

Social assessment and management of conflict minerals in supply chains. A systematic literature review

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Abstract: Conflict minerals (CM) gain increasing importance in legislation, public awareness and corporate supply chain management. The purpose of this article is to systematically review the literature on social assessment and management of CM, to classify the identified methods, and analyse their applicability to the context of CM. The results identify various approaches from a dispersed and disciplinarily diverse literature. Current tools are insufficient to fully address CM-specific issues, but significant potential lies in transfer and adaptation of non-CM-specific methods, c interdisciplinary collaboration to develop specific tools, and integration of assessment and management approaches at the organizational level.

I. INTRODUCTION

The issue of ‘conflict minerals’ and their relevance for supply chain management has achieved broad and growing public awareness and (legal) significance for companies since the introduction of the Dodd-Frank Act in the USA in 2010. Conflict minerals (CM) include columbite-tantalite (coltan), cassiterite, gold, and wolframite or derivatives [1]. They are classified as CM if they either originate from the Democratic Republic of Congo or adjoining countries where their exploration and trade supports armed conflicts between rebels and government, or if their extraction is linked to severe social problems such as human rights abuses, forced labour and sexual violence against women [1], [2]. These minerals are essential for products of the information and communication technology sector [3] and demand for electronic devices is experiencing a rapid growth that is expected to continue [4]. Thus, companies are challenged to meet this growing demand for IT and required resources while improving the transparency and management of social issues and CM in their supply chains.

While companies are required to assess and manage CM-related issues, either as a consequence of regulations or as part of their strive to improve their sustainability performance [1], [5], [6], they lack experience and guidance on how to approach the challenge [7], and in addition face high implementation costs [8]. This raises the question of which approaches for assessing and managing social issues relating to CM have been proposed in the existing literature.

Potential approaches can be classified as social assessment approaches which either focus on CM’s origin or CM’s connection to social issues, or as social management approaches which target the topic of CM either through supplier selection or through supplier development [5], [9], [10].

This paper aims to provide an overview and

classification by conducting a systematic review of the dispersed academic literature on social assessment and management, and an analysis of the identified approaches regarding their applicability to assess and manage CMs.

II. METHODOLOGY

This systematic literature review followed the steps outlined by Tranfield et al. [11]. Using the search string “(“Conflict Mineral*” OR “Blood Mineral*”) AND (“Social assess*” OR “Social responsib*” OR “Social perform*” OR “ethic*” OR (“supply chain*” AND “Social”) OR (“manag*” AND “social*))” a total of 487 publications from the databases Ebsco Business Source Premier, Emerald, JSTOR, Science Direct, Scopus, Springer Link, Wiley and Web of Science were identified. After excluding non-academic articles, books and conference proceedings (51), duplicates (73) and articles not in English (4), a content-based review of title and abstract identified 150 relevant entries, further narrowed down by an in-depth content review to 109 relevant publications dealing with social assessment and management of conflict minerals in supply chains. Based on the quantitative findings, the papers are analysed qualitatively with regard to scope, theory applied and methods proposed.

III. FINDINGS

The systematic literature review identified first publications covering CM in 2011, shortly after the notion ‘conflict mineral’ was introduced with the Dodd-Frank Act in 2010. Since then, a growing number of articles has been published with a total of 63 papers (58%).

The review reveals that the topic of CM is not addressed by a particular academic field but that various authors from a wide range of disciplines such as ethics, sustainability, CSR, social reporting and law have contributed. This diversity seems to reflect the topic’s relative novelty. The identified publications proposed 31 social assessment and 28 social management methods in relation to CM. While 76 articles (70%) reference conflict minerals as a potential aspect for the application of their social assessment or management approach, only 33 papers (30%) set their main focus on conflict minerals. The variety of methods and difference in focus reflects the authors’ interdisciplinary background and corresponds with the three most frequently discussed approaches: the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (39 articles, 36%), which is discussed in the Dodd-Frank Act on CM, followed by two not CM-specific tools, Life-Cycle Assessment (16 articles, 15%) which is applied in a variety of contexts and the Kimberley

Process Certification Scheme (16 articles, 15%) that was developed for the application in the diamond industry to prevent conflict related diamond trade.

IV. DISCUSSION

The increasing need for companies to assess, disclose and manage CM and related issues, spurs the demand for effective assessment and management methods that support companies in increasing transparency and improving the social conditions in their mineral supply chains. Regarding the social assessment and management methods proposed in the existing literature, two distinct categories are identified that differ in being either CM-specific or non-CM-specific in the assessment or management of supply chains. Supply chain management methods can furthermore support the supply chain strategies of for supplier selection or supplier development. By combining CM specificity with the supplier strategy a framework with eight areas of application is developed to classify and characterise the methods identified in the literature review.

Despite the fact that the Dodd-Frank Act emphasizes the relevance of CMs' origin and a number of academic publications on the topic, no CM-specific method to identify the origin of CM has been developed so far. This shows that the available methods do not adequately meet current needs in corporate and legal practice, which reveals a need for developing approaches that address this gap.

Furthermore, the results show that publications on non-CM-specific approaches mentioning CM as one of many areas of (potential) application clearly outnumber the CM-specific methods. This implies that future research might want to examine the potential of transferring generic methods to assess and manage CMs. At the same time, transferring these general approaches may fall short of addressing critical CM-specific issues. This requires further research on the transferability, necessary conditions for successful transfer and, adaptations of existing methods as well as the development of fundamentally new approaches.

V. CONCLUSION

The systematic review of the academic literature reveals a range of social assessment and management methods for CM and increasing numbers of publications annually. Although the current discussion is driven by the need of companies to answer to recent legislation, no dominant method has emerged or been promoted by academia so far. Since these methods emerged from different disciplines and have been published in a wide range of journals, interdisciplinary research is required to develop a comprehensive approach. To effectively advance the transparency and state of human rights and labour conditions in supply chains, methods should focus more specifically on the particular challenges that CM issues pose. This can be achieved either by further developing existing, non-CM-specific tools, or by creating new ones. Thus, research could benefit from a stronger practice-focus and case studies.

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