Journal of Cleaner Production 18 (2010) 1553–1562

Contents lists available at ScienceDirect

Journal of Cleaner Production

journal homepage: www.elsevier.com/locate/jclepro

Mining, water and human rights: making the connection

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ARTICLE INFO

Article history:
Received 22 March 2010
Received in revised form
8 June 2010
Accepted 12 June 2010
Available online 23 June 2010

Keywords:
Water
Environmental management
Mining
Human rights
Social impacts
Sustainable development

ABSTRACT

The minerals industry interacts with water in many different ways that can affect the environment and communities. In the context of emerging debates about the status of access to water as a distinct human right and the mining industry's engagement with human rights discourses, this article highlights points of disconnection between technical, scientific and engineering-based approaches to water management on the one hand and human rights perspectives on the other. We argue that greater understanding and emphasis on the intersecting nature of water and human rights is important from a sustainable development perspective. Better connections will increase the likelihood that mining companies will respect human rights, avoid or mitigate adverse social and environmental risks that occur through their interaction with water and collaboratively identify water-related development opportunities. Discursive, organisational, political and conceptual barriers of these various disconnects are considered and strategies for strengthening points of connection provided.

1. Introduction

Access to water is recognized as a precondition of the fulfilment of universal human rights and indispensable for leading a life with dignity (de Albuquerque, 2009a,b; WEF, 2009; CESCR, 2002a). At the same time, water security is essential to the business of mining. Consequently, the operational needs of mining and the human rights of local people intersect in complex and sometimes conflicting ways (Bebbington et al., 2008; Bebbington and Williams, 2008; Bridge 2004). Despite increased commitment to sustainable development (SD) by parts of the mining industry, which includes responsible water management and respect for human rights, these themes are being addressed along parallel but largely disconnected tracks. We argue that failing to adequately understand this intersection not only flies in the face of corporate commitments to SD, but may also increase the social and human rights risks that mining poses to local communities. In turn, this can expose the industry to reputational, production and/or financial risks as a result of company-community conflict that delays or halts operations, or when litigation ensues based on community claims of corporate human rights abuses. Globally, water is one of the most critical sustainability issues facing the mining industry (Moran, 2006; Moran et al., 2008; Bridge, 2004), therefore, bridging work that genuinely connects technical, scientific and engineering-based approaches to water management with human rights perspectives is needed.

To underscore the disconnects and highlight the potential for the industry to make stronger connections between mining, water and human rights, we address the following six questions: What are the mining industry's main interactions with water? What are human rights and how do they relate to water interactions in mining? Where is there evidence of disconnects? Why do disconnects exist? How can emerging technical frameworks strengthen connections between water management and human rights in mining? What more can be done to advance further points of connection? In answering these questions, we suggest some pathways forward as a response to some of the ingrained structural, political and professional challenges involved.

We ask these questions within a broader framework of mining and SD, within which water management and human rights have become conceptually embedded (ICMM, 2003). There has been lengthy debate on SD and mining in scholarly literature. Hilson and Murck (2000) note the proliferation of SD guidelines on various aspects of SD, including: environmental and socioeconomic impacts, waste management, cleaner technology and community partnerships. Their larger concern, however, is that many SD frameworks lack clear pathways towards implementation at the

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doi:10.1016/j.jclepro.2010.06.008

mine site level. Alongside industry engagement with SD as a frame of reference, powerful public sector actors, such as The World Bank Group, also exercise influence in how minerals operations develop their assets (Cooney, 2004). The contest over who is the proper arbiter for regulating and determining SD practices in the minerals industry continues today (Gifford et al., 2010; Whitmore, 2006). In this paper we do not seek to explore or resolve the complex of questions related to mining and SD, but we do recognize the significant and ongoing contestations in this area of scholarship.

2. What are the mining industry's main interactions with water?

The minerals industry uses water for processing and transport of ore and waste, minerals separation, dust suppression, washing of equipment and human consumption (DRET, 2008; Mudd, 2008; van Berkel, 2007; Bridge, 2004). Extraction from surface and groundwater can directly impact ecosystems, and result in competition for access with other water users, particularly in the presence of alternate industries. Even in cases where an operation benefits from high average rainfall, there can be instances of local and punctual water scarcity. To ensure a secure water supply (input) most mining operations must store water in dams or mining voids. In wet climates, or situations of water abundance, extreme rainfall events can cause these storage facilities to discharge surplus water, often contaminated, into local waterways, which can have severe social and environmental consequences.

Mining also disposes of waste and wastewater (output) once valuable commodities have been extracted. Waste rock dumps and conventional tailings facilities are the most common methods of managing mine waste. Failure of these facilities can devastate local water endowments upon which local communities rely, such as the tailings dam disaster of Marcopper at Marinduque in the Philippines (Coumans, 2002; Plumlee et al., 2000). While atypical, examples exist of mining waste that has been directly disposed into rivers, oceans and lakes, particularly in circumstances where rugged topography, high rainfall, seismic activity, high groundwater levels, the lack of 'cross-valley' locations, or the absence of suitable embankment material preclude the impoundment of tailings (Franks et al., 2009a).[1] Direct disposal has the potential to result in widespread water contamination, as at the El Salvador Mine, Chile (UNEP, 1997).

Waterways and groundwater can be affected by the various landscape transformations that result from mining (Franks, 2007; Loeb, 2007; Bridge, 2004). One example is mining voids; both open and underground pits that commonly extend below the water table and require dewatering. Mine dewatering can cause drawdown of the water table in instances where naturally occurring recharge is not sufficient to replenish water used by mining. Younger et al. (2002) points to the documented consequences of decreases in natural storage of groundwater decrease in natural recharge of aquifers (drying-up of springs) and decrease in rate of natural groundwater discharge to streams.

Water endowments can also be affected by acid and metalliferous drainage (AMD), which can occur when minerals associated with ore bodies decompose in the surficial environment. Mining activities trigger this phenomenon by exposing walls of open pits, underground structures, and crushed waste rock and tailings to water and oxygen, which can generate AMD containing a number of potentially harmful constituents. AMD is among the most serious and potentially enduring legacies of the mining industry throughout the world (DRET, 2007; Akcil and Koldas, 2006). There are also numerous examples where use of chemicals and reagents in mineral processing, such as the use of cyanide in gold extraction, have had negative effects on waterways and groundwater.

Landscape management issues are also implicated in relation to mining's interaction with water, including sensitivity to the role of water within ecosystems. When mining operations interrupt natural water cycles, biodiversity and organism lifecycles can be profoundly affected. Responsible mining companies must recognize that it is not enough to simply manage the consequences of these interruptions during active operations. They must also attend to cumulative impacts (Franks et al., 2009b; Franks et al., in press), the broader implications of river and runoff diversions, as well as closure and rehabilitation when careful stewardship of the legacy of mines must be managed over the long-term (Heikkinen et al., 2008). We support the idea that corporate responsibility must extend beyond ecological considerations to also include social aspects (Bridge, 2004), including human rights.

From the above, it is clear that mining's interaction with water involves a complex of activities as part of the core business of mining. These activities also exist within diverse social and ecological contexts and as such, have the potential to lead to multi-dimensional conflicts with community stakeholders. In addition to core activities, mining companies can either provide water, or enable local community access to water, through infrastructure and services as part of social or community investment strategies. Water provision and access can be for potable or drinking water in the domestic sphere, such as at the Tolukuma mine in Papua New Guinea when riverine water became compromized due to mining activities (Miles and Trip, 2007); or it may be for agricultural or industrial purposes, as at the Yanacocha site in Peru (Newmont Corporation, 2008). Water supply can also be part of local-level agreements, for example, dewatering associated with the El Dorado mine in El Salvador (PacRim Mining, 2010). In the following section we explore the relationship between the mining industry's interaction with water and human rights discourses.

3. What are human rights and how do they relate to water interactions in mining?

International human rights law covers a wide range of considerations. In broad terms, civil and political rights are associated with physical security, such as freedom from torture or arbitrary detention, the right to a fair trial, freedom of religion and free speech. Economic, social and cultural rights include considerations such as the right to a livelihood, to participate in the cultural life of a community, the right to a fair wage, the right to health care and other social services, the right to family life and freedom from gender and other types of discrimination. There are a number of human rights which are not explicitly enshrined in international law as distinct rights, but are expressed in internationally agreed frameworks. The right of 'access to water' is one such right. Although the right to access water is not itself recognized in international law as a distinct right, it is a component part of the right to health and the right to life. The status of this right is debated internationally and it has the potential to become an explicit right in the future. Recognition of access to water as a distinct human right in international law would have significant implications for the mining industry, beyond their existing policy commitments, which typically relate to a fuller suite of human

[1] Submarine tailings disposal (STD) refers to the direct discharge of mine process tailings into the ocean. There are two distinct types of STD. The first is the disposal of wastes at the ocean surface. The second type of STD is the disposal of wastes at depth, below the maximum depth of the surface mixing layer the euphotic zone and the upwelling zone. This type of tailings disposal is known as deep sea tailings placement (DSTP). Riverine tailings disposal (RTD) is the direct discharge of mine process tailings into rivers. In addition to marine disposal, mining wastes have also been disposed into lakes (LTD) (Franks et al., 2009a: pp. 8–9).