A social license to operate: pre-mining effects and activities perspective

http://dx.doi.org/10.1590/0370-44672018720020

Adeyinka Oluwayomi Omotehinse[1,2,3]
https://orcid.org/0000-0002-2484-5417
Giorgio de Tomi[1,4]
https://orcid.org/0000-0002-7836-1389

[1]Universidade de São Paulo – USP,
Escola Politécnica, Departamento de Engenharia de Minas, São Paulo – São Paulo - Brasil.

[2]Federal University of Technology Akure - Mining Engineering Department, Akure - Nigeria.

E-mails.: [3]omotehinseadeyinka@gmail.com,
[4]gdetomi@usp.br

Abstract

This research proposes a new approach to recommend a responsible mining guideline on how to secure a social license to operate in Ondo state, Nigeria for oil sands mineral resources taking into account the ***bituminous natural effects***. This is the case of bituminous oil sands in Southern Nigeria, where warm weather can induce the emission of natural bitumen fumes. Because this emission may bring occupational exposure to the local communities, mining is perceived to be an opportunity for both social-economic improvement but also an efficient approach to reduce exposure to bitumen fumes. The study investigates the importance of the perception of the society about responsible mining practices in establishing a social license for a mining operation. The results of the investigation include an appraisal of the social status, living conditions of the communities, effects of pre-mining activities and the natural impacts of bitumen from oil sand on the community. The conclusions are that the bituminous natural effects on the communities can facilitate the approval of SLO, if the company can fulfil its promises, as mining is perceived to be a welcome solution to the problems posed. In addition, the mining company must also be transparent with the community as this changes the perception of society about responsible mining practices and help in establishing SLO.

keywords: oil sands mining; social license to operate; responsible mining; pre-mining effects, Ondo state, Nigeria.

1. Introduction

The concept of a 'social license' first emerged at meetings convened by the World Bank about mineral projects in developing countries in the late 1990s (Kuch, 2013; Hall *et al*., 2015; Bursey and Whiting, 2015). A social license exists when a mining project is seen as having the broad, ongoing approval and acceptance of society to conduct its activities (Prno, and Slocombe, 2012; Prno, 2013). Most mining companies have shown clearly that obtaining a formal license to operate from governments and meeting regulatory requirements is no longer enough. There are instances of mining developments being delayed (Hall *et al*., 2015; Owen and Kemp, 2013), interrupted, and even shutdown due to public opposition (Prno and Slocombe, 2014; Prno, 2013; Moffat and Zhang, 2014). The procurement for a social license to operate (SLO) takes place in the pre-mining stage of a mine operation and mostly throughout the life of a mine. The community perceptions and concerns are considered a part of the social and economic factors for new resource development (Hall *et al*., 2015; Lacey and Lamont, 2014). Sometimes, opposition does arise due to perceived local social and environmental impacts (Chindo, 2011). Chindo (2011) stated that the viewpoint of the local communities that bear the negative impacts of mining are mostly neglected.

The study aims to recommend a responsible mining guideline on how to secure a social license to operate in Ondo state, Nigeria for oil sands mineral resources taking into account the ***bituminous natural effects***. These bituminous natural effects in the specific region under consideration, involves the natural impact of bitumen emanating from an oil sands deposit, on the existing environmental and socio-economic activities in the region.

The research question for this article is "How important is the perception of society about responsible mining practices in establishing SLO the in mining operation, taking into account the pre-mining effect of the oil sands deposit located in Ondo state, Nigeria?"

2. Methodology

The study was carried out in order to investigate the importance of the perception of the society about responsible mining practices in establishing SLO in the mining operation. Three oil sands communities in Ondo state, Nigeria which are Mulekangbo, Ilubirin and Mile 2 were visited. These communities were chosen because of the occurrence of the natural impact of bitumen emanating from the deposit, on the existing environmental and socio-economic activities in the region. Questionnaires were used to ascertain the feeling of the communities, beginning with a formal visit to the community leaders, and with the permission of the leaders. A random selection of people were interviewed. The methodology used for this research is summarized in Figure 1 and Table 1, which present the methodology used in the interview carried out.

Conceptual development: a set of 100 questionnaires were distributed to the people living in these three communities (Mulekangbo, Ilubirin and Mile 2) and pictures were taken to have a general idea of the pre-mining effects and the social status of the communities. Due to the fact that these are small communities (with an average of 300 people and 40-50 families), the target was to interview about 30 people from different families.

Method	Description
Language	English (official language) and Yoruba (native language)
Technique	One-on-one, individual interview and observations
Location	Community
Duration	15-20 minutes per person
Recording	Verbal and written
Recruitment	Voluntarily (98%), Community leaders (2%)
Structure	Semi-formal structured interview

Table 1
Structure of the interview.

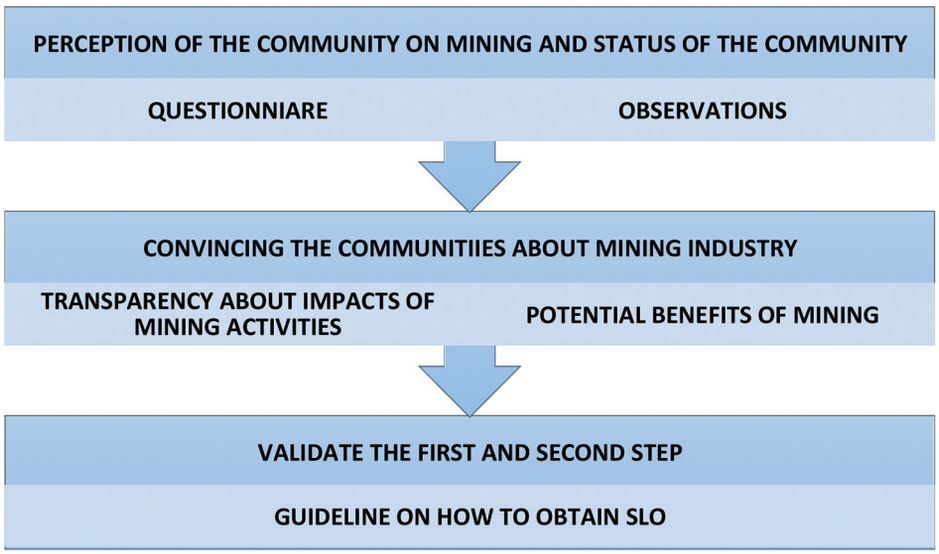

Figure 1
Research methodology.

3. Results and discussion

3.1 Perception of the communities on commencement of mining activities

The feedback from the questionnaires distributed to the communities shows that 40 respondents were from Mulekangbo, 30 from Ilubirin and the remaining 30 from Mile 2 community. The educational status shows that more than 70 % of the respondents from the three villages have only primary school leaving certificates, which indicates that the people in the community are not well educated. The occupational status shows that more than 80 % of the respondents from the three villages are farmers, and this was supported by the reports from Government of Nigeria (Department of research and statistics, 2010), which confirms that most of the Ondo state indigenes are farmers. The result also indicates that the major source of water available in the communities are hand-dug wells.

Questionnaires were also used to ascertain the feelings of the communities about mining of the oil sands. The ***bituminous natural effects*** were of major concern to the community, despite the non-exploitation activity in these communities; the oil sands have posed several natural threats to the villagers. The community members complained of contamination of farmland as a result of seepage of bitumen during the dry season, which affects their vegetables, plantains, cocoa, and rubber plantations. Majority of these community members are farmers and are therefore of the opinion that the ***bituminous natural effects*** is a threat to their major source of income. This bitumen also seeps inside the hand-dug well, which is a major source of water for the community. Table 2 indicates that the communities are aware of the oil sands and the threat it poses to both plants and water in the communities.

After much deliberation, most of

the community members believed that oil sands mining will eventually bring development to the community and if properly compensated, most of the community members will be ready to accept relocation. Most of the people acknowledged that the community has been in isolation for a long time and consequently believe that if mining starts, it will be an advantage for both the government and the immediate society (Personal Interview, 2016).

Table 2
Environmental effects of oil sands.

Communities		Mulekangbo	Ilubirin	Mile 2
Number of people interviewed		40	30	30
Characteristics		Frequency		
Season of shortage of water	Dry	40	30	30
	Raining	0	0	0
Do water have any effect	Yes	32	21	4
	No	8	9	26
Type of effect	Body	27	24	4
	Environmental	13	6	26
Awareness of oil sands	Yes	40	30	30
	No	0	0	0
Does the oil sands cause any challenges?	Yes	38	25	23
	No	2	5	7
Type of challenge	Environmental (On Plant and Water)	36	26	27
	Social (Road)	4	4	3
Reactions to impacts caused by oil sands	Compensate	37	30	28
	No compensation	3	0	2
Feeling about commencement of mining activities	Good	40	30	30
	Bad	0	0	0
Acceptance of relocation	Yes	40	26	27
	No	0	4	3

3.2 Impacts of pre-mining activities on the community

In this research, the effects of pre-mining activities on the community were considered on the three pillars of SLO, which are the environmental, social and economic effects of a mine operation. Pre-mining activities are those done before the exploitation of the oil sands and these include mine development, road construction, electricity, water supply, etc. In order to obtain an SLO from the communities, there must be transparency on the impacts of pre-mining activities, both the negative and the positive impacts, also, there must be conviction that the mining of the oil sands deposit will be of advantage to the communities. The two most important challenges in securing SLO are the environmental and social effects of mining.

During the pre-mining stage, there will be vast effects on the environment and these include deforestation, dust pollution from land clearing, water contamination by chemical use, soil pollution and contamination of farmlands, and there will be displacement of properties and relocation from one village to another (social effect). This stage is usually considered as a stage in which the mining company can establish its commitment to the community because the major activities carried out during this stage have a lot of negative impact on the community. To compensate for deforestation, displacement and other major losses, the mining company has to compensate, provide jobs, and relocate them to a place where they can live comfortably well enough. This will be taken to be a positive step by the mining company, and implementing this is very important in securing a SLO, which can eventually lead to the approval of the SLO because trust in the company would have been built. SLO may also be rejected or withdrawn (Prno, 2013) due to a loss of reputation by the company as a result of unfulfilled promises and compensation which may result in protests, blocking of road, fight etc. by the community involved. Credibility and trust by the community is very important in order to reduce or prevent delays that might increase the cost of production for the company. From the interview, the response of the community members shows that most of them are ready to relocate if properly compensated.

Gosselin *et al.* (2010) describe the economic factor as the major driver in decision-making. The implementation of economic effects could lead to either approval or rejection of SLO. It could lead to approval, if the company implements their promises, and could lead to rejection, if they failed to do so. Gibson *et al.* (2010) describe the economic effects of mining as positive and environmental effects as negative.

Gunningham *et al.* (2004) said the level of support 'granted' is considered dependent on society's expectations about how the company conducts its operations and the extent to which those expectations are met. This means that the company needs to fulfil its own part of the deal in order to get the approval of SLO by the community.

3.3 Advantages of commencing mining operation

In order to obtain an SLO from the communities, there must be the conviction that the extraction of the oil sands deposit will be more advantageous to the communities than leaving the deposit unmined. Below are some benefits the mine areas under consideration could derive from mining of the oil sands deposits. These benefits are stated because in Nigeria, most minerals are being mined by the illegal artisanal mining method.

• Reduction in mining-related natural hazards: most minerals in the developing countries cause natural hazards which are threats to the communities and the environment. Some of the problems posed by these natural hazards include water, soil, and air pollution. In rural communities where streams and rivers constitute the major sources of water, and farming is one of the major sources of income, natural pollution from minerals can easily spread to streams and rivers, which constitute health and environmental hazards to people. These hazards can be minimized if not completely eliminated when a standard mining system is employed (Collins and Lawson, 2014; Asare and Darkoh, 2001).

• Reduction of conflicts in the community: where informal mining operations hold sway, the miners do not seek the permission of the villages or bother seriously about their corporate needs and interests, thereby causing a lot of conflicts between villages and informal miners, which can result in accidents and loss of lives and properties. But with adoption of the SLO, potential problems can be envisaged and appropriate solutions applied, thus reducing conflicts.

• Local business development: when a mining operation begins, the villagers can engage in small-scale jobs like selling foodstuffs, provisions and drinks. Some of the villagers will be involved in the supply of local materials needed in their operations. New business opportunities related to mining will also spring up in the vicinity.

• General development of the communities: with a mining company in an area, the company will have to relocate the existing communities where necessary, rebuild and improve some of their infrastructure, and put in place some social services as part of its Corporate Social Responsibility (CSR) commitment to the communities. All these will bring about an improved tone and development status of the communities.

• New skills will be acquired by the youths in the communities through training that will be done by the mining companies operating in the area. This will raise the standard of living of these youths and bring about improvements in the general standard of living of the communities.

• There will be more comprehensive land planning for towns or regions impacted by mining activities.

3.4 Recommendations on how to obtain a social license to operate

According to the research done, the following are the recommendations on how to obtain a SLO. If each step is followed accordingly, the stakeholder's willingness is likely to be achieved.

• There should be a local representative of the company who can act as a liaison between the company and the people living in the community.

• Discussion should be held based on each community (if there is more than one) and not all the communities together, because each stakeholder has different views on different aspects.

• In addition to the discussion, which usually starts during the pre-mining activities of a mine, further discussions should be held throughout the life of the mine, which means that the community must remain involved throughout the life of the mine.

• Analyze the potential benefits (advantages) of mining an area that has not been mined before, as stated in 3.3.

• State reasons for choosing the community.

• Analyze the pre-existing social and environmental impacts of the oil sands caused by human activities on the community before the company decides to invest in the community.

• State the precautions the community will need against the environmental (i.e. deforestation) and social (i.e. relocation) effects, if mining activities should commence.

• In an open- ended dialogue, ask for the community's opinions and suggestions, making sure they are carried out.

• Be fair enough and respect their views and community rights.

4. Conclusions

According to the research made, the bituminous natural effects on the communities will give the mining company a chance to prove the advantage of commencing mining activities in the community; this can facilitate the approval of SLO in the community, if the company can fulfil its promises, since mining is perceived to be a welcome solution to the problems posed. The mining company must also be transparent on the impacts of its activities on the communities because the communities mostly depend on farming for their livelihoods and a hand-dug well as sources of water, which will be impacted by pre-mining activities, thereby posing a threat to them. Transparency is a major key; it changes the perception of society about responsible mining practices and helps in establishing the SLO. The perception of the society can lead to either an approval or withdrawal of SLO. In addition, there is a relationship between the social license, negotiation and transparent reporting.

Acknowledgments

This research was supported by the scholarship provided to the first author by the Petroleum Technology Development Fund (PTDF) Nigeria.

References

ASARE, B. K., DARKOH, M. B. K. Socio-economic and environmental impacts of mining in Botswana: a case study of the Selebi-Phikwe copper-nickel mine. ***Eastern Africa Social Science Research Review,*** v. 17, p. 1–41, January, 2001.

BURSEY, D., WHITING, V. Rethinking social license to operate: a concept in search of definition and boundaries. ***BCBC: Environment and Energy Bulletin,*** v. 7, n. 2, p. 1–10, 2015.

CHINDO, M. I. Communities perceived socio-economic impacts of oil sands extraction in Nigeria. ***Human Geographies: Journal of Studies and Research in Human Geography,*** v. 5, n. 2, p. 69–77, 2011.

COLLINS, N., LAWSON, L. Investigating approaches to working with artisanal and small-scale miners: a compendium of strategies and reports from the field. ***Action Research Report,*** 2014, 124p.

DEPARTMENT OF RESEARCH AND STATISTICS. Ministry of economic planning and budget. ***Facts and figures on Ondo State,*** p. 1–71, 2010.

GUNNINGHAM, N., KAGAN, R. A., THORNTON, D. Social license and environmental protection: why businesses go beyond compliance. ***Law and Social Inquiry,*** v. 29, n. 2, p. 307-341, 2004.

GOSSELIN, P., HRUDEY, S. E., NAETH, M. A., PLOURDE, A., THERRIEN, R., VAN DER KRAAK, G., XU, Z. ***Environmental and health impacts of Canada's oil sands industry.*** Ontario, Canada: Royal Society of Canada Ottawa, 2010.

GIBSON, B., HASSAN, S., TANSEY, J. ***Sustainability assessment: criteria and processes,*** Routledge: 2013.

HALL, N., LACEY, J., CARR-CORNISH, S., DOWD, A. M. Social license to operate: understanding how a concept has been translated into practice in energy industries. ***Journal of Cleaner Production,*** v. 86, p. 301–310, 2015. Disponível em: <http://dx.doi.org/10.1016/j.jclepro.2014.08.020>. Acesso em: February, 2017.

KUCH, D., ELLEM, G., BAHNISCH, M., WEBB, S. ***Social license and communications report.*** Australian Council of Learned Academies. January, 2013. 32p.

LACEY, J., LAMONT, J. Using social contract to inform social license to operate: an application in the Australian coal seam gas industry. ***Journal of Cleaner Production,*** v. 84, n. 1, p. 831–839, 2014. Disponível em: <http://dx.doi.org/10.1016/j.jclepro.2013.11.047>. Acesso em: January, 2017.

MOFFAT, K., ZHANG, A. The paths to social license to operate: An integrative model explaining community acceptance of mining. ***Resources Policy,*** v. 39, n. 1, p. 61–70, 2014. Disponível em: <http://dx.doi.org/10.1016/j.resourpol.2013.11.003>. Acesso em: October, 2016.

OWEN, J. R., KEMP, D. Social license and mining: a critical perspective. ***Resources Policy,*** v. 38, n. 1, p. 29–35, 2013. Disponível em: <http://dx.doi.org/10.1016/j.resourpol.2012.06.016>. Acesso em: November, 2016.

PRNO, J. An analysis of factors leading to the establishment of a social license to operate in the mining industry. ***Resources Policy,*** v. 38, n. 4, p. 577–590, 2013. Disponível em: <http://linkinghub.elsevier.com/retrieve/pii/S0301420713000810>. Acesso em: 4/11/2016.

PRNO, J., SCOTT SLOCOMBE, D. Exploring the origins of "social license to operate" in the mining sector: perspectives from governance and sustainability theories. ***Resources Policy,*** v. 37, n. 3, p. 346–357, 2012. Disponível em: <http://dx.doi.org/10.1016/j.resourpol.2012.04.002>. Acesso em: 4/11/2016.

PRNO, J., SLOCOMBE, D. S. A systems-based conceptual framework for assessing the determinants of a social license to operate in the mining industry. ***Environmental Management,*** v. 53, n. 3, p. 672–689, 2014.

Received: 8 February 2018 - Accepted: 14 March 2019.