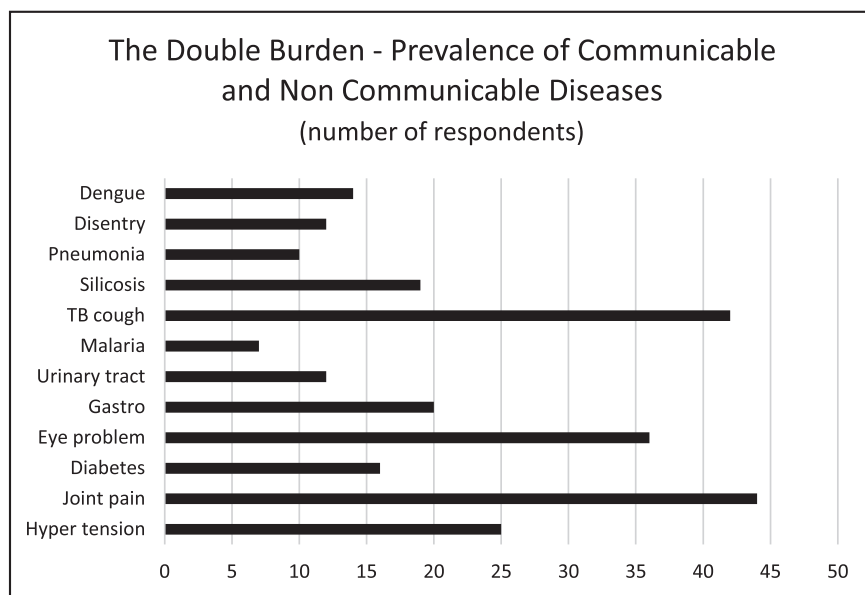
Self-Perception: One question was aimed to understand the perception of the workers about their own health. Almost half the workers reported their health as bad, while four percent reported it as very bad. One the other hand, a good number – 41 percent have reported satisfactory health while a small number have reported good health.

Chart 4



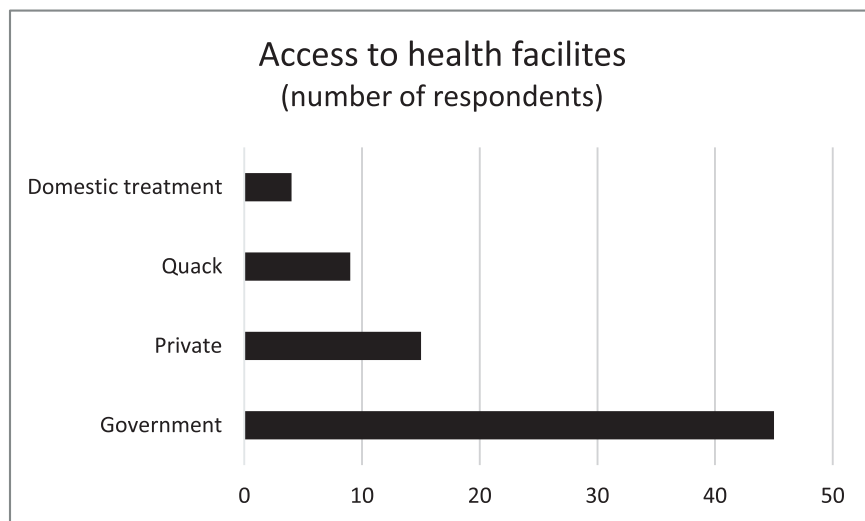
Disease Load: The workers were asked in detail what diseases are they suffering from. The chart below maps the responses received. Workers suffer from multiple diseases. Average number of diseases reported per person is a little more than five.

It can be seen that maximum workers – almost 90 percent – suffer from respiratory diseases like TB, cough, silicosis, and pneumonia. Joint pain is also reported by an almost equal number. More than 70 percent workers have reported eye problems. All these three diseases are likely to be associated with their occupation.

Chart 5


Access to health facilities: Access of workers to various health facilities was explored. This was a multiple option question as a worker could approach multiple facilities at one point or the other. The responses are shown in the chart below

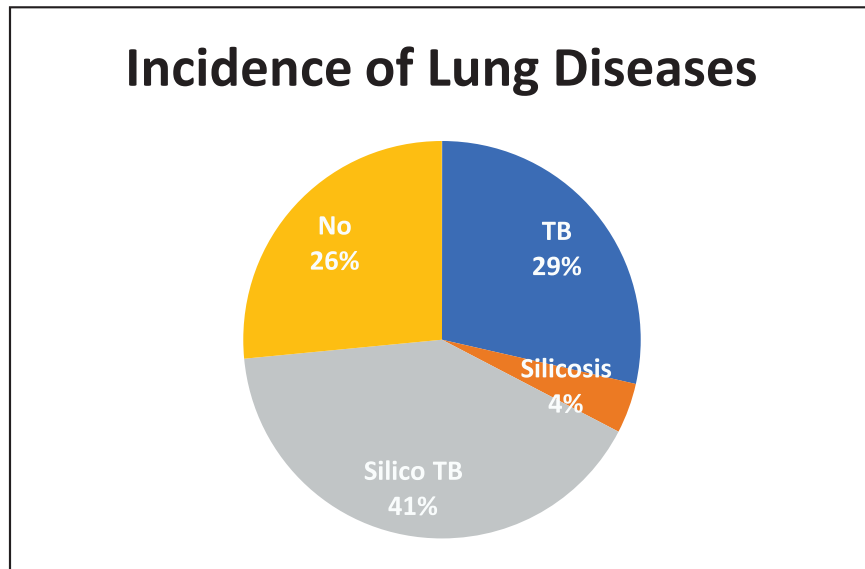
The chart shows that the workers do have access to State health facilities. To some extent, this is natural as well as the treatment for lung diseases – both TB and silicosis – is through the Government facilities. The State has major programmes catering to management of both these diseases that ensures that the workers approach Government system.

Chart 6


Comparatively only a small number – about a third – are shown using private doctors. This is contrary to the popular notion that workers often prefer to go to private doctors. One reason may be that the respondents have not made use of the option to tick multiple options. A smaller number have said that they use services of local doctors who may not be qualified, popularly known as unqualified doctors or quacks. A very small number also opt for treatment at home.

Lung diseases amongst workers: Considering the high prevalence of TB and silicosis amongst mineworkers, the status of lung health was explored through separate questions. Nearly three quarters of the workers reported suffering from lung diseases. Forty one percent reported suffering from both TB and silicosis, 29 percent from TB, and four percent from silicosis.

Chart 7



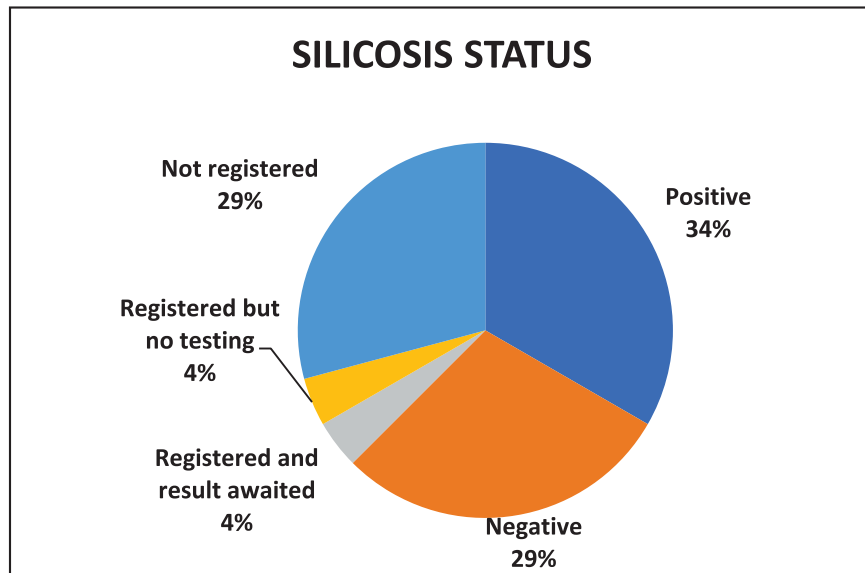
Silicosis status: There is high prevalence of silicosis amongst sandstone workers. Therefore, the silicosis status was probed in detail. There is an extensive system for silicosis testing. The Government has set up Pneumoconiosis Boards that test workers for silicosis. The workers have to register online for testing through village level *e-mitra*. Next, they are called for testing. If the testing indicates a positive diagnosis, they are further asked to appear before the Board that meets on certain days. The Board then issues the Silicosis Certificate. The Positive certificate entitles the workers to a compensation of INR 300,000 and a monthly pension of INR 1,500 per month. Compensation after death is INR 200,000 to the family. These rates have been announced under the new Silicosis policy that was announced in the year 2019. The rate earlier was INR 100,000 to the living and INR 300,000 to the survivor of the dead worker.

The findings show that one third of the workers have tested positive for silicosis. Another, eight percent are at various stages of testing – half of these have registered but not yet tested while another half have

been tested but awaiting result. A significant number – 29 percent -were tested but found negative. An equal number did not register. This last number almost matches the number in the previous chart that shows the number of respondents who said they do not have any lung disease.

The chart also shows that 48 percent of the persons who were registered have tested positive while 41 percent have tested negative. The positivity rate is much higher than the figures for all over Rajasthan. It was reported that only 14.4 percent of the total registered under the Board were tested positive while 66.2 percent were rejected (Mukherjee 2022). The figures are also much higher than what was shared in one of the FGDs. The high positivity rate in the sample may be because of the bias in selection of the sample where the investigators selected a worker with positive certification.

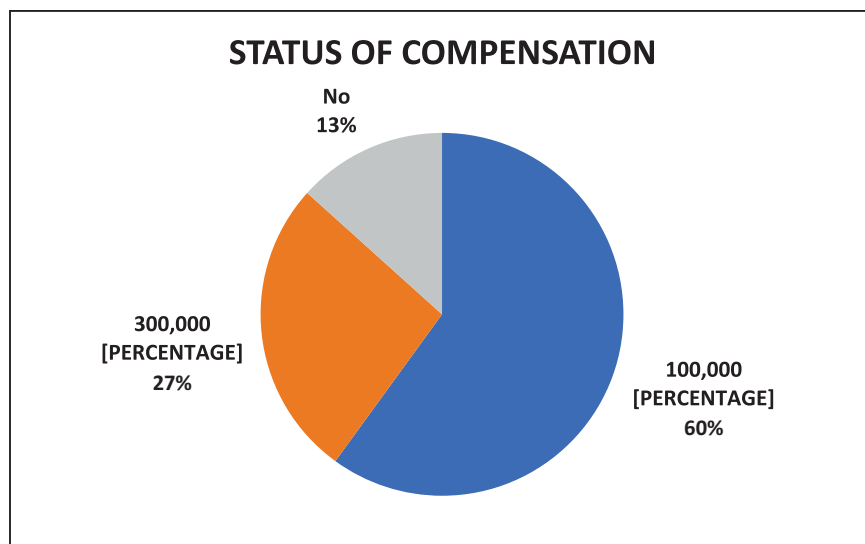
Chart 8



Compensation received by workers: How many of the workers diagnosed with silicosis have received the compensation due to them. The workers are entitled to a compensation of INR 300,000 currently. Earlier this amount was INR 100,000 only.

The findings show that majority of the workers – 87 percent – who were diagnosed with silicosis have received compensation. However, 60 percent of the workers have received only INR 100,000 as compensation, that was the amount under the old scheme. Only 27 percent received INR 300,000 that is provided under the new scheme. The compensation was hiked in September 2019 when the Government announced its Pneumoconiosis policy. Thus, it is now two and a half years since the persons diagnosed under the old scheme are yet to get enhanced compensation. This issue needs to be explored further and worked upon. The issue has also got highlighted in other fora (ibid).

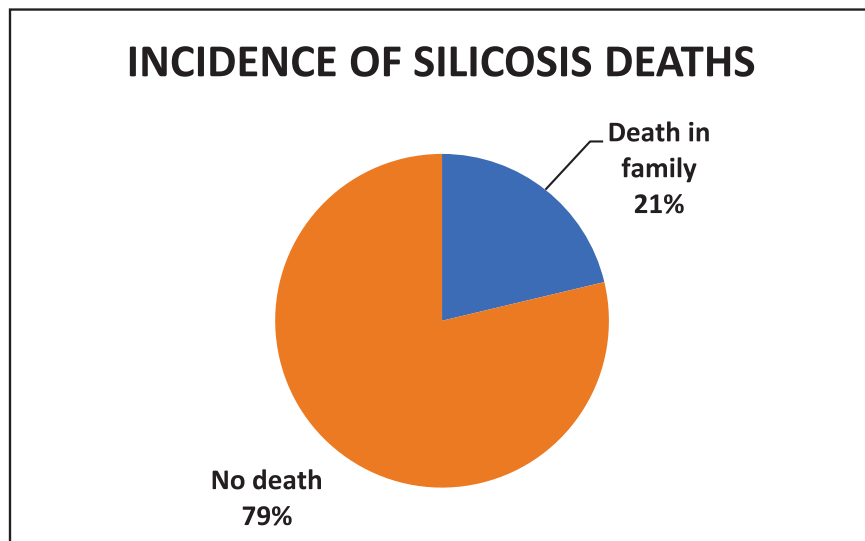
Chart 9



Silicosis pension: The persons tested positive are eligible for a pension of INR 1,500 per month. Of the 16 positive persons who responded to this question, nine are getting pension. The reason for others not getting pension was given as that these workers are already getting Old Age Pension. A person can not draw pension from two different Government sources. So, these persons have to get their names removed from the Old Age Pension list. Then they will become eligible for silicosis pension.

Death due to Silicosis: Silicosis is a fatal disease with no treatment. There is only palliative treatment through which the symptoms are treated. The survey explored deaths in the family of the respondents. A significant number of respondents – 21 percent - reported deaths in the family due to silicosis.

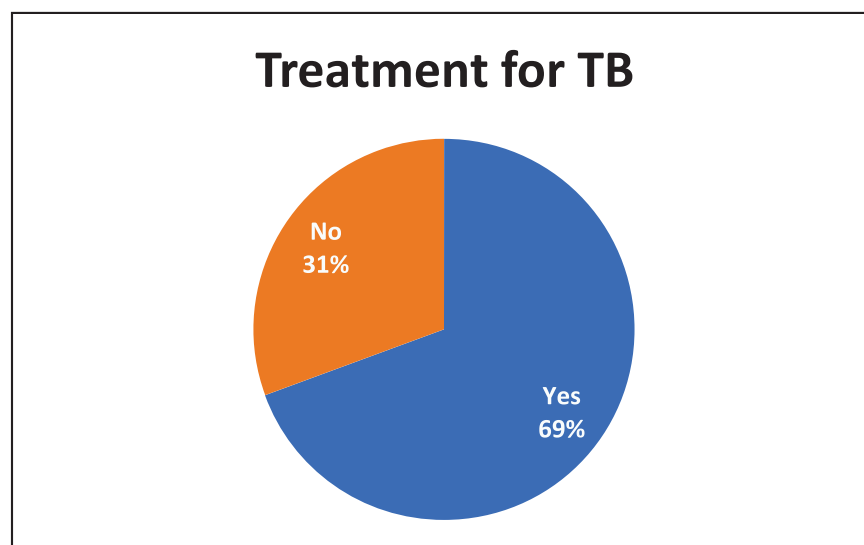
Chart 10



Compensation in case of death: The families of the workers who die because of silicosis get compensation that is INR 200,000 under the new policy. Earlier it was INR 300,000. Only sixty percent of the families reporting death have received compensation. The reasons for delay need to be explored.

Status of TB: It is well known that TB is rampant amongst mineworkers. More than two third of the workers reported to have taken treatment for TB.

Chart 11



The survey tried to assess how long back the workers took the treatment. Average number of years was reported to be two. However, this may not be a very true figure as workers continue to be almost constantly affected by TB symptoms.

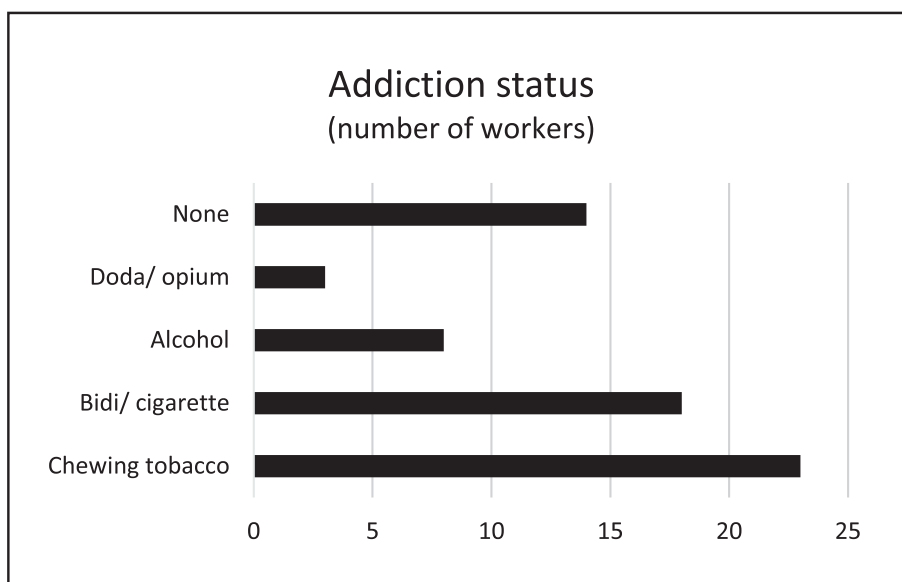
Almost all the workers who reported being affected by TB in the past, took medicines from the Government system. Government also pays a monthly stipend of INR 500 to the TB patients who are registered with the District TB cell for their better nutrition. This is paid only during the duration of the treatment under a scheme called *Nikshay Poshan Yojna* launched by the Central Health Ministry, Govt of India in the year 2018. Almost half the workers who reported taking treatment for TB are reported getting the benefit of this scheme.

Out of pocket expenditure on health: The survey asked the respondents about the expenditure incurred by them on their health per month. Almost all the respondents reported incurring significant expenditure on medicines. Average amount reported was INR 1,857 per month. More than half the respondents reported incurring between INR 1,000 to INR 2,000 per month on their health. This is a significant amount of expenditure. Rajasthan Government has introduced a free medicine scheme where all medicines in Government hospitals are given free. However, in spite of this scheme, workers continue to incur significant expenditure on their treatment.

The workers suffer from a host of problems as shown in the chart above. Lung diseases related symptoms continue to affect majority of the workers. TB is a disease that can recur. It requires long duration of treatment. Workers can catch it again. Silicosis that has symptoms very similar to TB, is a non-curable disease. So, workers continue to incur significant expenditure on their regular health needs.

Addiction status: Workers that undertake hard manual work are reported to have high levels of addiction to various substances. The addiction status of the older mine workers was investigated. The status is given in the chart below. Most of the workers are addicted to one substance or the other. Almost 70 percent workers reported one addiction or the other. Most common addiction is tobacco. A little less than half the workers are addicted to chewing tobacco, while a third are addicted to *bidi*/cigarette. The Thar Desert area is known for opium addiction. This has been reported but in small numbers.

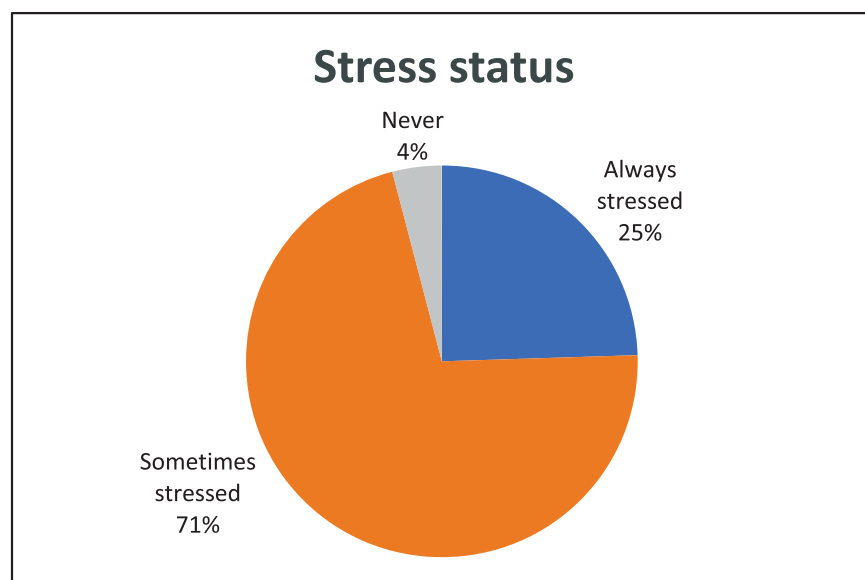
Chart 12



Mental health: The survey sought to assess the mental health of the sample population. Three questions were asked. The workers were asked about their living arrangement, how many family members live with them. Most workers reported living in joint families with their children. Average number of family members living with older workers was 4.7. Only two workers reported that they had only one more person living with them.

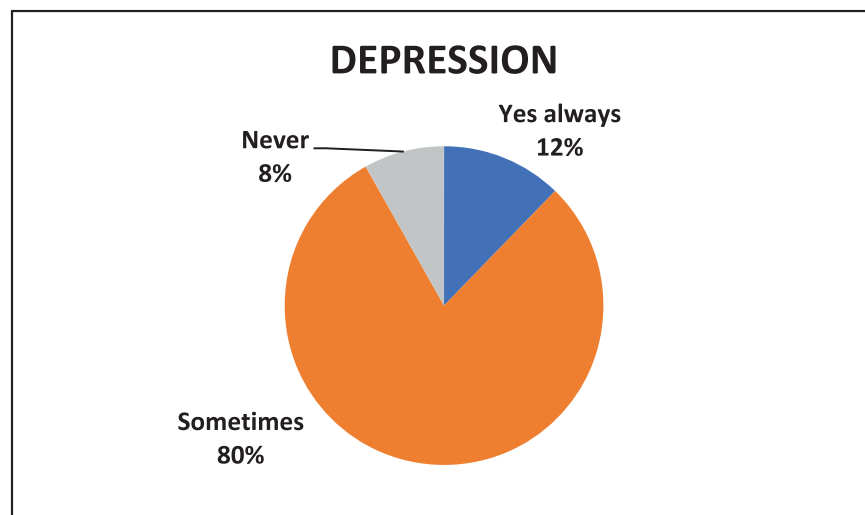
Workers were asked they felt under stress. A fairly high number – almost one quarter – reported being under stress all the time. Seventy percent said that they felt stressed some time while a small number – four percent – said that they never felt stressed.

Chart 13



The second question asked if the workers felt disappointed with life, depressed. Less than one eighth said that they felt depressed all the time. Four fifth of the respondents said that they felt depressed sometimes. Eight percent said that they never felt depressed.

Chart 14



Access to Social Security Schemes of the Government: The Indian society does not have universal social security. Only the middle classes and the organized sector workers are covered with social security for old age like Employees Provident Fund (EPF). The only social security for workers is through the Old Age Pension scheme for old workers and Widow pension scheme for widows who do not have any other livelihood support.

Half the number of respondents reported getting Old Age Pension. The eligibility age for this pension is 60 years. This almost matches with the number of respondents who are above sixty years of age in the survey.

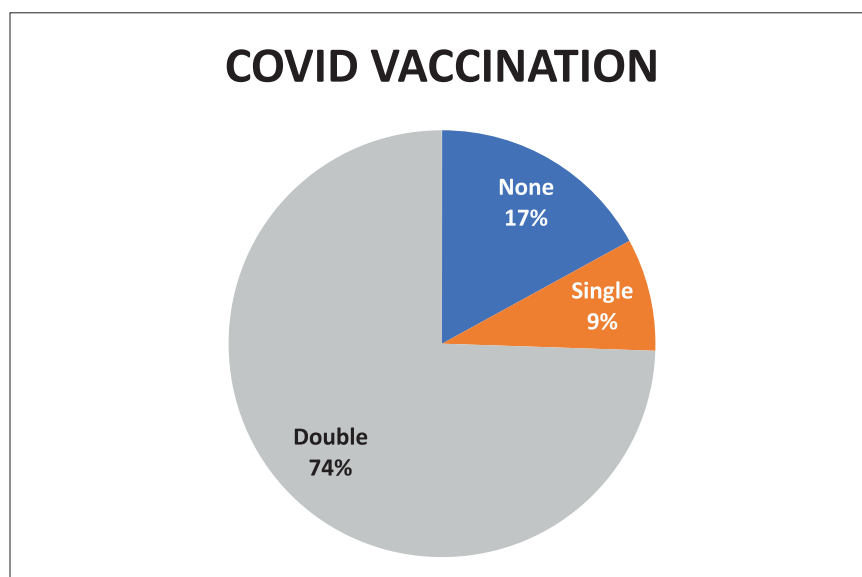
Widow pension is received by seven women workers. The eligibility for this is 18-60 years of age and BPL status.

Impact of COVID on older mine workers: Survey sought to assess the impact of COVID on workers. Whether they were affected, and got tested, if there have been any deaths in the family, and what was the impact of the pandemic on their lives. There does not seem to have been much health-related impact of COVID on workers. Only one worker reported being tested positive for COVID. He did not need hospitalization and got well at home.

The major impact of COVID has been on the livelihood. Lockdowns led to closure of mines for a stretch. Even after lock downs were lifted, the production from mines has fluctuated due to weak business sentiment. Average period of disruption was reported to be about five months. However, work has been irregular over the whole two years of COVID duration.

COVID vaccination initially faced severe opposition from rural and manual worker committees. However, this resistance has been significantly, but not completely, overcome. It was reported that vaccination was undertaken in the mines also. The chart below gives vaccination status of the workers surveyed. Almost three fourth of the workers have got the double dose of vaccination. However, a small number – 17 percent – are still being reported not vaccinated.

Chart 15



Report of the FGDs

A series of Focus Group Discussions were held at villages from where large numbers of workers go to the mining areas. The FGDs were held at villages of Hari Nagar, Dudha Bera, Mehoji Nagar, and Jiya Bera. The participants in the FGDs varied between 10 to 20 old mine workers. In some cases, younger mine workers also attended.



FGD in progress at Hari Nagar

The issues discussed in the FGDs related to the history of mine work in the village, how long workers have been working in the mines, individual experiences, status of silicosis, how many had registered and tested positive, what was the amount of compensation received. The discussion also led to the process of registration and testing for silicosis.

The workers had been working in mines for long duration – up to 30 years. Mine work was the only occupation for the majority of the participants. Only a few workers taking up other work in between.

Majority of the workers reported suffering from lung related diseases and had breathing issues. Large number of workers reported suffering from TB and silicosis.

There was almost universal awareness about the registration process for silicosis. Nearly all the workers had got registered and got tested. In fact, some workers had registered more than once. However, there

was lot of dissatisfaction with the whole process. The workers complained of delay at every stage. Some of them even complained about corruption in the process. Their estimate was that of the total number who get registered with the Board, only 20 percent are reported to the Board and of this only 10 percent get the positive certificate.

The workers were asked about the compensation received by them. One issue that emerged was that some of the workers who were diagnosed prior to the announcement of Pneumoconiosis policy by the state in 2019, had not received the enhanced compensation. GRAVIS staff said that the process for getting enhanced compensation had been initiated.

At one FGD, there was discussion on use of Chinese powder for cracking the stone in mines. It creates dust and is dangerous for eyes.



FGD at Dudha Bera

Case study 1: Bansil Lal

High out of pocket expenditure on medicines

The older mine workers continue to suffer from lung related ailments. If they have been cured of TB, there is high likelihood of their catching it again. Bansil Lal's case illustrates this.

Bansil Lal age 65 years is a resident of Bhil basti near Jodhpur. He worked in mines for 45 years. He does not have any land. He was diagnosed with silicosis and received the compensation of INR 100,000 in 2016. He spent the money for wedding of his daughter. He has been treated for TB also in the year 2005. He is not working anymore. His son also works in the mines. He earns INR 320 per day. His wife also goes to work in mines. She earns INR 250 per day. His son has 5 children. All are studying in school.

Bansil Lal has to constantly take medicines to manage his condition. He incurs monthly expenses of INR 1,500 on his medicines. He goes to a private hospital for treatment. High expenses on his health is a major burden for the family.

The case of Bansil Lal is very representative of the older mine workers. They have received compensation for silicosis. But it was not large enough to create long term security. It got used up in consumption expenses. He is yet to receive the enhanced compensation under the new policy. He has been treated for TB. But he continues to suffer from TB like symptoms. He is incurring a large amount of expenditure for his medicines.



Case study: Pokar Ram Bhil

Impact of COVID on Education of Children

The prolonged closure of schools due to COVID had a disastrous impact on schooling of children of workers who could not afford costlier online methods. Many dropped out of the schooling system. The son of Pokar Ram is one such case.



Pokar Ram is a resident of Bhuri Beri near Jodhpur. He is 50 years old. He is the eldest of three brothers. All the three brothers have been diagnosed with silicosis. His younger brother Mula Ram passed away six months back when he was only 38 years old. The youngest brother Uda Ram is 34 years old. He has two sons. One son is 18 years old. He dropped out of school during the Corona when he was studying in 11th class. He could not take up the exam after the long lock down. The younger son is 15 years old and studying in class 9. He is getting the silicosis pension of INR 1500 per month. He is also getting the Palanhar stipend for his younger son who is enrolled in school. His elder son and wife, both work in the mines. Pokar Ram functions as a volunteer for GRAVIS. He has been successful in getting Silicosis certificates for all the three brothers. He is also helping other workers to get tested.

Pokhar Ram's case illustrates the benefits that accrue from being aware of one's rights. He is active and works as a volunteer for civil society agencies. He has been able to get benefits that accrue to workers. However even he was not able to ensure continued education for his son who dropped out of school during the COVID pandemic and became a mine worker. This is illustrative of the barriers that face mine workers and how they are bound by an exploitative system that ensures their continuation in the cycle of

3. CONCLUSIONS AND RECOMMENDATIONS

The study focused on the livelihood/economic status of the older mine workers and their health.

The financial status of the workers remains precarious. They do not have sufficient means of income. While majority of the workers – 82 percent - have access to some pension, the amounts are low, varying from INR 500 per month for widow pension to INR 750 for old age persons, and INR 1,500 for silicosis patients. The workers do not have any other source of income. Less than one third reported any land holding. And even in their case, the size is small.

Health status remains poor. Workers are affected by multiple afflictions. As reported earlier, average number of diseases per person is five. Lung diseases – silicosis and TB – are almost universal. There is high chance that workers are getting affected by TB again after getting treated. The high disease burden leads to significant out of pocket expenditure. In fact, the pension amounts are not sufficient to cover the expenditure on medicines incurred by workers. It also appears that lot of the expenses incurred are on medicines that are not required but prescribed by private doctors and pharmacists to boost sales.

The workers stay within joint families. Thus, they have good emotional and family support. Some amount of depression is reported.

The Rajasthan policy on Pneumoconiosis is a well-designed policy and can be considered progressive when compared to other States of India. There is high level of awareness amongst workers about the policy and the monetary compensation. There is also a keenness to get registered. However, the implementation runs into bureaucratic hurdles. There are delays at every stage.

There are technical issues related to diagnosis of silicosis. It appears that this is not easy. There are also serious charges of corruption at various levels. While the study has not investigated these, the probability of this being true is very high, considering the general situation. This can also contribute to further delays.

The access to Government entitlements – the old age and widow pensions - is reasonable. The problem is that the amount of benefit received is meagre.

Recommendations

Facilitate access to compensation under the new Policy through suitable advocacy for workers who received certificate under the old policy: The new Pneumoconiosis silicosis policy enhanced compensation for silicosis patients. However, it seems that the transition from old to new has not taken place yet, even two and a half years after announcement of the new policy. This came out clearly in the survey findings. Sixty percent of the workers who have received compensation reported receiving only Rs. one lakh under the old policy. The reasons for this not happening need to be explored and worked upon. Two reasons cited in other reports are (i) the delay is due to the shift from manual to online system

(ii) the workers who received certificate under the old regime are being asked to get registered and tested again. Both these need to be explored and suitable advocacy should be undertaken to ensure that the issue is resolved at the earliest.

Address the delays in registration, testing, and confusion on diagnosis: There are lot of delays at every stage of the process. Even after the extensive process of testing, there are complaints that many genuine cases are denied the positive certificate. These should be addressed.

Reducing out- of -pocket expenditure on health: The study finding is that old mine workers are spending a significant amount of money on expenditure for their medicines. This is a huge burden. It is also ironic considering that the Rajasthan Government has introduced free medicine scheme where all medicines are being provided free of cost in Government hospitals. Ways and means should be explored to reduce this high burden. Distributing a medical kit with essential medicines could be one option. Liaison with local Government hospitals to ensure availability of the required medicines can also reduce to reduction in out-of-pocket expenditure.

Undertake anti-smoking campaign amongst older mine workers: With the very high incidence of respiratory diseases, it is surprising that majority of the male workers continue to smoke. This leads to further complications and deterioration of health. Forty six percent respondents reported smoking. This ratio will cross half way mark if women respondents are left out of the sample. There is need to convince workers suffering from respiratory diseases to give up smoking as ingestion of smoke will worsen the respiratory system.

Smoke less kitchen: In rural areas, wood continues to be the preferred choice of cooking. Ingestion of smoke is likely to worsen the health of the respiratory system. There is need to replace it with smoke less fuels like gas. If the same is not possible, the kitchen should be taken outside the main house to avoid exposure to smoke.

Ensuring access to multiple Government pension schemes: It is a cruel irony that the poorest segment of the society is denied essential benefits if they are getting another benefit from the Government. Thus, persons getting old age pension miss out on silicosis pension which is double the amount. Advocacy should be undertaken at the highest level to remove this anomaly. Ideally the beneficiaries should be allowed to receive benefits from multiple sources as these accrue from different criteria. The Old Age Pension accrues because of old age and silicosis pension accrues if a person tests positive. The principle of insurance should be followed where a pension can claim multiple insurances for the same event if he is covered by multiple policies.

Focus on Prevention: It is well recognized that the prevention at the source is the best means to address the issue of silicosis. However there has been least progress on this account. The Rajasthan state has come up with a reasonably good system of compensating victims of silicosis. On the other hand, the work conditions at mines remain same as before. In fact, there is reason to believe that the increasing mechanization of mining operation is leading to increase in incidence of silicosis. The new technique of

using stone cracking Chinese power to cut the block from the rock face requires more drilling. The operation of drilling is a major contributor to silicosis. So, there is high possibility that instead of decreasing, incidence of silicosis is increasing.

The main technical innovation promoted to reduce generation of silica at source has been wet drilling where a water jet is introduced at point of drilling. The mine owners and workers all reported that while wet drilling was introduced some years back, it has not succeeded. The drill bit gets stuck in the slush after some time. The other option that was referred to was use of a suction chamber that will suck in all the dust generated. This was not being used in the mines as of now.

Most probably the reality is that while technologies exist to prevent generation of silica dust, these are costly technologies while workers' life is cheap. The mine owners have no incentive to invest in costly technology as they bear no financial burden for causing this fatal disease.

In conclusion, the study on older mine workers presents a complex picture. It presents the wide impact of civil society action that is visible through increased awareness about the silicosis and TB and the state sponsored system to tackle these diseases.

On the other hand, the study points out the inadequacy of these packages to ensure a life of dignity. Taken together, these packages are too meagre to ensure a decent life. The study points to the high incidence of diseases suffered by workers, continuance of lung diseases, and the high out of pocket expenditure. It is to be hoped that continued civil society engagement will be able to overcome these constraints to ensure a dignified life to a hardworking section of society.

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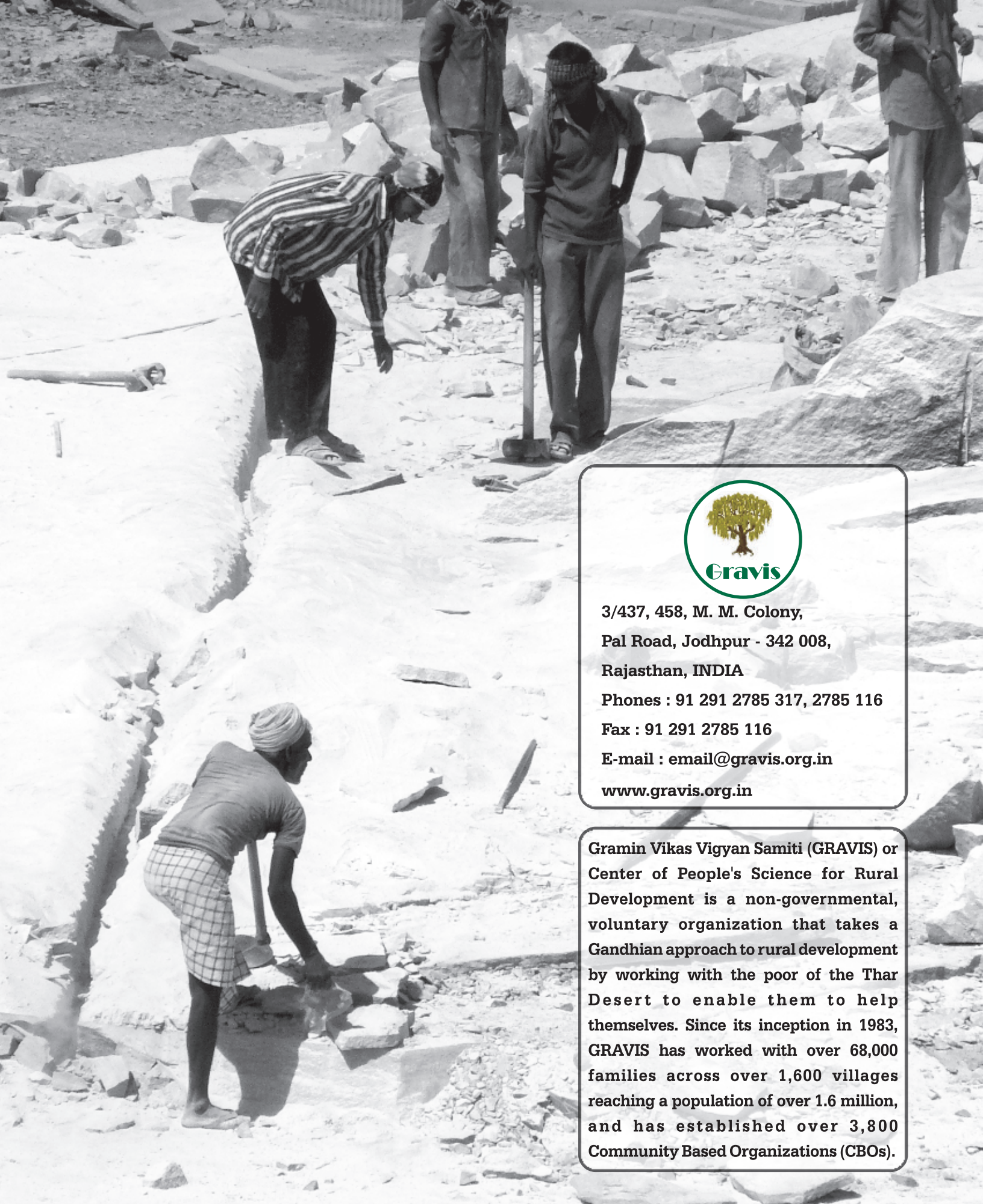
ACRONYMS

EPF	-	Employees Provident Fund
GRAVIS	-	Gramin Vikas Vigyan Samiti
INR	-	Indian National Rupee
TB	-	Tuberculosis
VOPA	-	Village Older People Association



NOTES

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Gramin Vikas Vigyan Samiti (GRAVIS) or Center of People's Science for Rural Development is a non-governmental, voluntary organization that takes a Gandhian approach to rural development by working with the poor of the Thar Desert to enable them to help themselves. Since its inception in 1983, GRAVIS has worked with over 68,000 families across over 1,600 villages reaching a population of over 1.6 million, and has established over 3,800 Community Based Organizations (CBOs).

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