

## Ecology and sustainability: Mining vis-à-vis Livelihood Amongst the Tribals of Caurem Village - Goa, India

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### Abstract

Goa though a small state has a spectrum of tribals inhabiting the interior locations along the foothills of western ghats. These locations are also endowed with rich mineral deposits in the talukas of Sanguem, Bicholim, Sattari and Quepem - the core habitat of the tribals. Thus in early decade of this century, Caurem a tribal village in Quepem taluka witnessed a transformation from agricultural base to mining base. However, mining was banned by the Supreme Court of India in the state of Goa in 2012 due to environmental issues. This has brought the tribals at the cross roads.

The main objective of this research is to study in perceptions of local population on impact of mining on livelihood of tribals and their surroundings. The research is primarily based on field survey wherein 65 varied respondents of the village were surveyed for the same. It includes people working in mining, agriculture and other sectors. Further statistical techniques such as 'T' test and 'Anova' test have been used for the analysis. Age, gender, education and occupation wise perceptions regarding impact of mining on study region are considered undoubtedly majority of the respondent are not in favor of mining.

The analysis reveals that there is no significant difference in their perceptions using education, age, gender and occupations on as parameters to find the impact of mining on livelihood of tribals. Thus, it is proved that the villagers agree that there is negative impact of mining. However, the landuse /Landcover map for the three decades shows significant changes in agricultural patterns and vegetational cover due to mining.

**Key words:** Mining, vegetation, agriculture, socio-economic transformation, livelihood, Tribal

### 1. Introduction

India is a country of diverse populace, the tribal are integral part of this diversity. These Tribal have been living for ages in harmony with nature. However, Development vis- a -vis tribals and their issues in recent times have been point of discussion and debate amongst the academicians, planners and social activists (Narasimha.S and Subbarao.D. V, 2018) The changing perspective in this context of development programmes has impacted the livelihood means of these tribal communities (Gawas V M, 2019). It needs to be re-emphasized that livelihood issues address a wider spectrum of sustainable socio-economic, cultural, political system environment and also vulnerabilities and marginalization issues however, the protest and their movement have been taken into cognizance sporadically (Padhi S. and Panigrahi N, 2011), but at times it is a matter of challenge and conflicts. Therefore, the present research, focuses on the issue of mining in a tribal area of Goa.

Mining has been a very important activity in the economic history of modern Goa and a significant contributor of foreign exchange earner for the State. In the early decades of this century, it was designated as the industry at par with tourism.(Sawant N ,2016) It has provided the trigger to boost economy of the mining talukas (Agarwal A , 2018). In context to the present study, Caurem which lies in Quepem taluka is the major study area. In this paper focusses to assess the Impact of mining on environment and livelihood of tribals of Caurem village in Quepem taluka.

## **2. Objective**

The main objective is to study:

- Dynamics of mining and change in occupational structure and landuse/landcover.
- People's perception of impact of mining on the environmental and socio-economic impact.
- Voices of People towards development, ecology and Sustainability.

## **3. Database and Methodology**

Though, the study is largely field based survey of the households, there is substantial reliance on secondary data sources which include Governmental as well as Non-Governmental publications.

With reference to primary data, questionnaire was formulated to find out the personal information and socio-economic perspective. Questionnaire was administered with 65 respondents of the village, mainly the Velips (The Tribals) who are working in mining, agricultural and other economic sector . Beside this the focus group discussion and personal interviews were also conducted . To carry out the analysis, statistical techniques such as 'T' test and 'Anova' test have been used for the analysis. Likert scale has been used indicating strongly disagree (1) to strongly Agree(5).For mapping Landsat 7 (2001 and 2011) and Landsat 8 (2021) has been used . Primary level one classification (NRSC) is used. Decadal change of land use/ Land cover has been undertaken as indicators a) early phase of mining(2001), b) Peak Mining Phase (2011) and c) Post Ban mining (2021),wherein components like vegetation cover, agriculture mining , barren land and other aspects have been reviewed. The image was digitized in ERDAS software and Arc Map was used for the final output.

### **Study area: Goa and Caurem**

Goa, nestled between Arabian Sea and Western Ghats, lies midway on the western coast of India. Administratively, Goa is divided into two districts i.e. North Goa District and South Goa District comprising 12 talukas with 443 villages and 70 towns (Census of Goa, 2011). Quepem taluka is located in the southern midland portion of Goa. It has a common boundary with four talukas of Goa. Canacona taluka flanks the southern boundary with the entire east is bordered by Sanguem taluka. To the west, a small portion touches the Arabian Sea, but largely it shares its boundary with Salcete taluka . A small portion of North touches the Ponda Taluka. Among the villages of Quepem taluka, Caurem village is a rural settlement which known as the mining village of Quepem.

Caurem village with an area of about 860 hectares with 215 households is located at the foothills of Western Ghats. It is covered with fairly dense mixed jungle. This region enjoys hot and humid climatic

conditions. Summers are hot and winters are cool. Mountainous area is covered by lateritic soil and lowland with alluvial soil. The village is drained with many perennial springs and flanked with Karka Nadi along the village boundary. Flanked by mountainous topography and rich in iron ores flourishes the mining activity in the village. Along with agriculture as the main major activity for decades , mining also served as the occupation to the villagers.

The village population is 920persons (Census of India 2011). The highlighted features of this village are 80 percent of the village is inhabited by the Velips the tribal community (Census 2011)and the rest are basically Hindu *Kshtriyas* and others.It has moderate ratio between males and females. Here females are more literate than males (Census of Goa, 2011). This village is not seen significant developed so far. It is marked with very less facilities like limited transport , no tap facility, very poor health facility etc..

#### 4. Discussion

To understand and review the issue of Caurem village , primarily two aspects/dimensions are adopted. The first part of the research, occupational structure and land use land cover has been reviewed and subsequently in the second part, the perception and voices of peoples have been appraised.

A cursory glance of the occupational structure and workforce for Caurem provides an interesting insight. In the year 1991, total workers accounted almost 48 percent to the total population. Of the total workers, more than half the working population was engaged in Agricultural related activities.In the early decade of 1990's, when mining was at its infancy only 34 persons were engaged in the mining activity where as almost 200 persons were engaged in agricultural activities. The village has multiple natural streams, that enabled subsistence and partially commercial agriculture.

**Table.1 Occupational Structure (1991-2011)**

Year	Total Population	Total Workers	Agricultural Cultivators	Agricultural Labourers	HH	Marginal worker	Other worker
1991	743	356 (47.9 %)	180 (50.5%)	16 (4.5%)	10(2.8%)	--	150(42.2%)
2001	777	428 (55%)	107 (25%)	13(3.%)	3(0.7%)	141 (32.9%)	164(38.4%)
2011	920	479 (52%)	130 (27.1%)	33(6.9%)	19(4%)	41(8.6%)	256(53.4%)

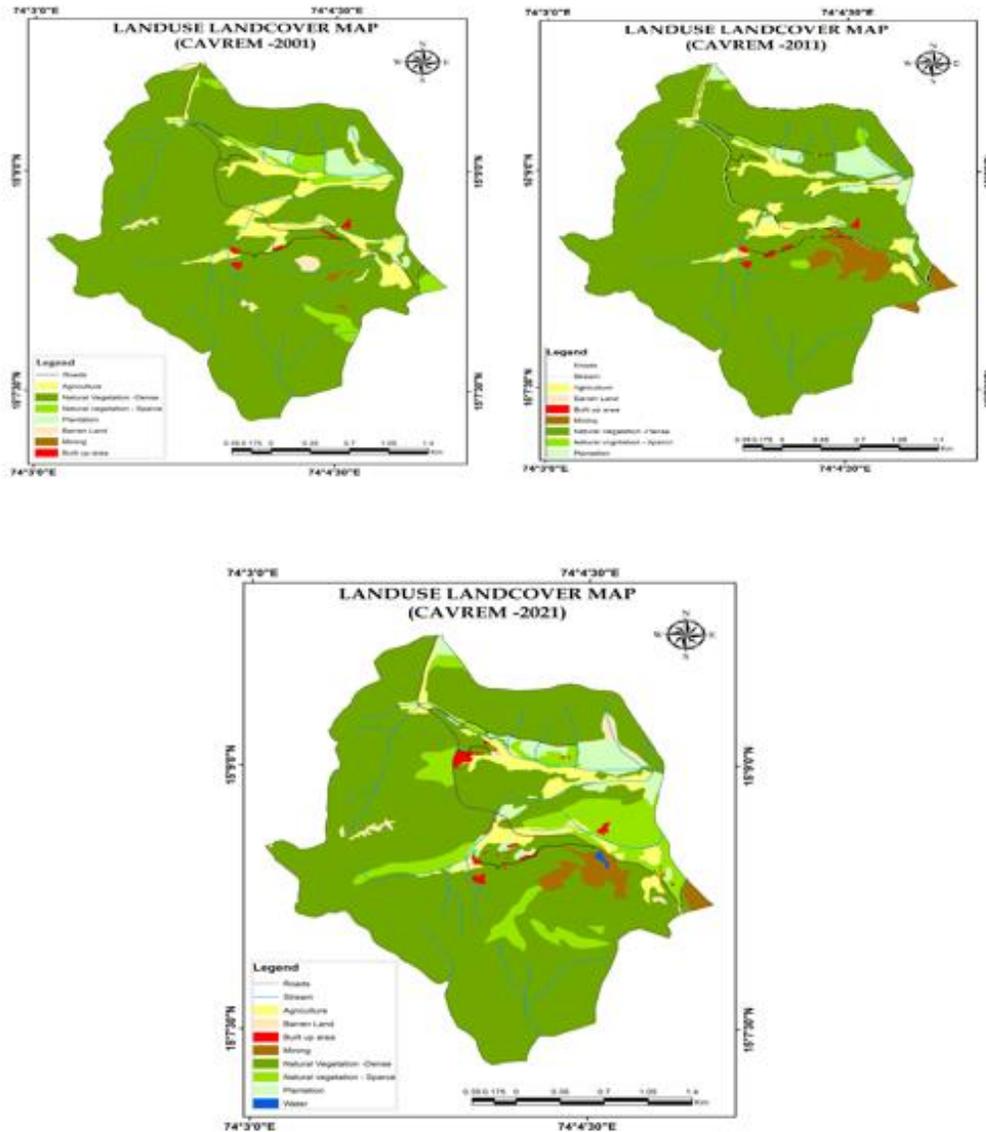
Source: Census of India ,1991,2001 &2011.

The Velips grew paddy and vegetables. Caurem has been famous for chillies. Basically, there are two types of chillies that are grown. Low land chilly and the mountain chilly popularly known as *Dongri Chilly* . This chilly is famous across the State and in demand. (Gokhale N, 2017) .In the early decade of this century, it witnessed a shift in the occupation where in there was decline in the number of workers in the

agriculture sector and proportionate increase in other sectors. The quantum increase as other workers and marginal workers, indicates how mining has brought in alteration in occupational sector. Just prior to closure of mining in 2012, the occupational sector indicates 52 percent as total workers to the total population. It needs to be observed that almost 62 percent, (i.e.  $2/3^{\text{rd}}$ ) of the workers were categorized as other workers and marginal workers. These workers working in mineral extraction sites was lucrative and the shift was obvious. It lately when the local populace realized that they need to back to the nature and start agriculture as it impacted the environment and the agriculture as livelihood means.

Change in occupational structure is attributed to change in land use land cover, mining impacted agriculture and vegetation cover (Table 2) As mining increased exponentially subsequently it affected the area under agriculture as well as some portions of vegetational cover. Land use land cover of the village for three decades indicates that larger portion of the village has been under natural vegetation more the four-fifth of the total land use. There are dispersed agricultural tracts as well as plantation. It can be noted that in the decade of 90's, there was negligible mining but with the commencement of globalization and liberalisation of global trade market, demand for iron ore increased and the mining activities in Goa. Ore from Goa was exported to China for the development of infrastructure for Beijing Olympics in 2008 (North A. 2011) Mining companies like Shri Sheikh Salim and Dayanand Zoiram Neogui and Virginia Maria Simoes (<https://www.dmggoa.goa.gov.in/>) carried out large scale operations through open cast mining however the extracted top soil was dumped in the surrounding areas which washed away into the lowland fields and even the natural streams were destroyed.

**Fig 1 Temporal Change in Land Use Land cover (LULC) 2001-2021**



Source: Landsat 7 and 8 satellite image. (2001,2011 and 2021)

The land use land cover (LULC) for the year 2001 shows that there were multiple springs interspersing the village and agriculture was practiced along the riverlets. As mining commenced and peaked from 2008, it can be observed the decrease in land under agriculture and also disappearing of the springs (Fig 1) Years after ban of mining, the abandoned mining sites witness sparse vegetation cover. After the closure of mining 2012 it has been clearly identifies the loss of natural vegetation and Agricultural land but some patches of reclamation of forest and scrub land indicative a revival of Natural

ecosystem which may take few more years for recovery ( Sawant N N, 2019)

**Table No. 2 Land Use Land Cover (2001-2021)**

Classes	2001	2011	2021	Percentage Change (2001-2021)
Agriculture	7.55	5.10	5.13	-32.75
Natural Vegetation Dense	85.46	86.86	77.19	-9.67
Natural Vegetation Sparse	3.27	0.79	10.38	+217.43
Plantation	2.37	3.28	3.53	+48.52
Barren	0.79	0.23	0.80	+1.26
Mining	0.11	3.28	2.39	+2072
Built up Area	0.45	0.45	0.57	+26.66

Source: Landsat 7 and 8 satellite image(2001,2011 and 2021)

### **What has Mining done to the Tribals ?**

Due to illegal mining operations in the village, damage to the environment has been done mainly by the reject dumps and pumping out of muddy water from the working pits. During the monsoons, the rain water washes out all materials from the waste dumps to the agricultural fields and water streams therefore affecting the environment in the village. Caurem village had lived with the dismays of unregulated mining in the boom years of 2008- 2012. There were frequent protests even during that period as rows of trucks paraded on the roads of Goa and it impacted the life and agricultural crops.( D’Mello P, 2016) Wastes from the mines had ruined agriculture. To top it all, these mining firms rarely provide any livelihood opportunity to the village residents ( Venkatesh S, 2017) This has impacted the occupational structure of the village of the village. This impacted the agricultural productivity and has been seen as one of the point of conflicts between the Tribal and the mining companies.

Analysis of mining in Caurem is indicative from the fact that in 2003 , there was only one mine operation , by 2007 the number increased to three mines and within next two years i.e 2009 , as many as five mines were operating open cast mining, dumping ore laden soil callously resulting in disappearance of the streams and mud laden fields ( Gokhale N , 2016) 2012 supreme court banned mining in the state of Goa , lifted in the year 2014 asking for fresh clearance and approval of mines from the ministry of Environment , Forest and climate Change and the capping of 20 metric tonnes of extraction. ( Venkatesh S,2017) , it was then the tribals who raised their voice towards unsustainable mining and the minimal payment for the damage of their crops ( D’Mello P , 2016) .The Caurem Adivasi Mukti Sangram mobilized protest by stopping the trucks loaded with ore to be transported to the jetty, demanding the government to implement Scheduled Tribe and other traditional Dwellers Act , 2006 to safe guard the environment.

Therefore it was prudent to gauge the voices of the locals through the structured questionnaire , where in three aspects were analysed. Impact of mining on agriculture, Environment and social life. The responses are as follows :

**a. Mining and Agriculture**

The local opine that mining has adversely affected agriculture. According to survey, Around 94 % of the respondent responded agree to strongly agree that the mining activity has been adversely affected agriculture. It is common that, wherever this activity is practiced it affects the ecology. 58 % agree that the cultivation has become difficult in the village. (table No.3). The mean score for mining and agriculture shows 4.19 which is indicative higher adverse impact on agriculture.

**b. Mining and Environment**

In the context of mining and environment , villagers agree that there has been water shortage problem due to mining. It is not only shortage but water contamination has also been observed. The village was transerves with many natural streams but due to dumping of the mining residuals , the streams have diminished. Nearly 2/3<sup>rd</sup> opine that the deforestation in the village is mainly due to practice of mining and the same is observed in the context of dust level. (Table no.3)

**c. Mining and Social Issues**

Though there has been no outmigration of the locals due to mining but there has been substantial influx of labour for mining operations. Understanding the ill effects of mining and dis agreement of certain issues related to mining, the social environment has been non – harmonious. Group conflicts and demonstration have been frequently witnessed.

**Table.no 3 Perception Score**

	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean Value
Mining and Agriculture	Mining has adversely affected agriculture	0	4	2	54	40	<b>4.3</b>
	Cultivation of crops has become difficult due to mining	0	2	6	58	34	<b>4.24</b>
	Productivity has decreased due to mining dumped in fields	0	0	10	64	26	<b>4.16</b>
	Agricultural area is reduced in order to practice mining	0	8	6	56	30	<b>4.08</b>
Mining and	Villagers face water shortage	2	4	4	72	18	<b>4.00</b>

Environment	Water has been contaminated due to mining	2	12	18	56	12	<b>3.64</b>
	Deforestation is done to practice miningActivity	0	0	0	66	34	<b>4.32</b>
	Deforestation in the village is the product of mining activity	0	0	2	66	32	<b>4.30</b>
	Dust level is increased due to mining	0	2	4	68	26	<b>4.18</b>
Mining and Social Issues	Out migration has resulted due to mining	16	50	26	8	0	<b>2.26</b>
	Mining has resulted to in migration	4	10	28	40	18	<b>3.58</b>
	Rate of accidents have increased	0	2	10	58	30	<b>4.16</b>
	Demonstration/ conflicts between mine owners and locals	0	0	8	76	16	<b>4.08</b>
	Village environment is changed due to mining activity	0	2	12	68	18	<b>4.02</b>

Source: Compiled By Researcher

To prove that mining has negative impact on the village statistical methods are used. Considering education, we frame the null hypothesis that there is impact of mining on the village. In order to prove this statement, we calculate the mean of both positive and negative perception and so we get the calculated value i.e. 1.76 and 2.77 respectively. These mean score lies in the scale where in people agree that there is negative impact of mining. Concluding this statement, a null hypothesis is framed that there is negative impact on village. Using the further statistical test we get the p value which is used to prove the result. Since p value is greater i.e. 0.972 and 0.423 than 0.05 significance then we accept the null hypothesis and state that there is impact of mining considering both positive and negative perception in education.

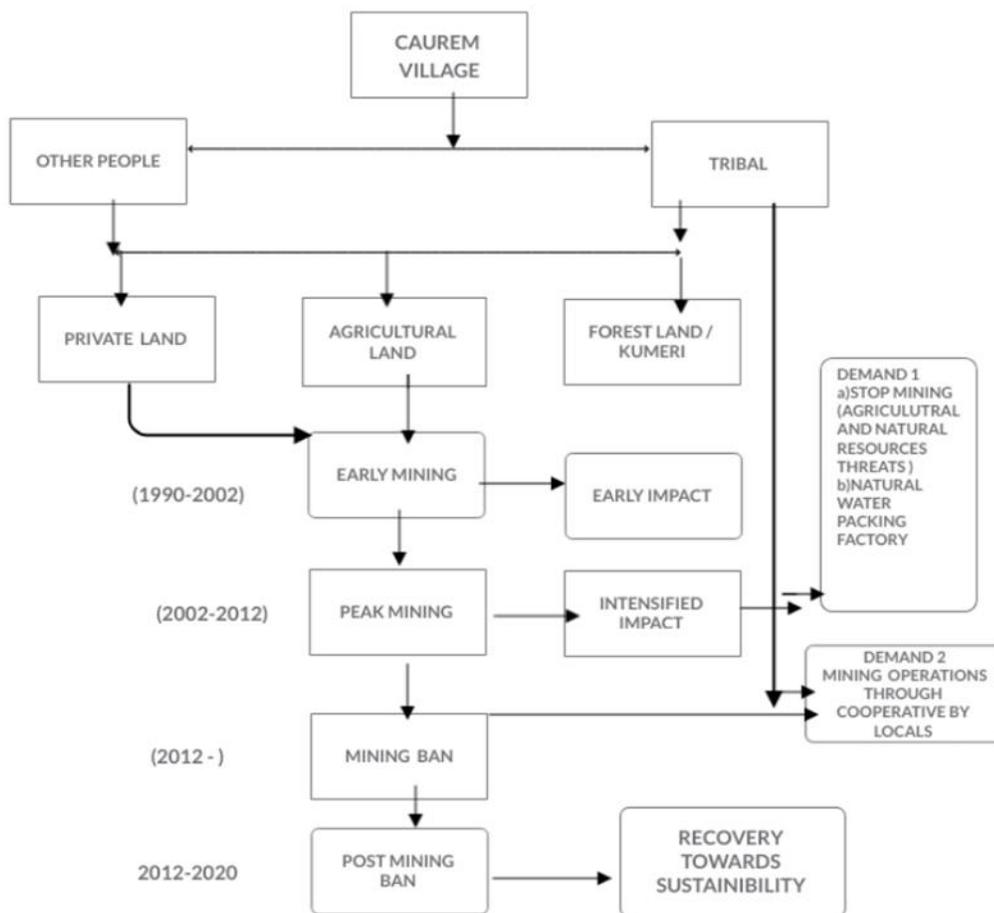
Like wise in education same results are drawn in the other parameters. To prove the result in age groups we frame the null hypothesis that there is impact of mining on the village. In order to prove this statement, we calculate the mean of both positive and negative perception and so we get the calculated value i.e. 1.78 and 2.76 respectively. Using the further statistical test, we get the p value which is used to prove the result. Since p value is greater i.e. 0.562 and 0.372 than 0.05 significance then we accept the

null hypothesis and state that there is impact of mining considering both positive and negative perception in age groups.

Area is the natural entity and so the change on it can be noticed. In this parameter the positive perception shows that the t value is less than the significance level 0.05. and in the negative parameter the T value is more than the 0.05 significance level. These findings state that in the positive perception the null hypothesis is accepted and in negative it is rejected. When there is collision of the results, we come to a conclusion that there is a large significant change seen in the parameter. Thus, we agree that there is huge impact of mining on the area. The null hypothesis in gender is accepted because the t values are greater at the 0.05 significance level i.e. 0.951 and 0.105 of positive perception mean and negative perception mean. Thus, it can be concluded that there is impact of mining seen on the village.

Undoubtedly, the prior generation of the tribals was involved in mining since earlier decades but the same community is today up in protesting against the mining companies and the government that backs them, having repeatedly attempted to stop the illegal mining that started in 2008, which, they say, is destroying the water, agriculture and forest resources of the village. ( Kanekar A, 2016) Due to varied opinion of mining, pro mining and anti mining within the village there is a spurt within the Velips of Caurem village. According the personal interviews , respondent 1 stated *“that the mining operation and transportation of ore is done by the external agency and therefore there is no benefit to the village from the mining activities.* The respondent further states that *“ all this affairs of extraction and transportation could be managed by registered Sadhana cooperative society in the village where in there is participation of the local community in mining operations and the beneficiary are the villagers. He is not against the mining activities but he was against the illegal mining extraction .*

However, Respondent 2 states that because of the mining activities in the village “natural water resources like springs , streams and water bodies have dried up, this has impacted the agriculture. The village was once famous for local chilies and *Zad Kanga* (local variety of potatoes) , this is fast disappearing , due to the hill cutting , during the rainy season the dump deposited in the low laying areas . Due to the mining activities people have stopped the agriculture and post closure mining they become unemployed agricultural fields have destroyed and not ready to work in the field.



**Fig 2 Flow Chart Indicating the Timeline**

Caurem is the only village that has claimed for community forest rights for minor produce and the villagers have their own website ( [Http://cavrem.weebly.com](http://cavrem.weebly.com)) to being about awareness of forest rights , mining , cultural practices of tribals towards integration and understanding social, cultural ecology( Sawaikar V, 2016 )

This calls upon that the tribals are at cross roads with the dilemma of development through mining , damage due to mining and livelihood sustenance. The village awaits for the ray of hope , as the damage done and the process of evolving for sustainable means of livelihood is a long way .

**Conclusion**

Caurem village has always been under conflict. With mining, agricultural lands have turned barren and several villagers have turned daily-wage Labourers. Due to many issues like heavy flow and rash driving of trucks, accidents, illegal mining and no subsidies for the villagers by mine owners, no care taker for their fields, deforestation, noise and air pollution have been issues of conflicts between villagers and mine owners. The villagers had been arrested several times for protesting against the mining. The

agricultural farms of the residents have been damaged by the mines operations as silt from mining dumps have been filled in the fields and also the perennial stream that irrigated the village fields is polluted or completely destroyed. The mining activity in the village has caused impact on all perspectives, irrespective of age, gender, occupation, etc. the environment in the village has changed completely due to mining. It prudent to state the tribals are in the state of dilemma of livelihood and environment sustainability as the natural ecology will require it pace of time to restore and revive. There are genuine efforts by the community to regain the lost natural habitat and optimize land use and land cover.

## References

- Aghor Ashwin, (2011), Mining in Goa: Damage to the environment greater than loss of revenue, 30<sup>th</sup> September, Down to Earth Magazine.
- Alahira H.A (2014) "Berom Women and Colonial Tin Mining Enterprise: Jos Plateau, Northern Nigeria", *IMPACT: International Journal of Research in Humanities, Arts and Literature (IMPACT: IJRHAL)* ,Vol. 2, Issue 9, pp 87-96
- Anniebeth N. Farin(2018) "Health Problems of Residents in Mining –Affected Areas in Santa Cruz, Zambales, Philippines", *International Journal of Humanities and Social Sciences (IJHSS)* ,Vol. 7, Issue 6, pp. 23-36
- Basu R. (2012) Mining in Goa: Beyond Forest Issues, *Economic and Political Weekly XLVII(3):77* [https://www.researchgate.net/publication/280648486\\_Mining\\_in\\_Goa\\_Beyond\\_Forest\\_Issues](https://www.researchgate.net/publication/280648486_Mining_in_Goa_Beyond_Forest_Issues)
- Census of Goa (1991, 2001 and 2011): "Primary Census Abstract, Goa state", Registrar General of India, New-Delhi.
- D'Mello P (2016) In Goa, a small tribal village is a big hurdle in the mining industry's road to revival .2w <https://scroll.in/article/806701/in-go-a-small-tribal-village-is-a-big-hurdle-in-the-mining-industrys-road-to-revival>
- Dessai Shital,(2012), Impact of Mining on Land and its People: A Case study of Caurem village, Quepem, Dissertation work submitted to the Department of Geography, Parvatibai Chowgule College, (Autonomous) Margao.
- Gagandeep Kaur Grewal & Kiran Jyot (2015) "Knowledge, Attitude and Perception (KAP) of Farmers for using Information and Communication Technology in Agriculture in Punjab, India", *International Journal of Computer Science Engineering and Information Technology Research (IJCEITR)* ,Vol. 5, No 6, pp.7-12
- Gawas V. M. (2019), Mining and its Impact on Tribal's people in Goa , *Pune Research Scholar An International Multidisciplinary Journal* vol 4, Issue 6, (ISSN 2455-314X)
- Gokhale N. (2017)In a Goan Village Chillies fight back against Iron ore mining but will they <http://www.catchnews.com/india-news/in-a-goan-village-chillies-fight-back-against-iron-ore-mining-but-will-they-survive-1484497117.html>
- JorgeT erence, De Sa Hagen, Jain Pushpa (2013), Survey of Environmental & Socio-Economic Impacts of Interim Ban on Mining in Goa, EIA Resource and Response Centre (ERC) Goa, India, October.
- Kanekar (2016) This people's movement is posing a challenge to Goa's mining mafia, DNA Webdesk,<https://www.dnaindia.com/india/column-this-people-s-movement-is-posing-a>

challenge-to-go-a-s-mining-mafia-2195703

- Khushi Deora (2021) "Interpreting Natural Soundscapes", BEST: International Journal of Humanities, Arts, Medicine and Sciences (BEST: IJHAMS) Vol. 9, Issue 1, pp. 135–140
- Malangmei L. Rehman S.M. , Haldar S. and Bera B.K.(2015) : Understanding Sustainable Rural Livelihood Security in Indian Context : A Review, International Journal of current research 7, (10) 21025-21033.
- Mallya K., Stalin D. (2010); Mining in Goa:Retrospect, Prospect and Prospect in the Environmental Context, Vanashakti, Prabhadevi, Mumbai -400 025.
- Narasimha S. and Subbharo D.V. (2018), Impact of Mining on Tribal Socio-Economic and Environmental Risk in India , Economic affairs vol 63 No 1, pp 191-202- New Delhi (online ISSN 0976-4666)
- North A(2011) India's controversial iron mining boom BBC South Asia , <https://www.bbc.com/news/world-asia-15721441>
- Olivia Nyahokwe(2019) "The Impact of Exchange Rate on Trade Balances in South Africa: A Sectorial Analysis", International Journal of Humanities and Social Sciences (IJHSS,Vol. 9, Issue 1, pp. 43–56
- Padhi S. and Panigrahi N. 2011 (working Paper ) : Tribal movement and Livelihood : Recent development in Orrisa , Indian Institute of Public Administration Chronic Poverty Research Centre. Indraprastha Estate Ring Road New Delhi -110002
- Saravanan .S , S. S. Aravinth & M. Rameshkumar (2017) "A Novel Approach in Agriculture Automation for Sugarcane Farming by Human Assisting Care Robot", International Journal of Agricultural Science and Research (IJASR) ,Vol. 7, Issue 4, pp. 107-112
- Sawaiker Vasudha, (2016), "Struggle of Caurem Village In Goa And State Repression", Counter Currents.org Newsletter, 30 March.
- Sawant N N ( 2016) Goa: Socio-Cultural Transformation and Impact on the Society, Major Research Project sponsored by University Grants Commission (U.G.C), Bhadurshah Zafar Marg, New-Delhi-110002.
- Sawant N. N (2019): Mining in Goa : Environmental Issues and Challenges , Land resources; Process, Degradation and Evaluation,(Edt.Vol),National Association of Geographers,India, Concept Publishing Company Pvt. Ltd. New Delhi -11005,pp 262-271
- Talule D.C. and Naik G.R. (2017): Overalls of Mining on the State Economy of Goa: A Comparative perspective of Pre and Post mining Ban Period. Asian Journal of Science and Technology, Vol 8 , Issue 6, pp 5012-5027. (online ISSN 0976-3376. )
- Venkatesh S (2017) Goan village residents fight for sustainable mining rights, Down To Earth , [downtoearth.org.in/news/mining/goa-undermined-58664](http://downtoearth.org.in/news/mining/goa-undermined-58664) .

**Appendix 1**

**Table.No.1: Statistical Results of the Perceptions Using Anova Test**

Parameters		Positive Percepti on Mean	F Value	P Value	Negative Perception Mean	F Value	P Value
*Education	Graduate	1.64	0.081	0.970	2.97	0.962	0.423
	HSSC	1.75			2.74		
	SSC	1.78			2.72		
	School	1.79			2.74		
*Age Group	20-35	1.79	0.692	0.562	2.89	1.068	0.372
	35-50	1.64			2.73		
	50-65	1.86			2.75		
	65-75	1.98			2.66		
*Occupation	Primary	1.78	0.328	0.722	2.77	0.223	0.801
	Secondary	1.86			2.7		
	Tertiary	1.58			2.75		

Source : Compiled By Researcher

*\*Education:*

*Questionnaire is classified in to four groups according to level of Education i.e. Graduate, H.S.S, S.S.C and School.*

*Positive perception: Cal F 0.081 (p value 0.970) at 0.05 significance level. Negative perception: Cal F 0.962 (p value 0.423) at 0.05 significance level*

*\*Age group:*

*Questionnaire is classified in to two categories. 20-35, 35-50, 50-65, 65-75*

*Positive perception: Cal F 0.692 (p value 0.562) at 0.05 significance level.*

*Negative perception: Cal F 1.068 (p value 0.372) at 0.05 significance level.*

*\*Occupation:*

*Questionnaire is classified in to three sectors, Primary, Secondary and Tertiary*

*Positive perception: Cal F 0.328 (p value 0.722) at 0.05 significance level.*

*Negative perception: Cal F 0.223 (p value 0.801) at 0.05 significance level*

**Table.No.2 Statistical Results of Perceptions Using T Test**

Parameters		Positive Perception Mean	F Value	P Value	Negative Perception Mean	F Value	P Value
*Gender	Males	1.78	0.062	0.951	2.74	1.651	0.105
	Females	1.8			2.96		
*Area	Goankar Wada	1.57	8.86	0.005	2.03	0.480	0.492
	Velip Wada	2.03			2.79		

Source : Compiled By Researcher

*\*Gender:*

*Questionnaire is classified in to two groups i.e. male and female.*

*Positive perception: Cal t 0.062 (t value 0.951) at 0.05 significance level.*

*Negative perception: Cal t 1.651 (t value 0.105) at 0.05 significance level.*

*\*Area:*

*Questionnaire is classified in to two villages Gaonkar Wada and Velip Wada*

*Positive perception: Cal t 8.86 (t value 0.005) at 0.05 significance level.*

*Negative perception: Cal t 0.480 (t value 0.492) at 0.05 significance level.*