INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE & MANAGEMENT

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INTRODUCTION

REVIEW OF LITERATURE

NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESIS (ES)

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

LIMITATIONS

SCOPE FOR FURTHER RESEARCH

REFERENCES

APPENDIX/ANNEXURE

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- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.

- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–23

UNPUBLISHED DISSERTATIONS

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

ONLINE RESOURCES

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WEBSITES

- Garg, Bhavet (2011): Towards a New Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

A SOCIO-ECONOMIC ANALYSIS OF MINING Vs. NON-MINING VILLAGES WITHIN SAME TALUKAS IN GOA

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ABSTRACT
Mining comes with a lot of employment opportunities coupled with developmental activities in the area of operation that has an impact on the socio-economic characteristics of the inhabitants in the areas. Following the Chinese boom, during the last decade iron ore mining took place in full swing in the iron ore rich state of Goa. With this background the current study aims at comparing the socio-economic characteristics of the households in the mining areas with the non-mining areas within the same talukas. For the purpose, an interview schedule was forwarded to 256 respondents in the mining and 191 respondents in the non-mining areas within the same talukas. Descriptive statistics and t-test was used to compare the socio-economic variables of the two areas. The study revealed a significant difference in the economic variables but no difference in the educational status of the households in the two areas. The study suggests the need to promote higher education in the areas to improve people's thinking skills and to educate them about the nature of mining industry so as to enable a holistic socio-economic development in the area.

KEYWORDS
education, households, mining, socio-economic.

1.   INTRODUCTION
Goa is one of the most beautiful states of India ranking high in terms of socio-economic indicators especially with respect to high literacy rate of 87.50% according to Census Survey 2011 and has a high per capita income as well. Agriculture has been the dominant economic activity here followed by fishing, tourism and mining. But the state has witnessed a shift in the pattern of economy from an agrarian based to other sectors like manufacturing and tertiary. The issues linked to this as identified by TERI 2012 are loss of traditional varieties, ill-effects of the mono-culture system, rising cost of cultivation, inabilities to link to local markets, etc. while in the mining areas it is the degradation of land itself due to flow of mining silt as well as scarcity of water. The rural Goa when compared to the other rural villages of the country is better in terms of socio-economic status as reported by the Census Survey 2011. It is noted here that around 42% of the households in the rural Goa have one member working for private sector and around 13% households have a family member working with the government. Also, around 5% depend on agriculture for their incomes while 14% are manual labour.

Goa is rich in iron ore deposits. A total of 18% of the geographical area is under mining of which the forest alone accounts for 70% of the leased out area reckoning to 43% of the forest area (Forest Survey of India, 1985). The rich forests support the livelihoods of the people in the regions and also their rights to access to water and firewood. According to TERI (Tata Energy Resource Institute) 2012, 12,000 ha of land have been rendered wasteland due to the practice of mining activities. Most of the mines are located below the water table. For every one tonne of ore mined, about 10 tonnes of water needs to be pumped out. There is depletion in the groundwater in the surrounding areas. In Goa, approximately 21,000 people are employed in the mining industry, both directly and indirectly (Chhibber, Rogers, & Milkereit, 2011). Migration into Goa is a common phenomenon in search of jobs. With respect to the mining industry, the area has witnessed migrants from Jharkhand, Bihar and Karnataka in search of jobs. Availing ration card facilities is also an easy process in Goa.

The mining industry has seen an increase in the exports of iron ore as shown in the chart 1, below from 17.09 mnts (million tonnes) in the year 2001-02 to the tune of 33.38 mnts in the year 2006-07, while the highest record was in the year 2010-11 of 52.29 mnts, after which there was a decline following the mining ban ordered by the Supreme Court in September, 2012.

CHART 1: EXPORTS FROM 2001-02 UPTO 2012-13
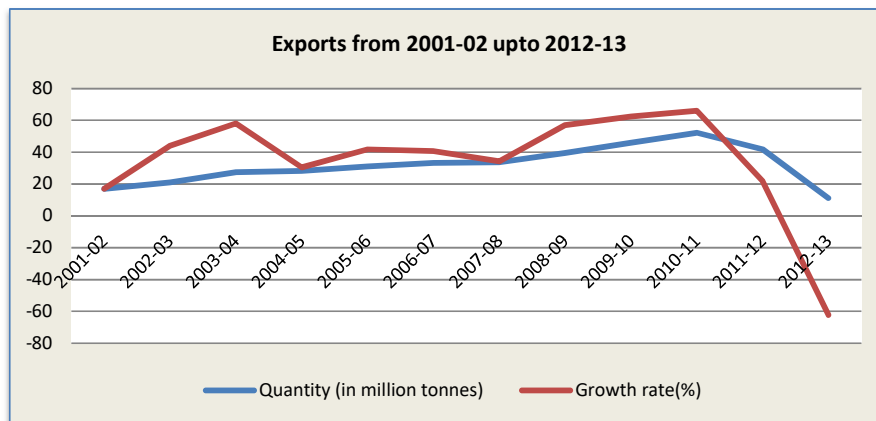
Source: Directorate of Mines & Geology and Author's Compilation

This led to an increase in Gross State Domestic Product (GSDP) of Mining and Quarrying sector from 9.36% in 2006-07 to 19.87% in 2010-11 with a simultaneous decline in the GSDP of Agriculture Sector from 4.61% in 2006-07 to 3.09% in 2010-11 as depicted in Chart 2. This had an impact on the socio-economic character-istics of the households in the regions. They are the ones who bear the direct impacts of the mining activities and the most ignored in the name of development. This growth was coupled with lucrative incomes for the households in the areas.

CHART 2: SECTOR WISE DISTRIBUTION OF GSDP AT FACTOR COST
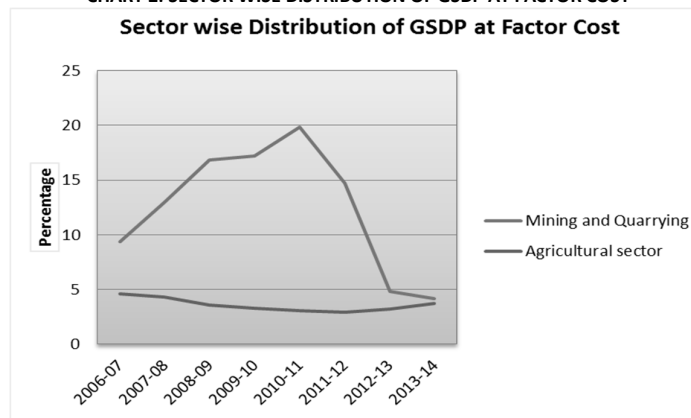
Source: Directorate of Planning, Statistics and Evaluation, 2015

2.   REVIEW OF LITERATURE

Ample of literature exists on the impacts of mining on the local communities. While some researchers are of the opinion that mining aids in improving the socio-economic status of the locals in the areas, yet some feel it has made situations worse for them to live.

Akabzaa, Darimani (2001) observed migration of all types of people into the mining areas that led to increase in housing problems, rise in the cost of living, displacement of local communities and problems of relocation and resettlement. A significant number of the displaced people are the tribal and economically marginal rural population who depend on natural resources such as forests and rivers for their livelihoods **(Singh, 2015)**. Remy, MacMahon (2002) however revealed the multiplier effects of the presence of migrants into the areas that led to direct and indirect employment into mines. Petkova, et.al (2009) also acknowledged the presence of migrants in the mining areas. He found that the mining boom brings high incomes for the local communities who largely depend on the non-resident by making provision for their accommodation and food. Kangwa (2008) was of the opinion that the industry uses the productive land for mining purpose instead of for traditional activities. No doubt as evident from the past studies, the mining industry provides benefits in terms of improved roads, water services, education and health services as also studied by Kitula (2006) but it also brings along conflicts over land and the unequal distribution of wealth and violation of human rights as added by Vandenbroucke (2008).

In context to Goa, a socio-economic analysis by Mendes (2001) revealed an improvement in the status of the households in the mining areas as compared to their non-mining counterparts, but the mining activities had an adverse impact on the health of the people. The Quality of Life (QOL) tool designed by Noronha, Nairy (2005) found lower QOL in the mining regions when compared to the non-mining regions, but this was only with respect to the environmental domain. The study also revealed that literacy levels and access to amenities were higher in the most active mining areas.

Though lot of literature exists on the socio-economic impacts of mining, yet recent studies on the socio-economic indicators of the households in the Goan context, i.e. education and incomes is not adequately researched.

3.   NEED OF THE STUDY

Mining is a destructive activity and minerals are located in isolated and rural areas where the households rank low in terms of socio-economic indicators. Thus the presence of the industry is a ray of hope as it is presumed to come with lot of employment/ business opportunities to the people and improved benefits by way of educational, medical support and infrastructure. The study will be of importance in drawing attention of the policy holders in the current times when mining has been banned in the state and is slowly and steadily making a way for itself once again, to know whether the industry contributed in improving the socio-economic characteristics of the households in the areas of operation and to know how better they can improve if the industry resumes operations. The overall development of a whole area depends on every part of that whole area.

4.   STATEMENT OF PROBLEM

The pilot study that was conducted revealed that mining was a flourishing industry for the households in the areas as they earned huge incomes at the cost of their traditional occupations for the reason mentioned above. In Goa, every taluka has government run schools, but higher education initiatives are lacking due to financial hindrances. The sad part in the mining areas was that inspite of earning lucrative incomes and owning more assets than the households in the non-mining areas, they still seemed to be at par with respect to educational status which is another important socio-economic indicator apart from income.

5.   RESEARCH GAP

Though previous studies have dealt with the socio-economic issues from different perspectives, yet the impact of mining industry on some of the key socio-economic indicators like education and income still needs to be researched. Further, the mining industry though fetches lucrative incomes to its dependents, whether it has helped them improve their economic status in real terms still needs to be answered. A comparison with the non-mining areas within the same talukas will give a better understanding of the impact of mining on occupation and economic status.

6.   STUDY AREA

The iron ore mining belt of Goa is located along the Western Ghats where most of the forests are confined. The four talukas rich in iron ore deposits are Bicholim and Sattari in North Goa and Sanguem and Quepem in South Goa. This covers 1/5th of the area of Goa i.e. approximately 700 km^2. Within the four areas, Sanguem has the maximum area under mining followed by Bicholim, Sattari and Quepem. From the point of view of mineral production Bicholim contributes almost 60% of the value of minerals followed by Sanguem. The people in these areas are to a great extent dependent on agriculture and forests for their living. But with the expansion of the mining industry there was a change in the occupational structure of the households. The non-mining areas within the same talukas also have similar characteristics as the mining areas except that there is no iron ore deposit.

7.   OBJECTIVES OF THE STUDY

With the above background, the current study covers the following objectives:
i.   To give a demographic profile of the households in the mining and non-mining regions of Goa.
ii.   To compare the socio-economic characteristics of the households in the mining areas with the households in the non-mining areas within the same talukas.

8.   HYPOTHESIS

H_0: There is no significant difference in the socio-economic characteristics of the households in the mining areas with the households in the non-mining areas.

9. RESEARCH METHODOLOGY

The data was collected from primary as well as the secondary sources. For collection of primary data an interview schedule was prepared comprising of the socio-demographic and economic profile to be answered by the respondents. Data was collected during the period from October 2013 up to May 2014. The schedules were administered to a random sample; of which 256 respondents of age 18 years and above from mining villages and 191 in non-mining areas within the four talukas were found to be complete in all respects. Along with descriptive statistics like frequency tables, means and standard deviations; t-test and ANOVA were used to compare the socio-economic variables using the statistical package SPSS 16. The secondary data was collected from various Government reports, news-paper articles and discussions with the Village Panchayat members, social activists, Government Officials in the Ministry and academicians.

10. RESULTS AND DISCUSSION

10.1 DEMOGRAPHIC PROFILE

In mining areas, 55% of the respondents were females while the rest were males. In the non-mining areas too, female respondents were more i.e. 52% while males were 48%. 30% of the respondents in both the areas were of the age group 41-50 years. 71% in the mining and 75% in the non-mining areas were married. 62% in the mining and 60% in the non-mining areas had family size of 4-6 members.

TABLE 1: DEMOGRAPHIC PROFILE OF THE SAMPLE (Sample Size: 447)

Sr. No.	Demographic Profile of the sample	Mining		Non-mining	
		Frequency	%	Frequency	%
A	**Gender**				
	Male	115	44.9	91	47.6
	Female	141	55.1	100	52.4
	Total	**256**	**100**	**191**	**100**
B	**Age**				
	18- 30	36	14.1	25	13.1
	31-40	75	29.3	46	24.1
	41-50	76	29.7	57	29.8
	51-60	45	17.6	42	22
	Above 60 years	24	9.4	21	11
	Total	**256**	**100**	**191**	**100**
C	**Marital Status**				
	Married	181	70.7	144	75.4
	Single	65	25.4	42	22
	Divorcee/widow	10	3.9	5	2.6
	Total	**256**	**100**	**191**	**100**
D	**Family Size**				
	<3	30	11.7	30	15.7
	4-6	158	62.1	114	59.7
	7-9	53	20.3	26	13.6
	>9	15	5.9	21	11
	Total	**256**	**100**	**191**	**100**

Source: Primary survey

10.2 SOCIO-ECONOMIC ANALYSIS: A COMPARISON OF MINING WITH THE NON-MINING AREAS

10.2.1 ACCESS TO NATURAL RESOURCES

Graph 1 shows the source of water used in the two regions. Tap water is used by majority i.e. 76% in non-mining and 52% in the mining regions; while well water is used by 17% in non-mining and 29% in the mining regions. With respect to the other source 9% of households in the mining regions used tanker water supplied by the mining companies as there was scarcity of water in the regions while it was not so in the non-mining regions. Graph 2 shows that majority of the households in the mining areas i.e. 61% use gas cylinders while a majority in the non-mining regions i.e. 58% use firewood followed by gas cylinder.

Water scarcity problems are felt in both the regions and with piped water line connection people find it convenient to use water from tap rather than drawing waters from well and natural sources. But due to mining operations households in the mining regions faced water problem and were compelled to use the tanker water supplied to them by the mining companies. Accessibility and cost play an important role when determining fuel use (Howells, Alfstad, Cross, & Jeftha, 2002). Though firewood was the traditional source of cooking fuel, the people's entry into forests was restricted, secondly people earned high incomes thus gas cylinders seemed to be affordable; in the non-mining regions very few could afford to use gas cylinders and mainly depended on firewood and accessibility was not a problem.

GRAPH 1: SOURCE OF WATER

	Well	Tap	Pond/stream	Any other
■Non-mining	17.3	76.4	6.3	0
■Mining	28.9	52.3	10.2	8.6

Source: Primary Survey

GRAPH 2: SOURCE OF COOKING FUEL

	Gas cylinder	Firewood	Others
Non-mining	38.7	58.1	3.2
Mining	61.3	36	2.7
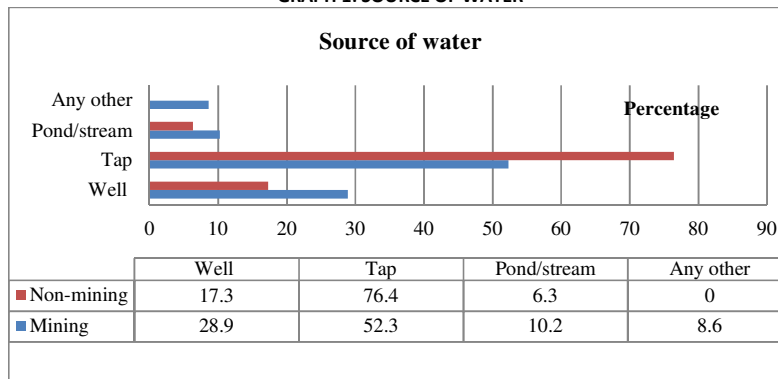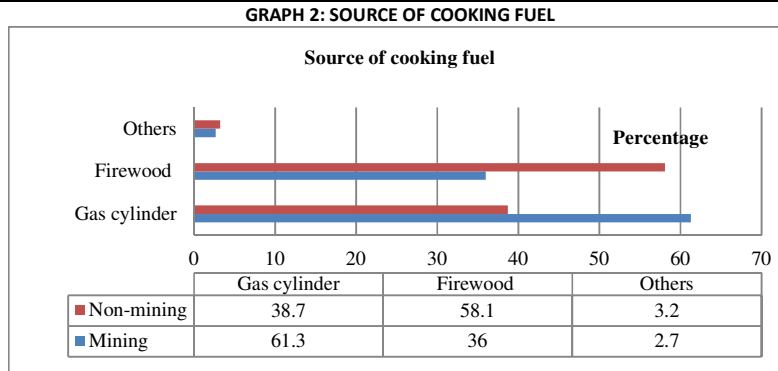
Source: Primary Survey

10.2.2 EDUCATIONAL STATUS OF THE HOUSEHOLDS

A higher percentage of illiterates i.e. 19% are seen in the non-mining areas compared to the 17% in the mining areas as shown in Graph 3 below. It is observed that the higher education level after HSSC has shown higher percentage of people in the mining areas compared to the non-mining areas. Yet, the difference does not seem to be a remarkable one.

In both the areas, primary education is not a big problem because there are government aided schools in every village, but higher education is lacking in the areas. For the people in the non-mining areas, affordability and accessibility is a hindrance in attaining higher education; while in the mining regions accessibility is the problem though, many can actually afford to pay towards higher education. The lucrative incomes gained out of mining activities did not create a desire for higher education as such incomes can be earned without any educational qualification.

GRAPH 3: EDUCATIONAL STATUS OF THE HOUSEHOLDS

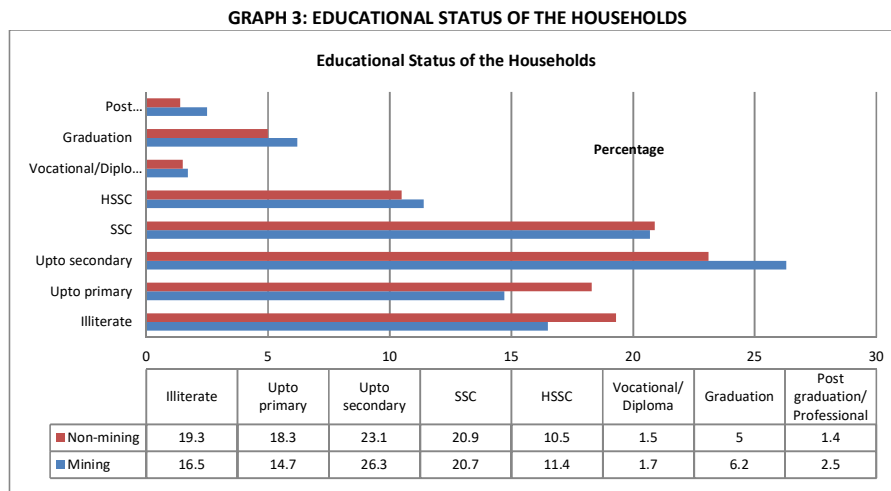|	Illiterate	Upto primary	Upto secondary	SSC	HSSC	Vocational/ Diploma	Graduation	Post graduation/ Professional
Non-mining	19.3	18.3	23.1	20.9	10.5	1.5	5	1.4
Mining	16.5	14.7	26.3	20.7	11.4	1.7	6.2	2.5

Source: Primary Survey

10.2.3 MAIN OCCUPATION

In the mining areas, 46% of the households were mainly engaged into trade/business, 6% practiced agriculture and allied activities, 16% were labourers and 29% were into salaried employment as shown in Graph 4 below. While in the non-mining regions, 46% were into salaried employment, 17% practiced agriculture and allied activities and 16% each were into labour and trade/business.

In the mining regions, lot of job/business opportunities were created by the industry by way of sale of food grains/grocery items, small hotels, garage/repair shops, letting out of trucks/mining machineries/vehicles on contract to the mining companies, etc. which fetched good incomes to the people than any other activities. In the non-mining areas, majority were into service as an occupation. Agriculture is practiced in both the regions, though more in the non-mining compared to the mining; while many cultivated mainly for self-consumption as it was becoming expensive.

GRAPH 4: MAIN OCCUPATION OF THE HOUSEHOLDS

	Agriculture and allied activities	Labour	Service	Trade/business/ profession	None
Non-mining	17.3	16.2	46.1	15.7	4.7
Mining	5.9	16.4	29.3	45.7	2.7
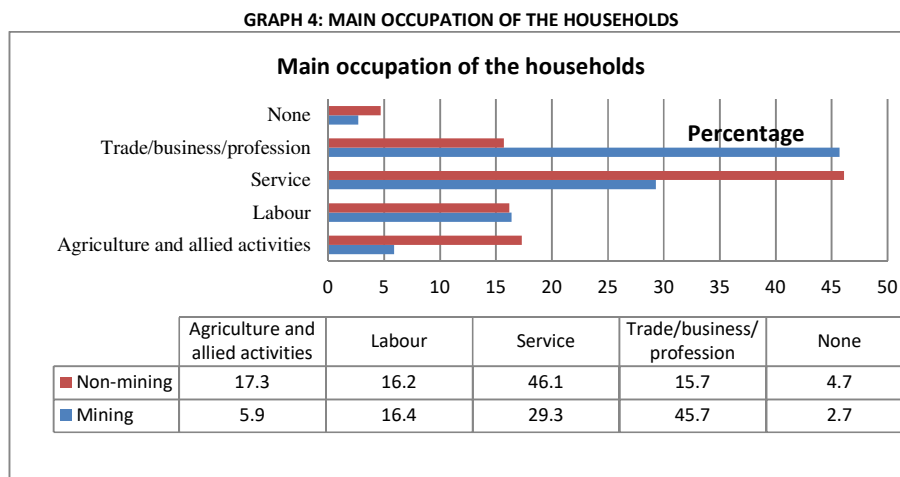
Source: Primary Survey

10.2.4 INCOME FROM OCCUPATION

10.2.4.1 Income from Main Occupation

In mining areas income from trade/business was the highest contributor i.e. 68%, followed by income from service of 17%, while agriculture contributed only 7%. In the non-mining areas, income from service was the highest contributor to the total income i.e. 53% followed by income from trade/business of 24% and 9% from agriculture and allied activities. The total average income in the mining areas was three times than that of the non-mining areas. It is further noticed that the average income from agriculture and trade/business is higher in the mining regions than the non-mining regions. This was the migration impact that gave larger scope for the households to earn higher income. The average income from labour was higher in the mining regions because most of the labourers were employed by mining companies who gave them better incomes than they could derive from other activities.

TABLE 2: CONTRIBUTION OF INCOME FROM OCCUPATIONS IN MINING AND NON-MINING AREAS (Sample Size:447**)**

Variable	Mining		Non-mining	
Sources of income	Average Income(Rs.)	(%)	Average Income(Rs.)	(%)
Agriculture and allied activities	45756	6.9	19440	8.6
Labour	20580	3.1	12456	5.5
Service	114984	17.4	120420	53.1
Trade/business	451404	68.3	54228	23.8
Other income	28476	4.3	20340	9
Total	661200	**100**	226884	**100**

Source: Primary Data

10.2.4.2 Total incomes from all sources

In the mining areas, as shown in the table 3 below, 33% earn an income above Rs. 50000 while it was only 5% in the non-mining regions. A higher percentage of 40, earn an income of up to Rs. 10000 in the non-mining areas and 33% in between Rs. 10000-Rs. 20000.

TABLE 3: TOTAL INCOME FROM ALL SOURCES (Sample Size: 447)

Variable	Mining		Non-mining	
Income range	No. of Households	(%)	No. of Households	(%)
Upto Rs. 10000	49	19.1	77	40.3
Rs. 10000-Rs. 20000	49	19.1	62	32.5
Rs. 20000-Rs. 30000	23	9.0	24	12.6
Rs. 30000-Rs. 40000	26	10.2	16	8.4
Rs. 40000-Rs. 50000	24	9.4	2	1.0
More than Rs. 50000	85	33.2	10	5.2
Total	256	100.0	191	100.0

Source: Primary Data

10.2.5 LOAN

Loans liabilities were held more in the mining areas compared to the non-mining areas i.e. 53% in the mining and 26% in the non-mining areas. Of these, the loans were mainly taken in the mining regions for personal purposes like purchase of two wheelers and repair/renovation of houses of up to Rs. 10000 and for purchase of four wheelers of more than Rs. 10000 per month. 15% of the loans raised were for purchase of trucks/mining machinery for employing in the mining industry. The loans in the non-mining regions were mainly raised for purchase of two wheelers and repair/renovation of houses and with majority paying loan instalments of up to Rs. 10000 per month.

TABLE 4: MONTHLY LOAN INSTALMENTS AND PURPOSE OF LOAN (Sample Size: 447)

Loan instalment and Purpose of loan	Mining				Non-mining			
	Up to Rs. 10000/month	(%)	More than Rs. 10000/month	(%)	Up to Rs. 10000/month	(%)	More than Rs. 10000/month	(%)
Personal	44	17.2	22	8.6	27	14.1	5	2.6
Agricultural	3	1.2	2	0.8	1	0.5	0	0
Business	3	1.2	37	14.5	3	1.6	1	0.5
Others	15	5.9	13	5.1	14	7.3	0	0

Source: Primary Data

10.2.6 OTHER ECONOMIC VARIABLES

Due to high incomes earned by the households in the mining regions there was a huge difference in the monthly household expenditures, monthly savings as well as the possession of assets of the household in the mining regions with the non-mining regions as shown in table 5 below. The monthly incomes of the households in the mining regions show a wide disparity in incomes of Rs. 98960. The average monthly expenditures, savings as well as loan instalments were higher in the mining regions compared to the non-mining regions. The average loan instalment per month also shows a wide deviation. As mentioned above around 15% of the households in the mining areas have taken loans for purchase of trucks. The households had a contract with the mining companies and they received huge and direct income which encouraged them to invest into the same business as they found easy recovery of loans, thus households with more number of trucks had more loan liabilities. The results of the two independent sample t-tests show a significant difference in the asset possession of the households in the mining and non-mining regions as shown in table 6 below. This implies that the households in the mining regions held more assets than the households in the non-mining regions. The possession of trucks/mining machineries, and four wheelers by the households in the mining regions made a remarkable difference in the possession of assets. Thus the assets possessed were due to the presence of mining industry in the area.

TABLE 5: MEAN AND STANDARD DEVIATION OF ECONOMIC VARIABLES OF HOUSEHOLDS IN MINING AND NON-MINING AREAS (Sample Size: 447)

Economic variables	Mining		Non-mining	
	Mean	Standard Deviation	Mean	Standard Deviation
Monthly income	55452	98960	18907	24669
Monthly expenditure	8521	4802	6999	5108
Monthly savings	2816	4580	753	2552
Monthly loan instalment	14966	46761	1542	3323

Source: Primary Data

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TABLE 6: RESULTS OF TWO INDEPENDENT SAMPLE t-TEST COMPARING SOCIO-ECONOMIC CHARACTERISTICS OF MINING AREAS WITH THE NON-MINING AREAS WITHIN THE SAME TALUKAS (Sample Size: 447)

Variables	t-value	Sig.
Years of education	.867	.387
Asset ownership	2.597	.010*

Source: Primary Data

*Significant @5%(95% confidence level)

The results of the t-test show a significant difference in the asset ownership of the households in the mining and non-mining regions while no significant difference is observed in the years of education. The industry has served the households with good incomes but there has not been a simultaneous improvement in the educational attainment. This implies that education is not seen as a requirement for improvement in the financial status of the households' in the regions. With such thinking it will be a hindrance in the development of the local economy and thus needs attention.

11. CONCLUSION AND SUGGESTION

Though mining has affected people's right to access to natural resources, brought inflation within the local markets and led to decline in practice of traditional occupations, it had also brought a positive impact on the economic status of the households in the mining areas. In the non-mining areas, the salaried enjoyed higher income; while in the mining areas, income from trade/business was a significant contributor. The study revealed wide disparities in the monthly incomes and loans of the households in the mining regions compared to the non-mining regions. While huge loans raised in the mining areas were diverted mainly for purchase of trucks/vehicles for mining purpose, the small loans in the non-mining areas were taken mainly for personal purposes. Mining had created business opportunities for the households in the regions. The key finding is that the income generated from the mining industry was not diverted towards attainment of education but reinvested into the mining business by way of purchase of trucks/mining machinery which fetched them easy and direct income. Education was not a key factor for generating income within the mining regions. While mining areas have good financial support to make up for their education it was lacking in the non-mining areas. Though overall economic status compared to non-mining regions was better in the mining regions they were at par in terms of educational status. Thus the presence of the industry did not contribute wholly towards the development of the economy.

Thus, first and foremost the households in the mining areas have to be educated about the temporary nature of the mining business so that they divert their incomes into alternate sources of incomes which was done by very few in the mining areas. Secondly, households also need to be trained and motivated for taking up higher education by informing them about its future prospects. The mining companies in collaboration with the local government may take necessary steps in building up the required infrastructure thereby diverting efforts towards educational attainment of the youth in the mining regions. For a holistic development of any economy, education is a need and not a mere requirement for understanding the economy.

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